APPENDIX F

SITE PHOTOGRAPHS



Cascade performing decontamination procedures on core barrels prior to drilling operations.



EA taking rinsate samples prior to drilling operations.



Soil being transferred from core barrel to core bag.



Core run in labeled core bags in labeled core boxes.



Core being photographed before UV scan.



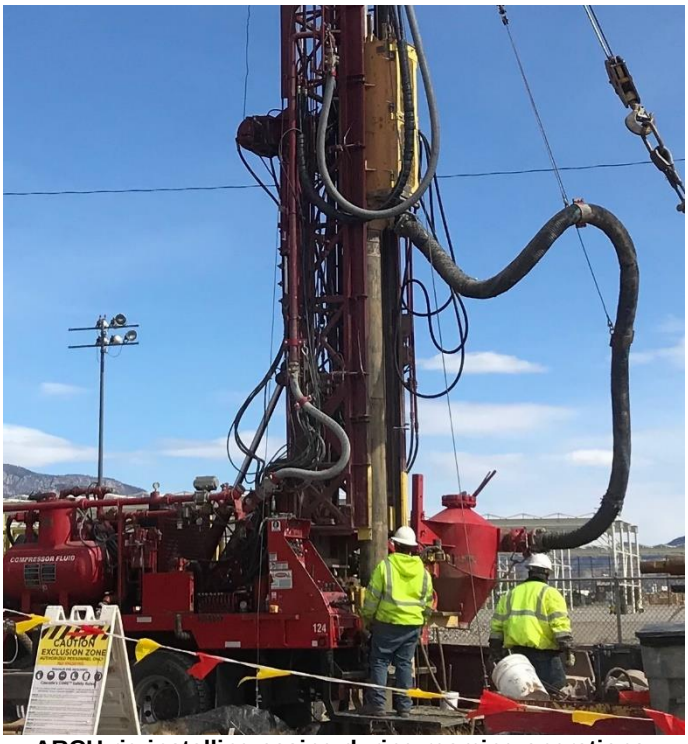
Core being logged by field geologist.



Cuttings laid out for logging during ARCH drilling.



Dry ice used to keep cores within temperature parameters.



ARCH rig installing casing during reaming operations.



Well construction.



Swabbing of well prior to well development.



Core storage in refrigerated truck.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115294-1
Client Project/Site: Kirtland BFF Vadose Zone Coring
Revision: 1

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/15/2018 7:20:30 PM

Darlene Bandy, Project Manager I
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
M	Manual integrated compound.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.

GC VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115294-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: EA Engineering, Science, and Technology
Project: Kirtland BFF Vadose Zone Coring
Report Number: 280-115294-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Revision 1 - 11/5/2018
Revision 1 was created to correct the QC association for 8260B, as the samples were linked to the wrong QC in the original reports. The narrative was also corrected in regards to flagging method blank detections and discrepancies. Only the Level 2 and Level 4 reports are affected, as these reports were sent before the EDDs were checked.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/10/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

Samples P-S9-061018-102 and P-S9-071018-174 were received, but not documented on the chain of custody. Samples were labeled for GRO analysis and have been logged as such.

DI Terracores were received outside of the 48hr hold time. Samples were frozen upon receipt on 10/10/18 at 1312. As instructed by the client, the laboratory proceeded with analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-S9-061018-102 (280-115294-2) and V-S9-071018-174 (280-115294-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/06/2018 and 10/07/2018 and analyzed on 10/15/2018.

DI Terracores were received outside of the 48hr hold time. Samples were frozen upon receipt on 10/10/18 at 1312. As instructed by the client, the laboratory proceeded with analysis.

2-Butanone (MEK) and Acetone were detected in method blank MB 280-433445/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and hve been flagged "J". However, because the method blank concentration for 2-Butanone (MEK) was less than ½ the reporting limit (LOQ), and because the associated samples were either non-detect or >10x the method blank concentration for Acetone, no corrective action was necessary,.

The continuing calibration verification (CCV) associated with batch 280-433403 recovered above the upper control limit for 2-Hexanone. All associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S9-091018-01 (280-115294-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 10/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-115294-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

EDB AND DBCP - Solid
Samples V-S9-061018-102 (280-115294-2) and V-S9-071018-174 (280-115294-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/16/2018 and 10/17/2018 and analyzed on 10/18/2018.

Ethylene Dibromide failed the recovery criteria low for the MS/MSD of sample V-S9-061018-102 (280-115294-2) in batch 280-434037. Associated results have been flagged "J1". Refer to the QC report for details.

Surrogate recovery for the following QC samples were outside the upper control limit of 130%: (CCV 280-434037/14) and (CCVRT 280-434037/1). Associated results have been flagged "Q". This associated samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The continuing calibration verification (CCV) associated with batch 280-434037 recovered above the upper control limit for 1,2-Dibromoethane. Associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE PETROLEUM HYDROCARBONS - GRO (GC) - Solid
Samples P-S9-061018-102 (280-115294-3) and P-S9-071018-174 (280-115294-5) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 10/06/2018 and 10/07/2018 and analyzed on 10/19/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-434127/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". However, because the result concentration was less than ½ the reporting limit, no corrective action was necessary.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S9-091018-01 (280-115294-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO) - Solid
Samples V-S9-061018-102 (280-115294-2) and V-S9-071018-174 (280-115294-4) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/12/2018 and analyzed on 10/14/2018 and 10/15/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-433046/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". However, because the result concentration was less than ½ the reporting limit, no corrective action was necessary.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples V-S9-061018-102 (280-115294-2), P-S9-061018-102 (280-115294-3), V-S9-071018-174 (280-115294-4) and P-S9-071018-174 (280-115294-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/11/2018 and 10/22/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Client Sample ID: TB-S9-091018-01 — Lab Sample ID: 280-115294-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.0	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	16	J M	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S9-061018-102 — Lab Sample ID: 280-115294-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.6	J	8.4	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S9-061018-102 — Lab Sample ID: 280-115294-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.80	J	1.8	1.7	0.49	mg/Kg	1	☼	8015D GRO	Total/NA

Client Sample ID: V-S9-071018-174 — Lab Sample ID: 280-115294-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	750	B	28	18	7.5	ug/Kg	1	☼	8260B	Total/NA
Benzene	11		7.0	2.2	0.66	ug/Kg	1	☼	8260B	Total/NA
Toluene	17		7.0	2.2	0.97	ug/Kg	1	☼	8260B	Total/NA
Diesel Range Organics [C10-C28]	3.1	J	12	5.8	2.0	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S9-071018-174 — Lab Sample ID: 280-115294-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.1	J	2.2	2.0	0.60	mg/Kg	1	☼	8015D GRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115294-1	TB-S9-091018-01	Water	10/09/18 17:30	10/10/18 09:00
280-115294-2	V-S9-061018-102	Solid	10/06/18 15:40	10/10/18 09:00
280-115294-3	P-S9-061018-102	Solid	10/06/18 15:40	10/10/18 09:00
280-115294-4	V-S9-071018-174	Solid	10/07/18 13:30	10/10/18 09:00
280-115294-5	P-S9-071018-174	Solid	10/07/18 13:30	10/10/18 09:00

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-091018-01
Date Collected: 10/09/18 17:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115294-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**3.0**	**J**	10	6.4	1.9	ug/L		10/18/18 00:23	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/18/18 00:23	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/18/18 00:23	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/18/18 00:23	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/18/18 00:23	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/18/18 00:23	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/18/18 00:23	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/18/18 00:23	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/18/18 00:23	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/18/18 00:23	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/18/18 00:23	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/18/18 00:23	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/18/18 00:23	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/18/18 00:23	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/18/18 00:23	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/18/18 00:23	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/18/18 00:23	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/18/18 00:23	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/18/18 00:23	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/18/18 00:23	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/18/18 00:23	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/18/18 00:23	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/18/18 00:23	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/18/18 00:23	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/18/18 00:23	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/18/18 00:23	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/18/18 00:23	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/18/18 00:23	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/18/18 00:23	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/18/18 00:23	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/18/18 00:23	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		10/18/18 00:23	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/18/18 00:23	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/18/18 00:23	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/18/18 00:23	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-091018-01
Date Collected: 10/09/18 17:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/18/18 00:23	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/18/18 00:23	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/18/18 00:23	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/18/18 00:23	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/18/18 00:23	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/18/18 00:23	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/18/18 00:23	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/18/18 00:23	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/18/18 00:23	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/18/18 00:23	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/18/18 00:23	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/18/18 00:23	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/18/18 00:23	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/18/18 00:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*10/18/18 00:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*81*		*81 - 118*		*10/18/18 00:23*	*1*
4-Bromofluorobenzene (Surr)	*103*		*85 - 114*		*10/18/18 00:23*	*1*
Dibromofluoromethane (Surr)	*91*		*80 - 119*		*10/18/18 00:23*	*1*

Client Sample ID: V-S9-061018-102
Date Collected: 10/06/18 15:40
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-2
Matrix: Solid
Percent Solids: 94.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.0	U	6.3	2.0	0.71	ug/Kg	☼	10/15/18 15:30	1
1,1,1-Trichloroethane	2.0	U	6.3	2.0	0.66	ug/Kg	☼	10/15/18 15:30	1
1,1,2,2-Tetrachloroethane	2.0	U	6.3	2.0	0.77	ug/Kg	☼	10/15/18 15:30	1
1,1,2-Trichloroethane	4.0	U	6.3	4.0	1.1	ug/Kg	☼	10/15/18 15:30	1
1,1-Dichloroethane	1.0	U	6.3	1.0	0.26	ug/Kg	☼	10/15/18 15:30	1
1,1-Dichloroethene	2.0	U	6.3	2.0	0.74	ug/Kg	☼	10/15/18 15:30	1
1,1-Dichloropropene	2.0	U	6.3	2.0	0.68	ug/Kg	☼	10/15/18 15:30	1
1,2,3-Trichlorobenzene	2.0	U	6.3	2.0	0.95	ug/Kg	☼	10/15/18 15:30	1
1,2,3-Trichloropropane	4.0	U	6.3	4.0	1.0	ug/Kg	☼	10/15/18 15:30	1
1,2,4-Trichlorobenzene	2.0	U	6.3	2.0	0.92	ug/Kg	☼	10/15/18 15:30	1
1,2,4-Trimethylbenzene	4.0	U	6.3	4.0	0.73	ug/Kg	☼	10/15/18 15:30	1
1,2-Dibromo-3-Chloropropane	2.0	U	13	2.0	0.76	ug/Kg	☼	10/15/18 15:30	1
1,2-Dichlorobenzene	2.0	U	6.3	2.0	0.57	ug/Kg	☼	10/15/18 15:30	1
1,2-Dichloroethane	2.0	U	6.3	2.0	0.88	ug/Kg	☼	10/15/18 15:30	1
1,2-Dichloroethene, Total	2.0	U	6.3	2.0	0.49	ug/Kg	☼	10/15/18 15:30	1
1,2-Dichloropropane	2.0	U	6.3	2.0	0.69	ug/Kg	☼	10/15/18 15:30	1
1,3,5-Trimethylbenzene	2.0	U	6.3	2.0	0.72	ug/Kg	☼	10/15/18 15:30	1
1,3-Dichlorobenzene	2.0	U	6.3	2.0	0.61	ug/Kg	☼	10/15/18 15:30	1
1,3-Dichloropropane	2.0	U	6.3	2.0	0.64	ug/Kg	☼	10/15/18 15:30	1
1,4-Dichlorobenzene	2.0	U	6.3	2.0	0.98	ug/Kg	☼	10/15/18 15:30	1
2,2-Dichloropropane	2.0	U	6.3	2.0	0.55	ug/Kg	☼	10/15/18 15:30	1
2-Butanone (MEK)	8.1	U	25	8.1	2.3	ug/Kg	☼	10/15/18 15:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-061018-102
Date Collected: 10/06/18 15:40
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115294-2
Matrix: Solid
Percent Solids: 94.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	2.0	U	6.3	2.0	0.64	ug/Kg	☼	10/15/18 15:30	1
2-Hexanone	16	U Q	25	16	6.2	ug/Kg	☼	10/15/18 15:30	1
4-Chlorotoluene	2.0	U	6.3	2.0	0.98	ug/Kg	☼	10/15/18 15:30	1
4-Isopropyltoluene	2.0	U	6.3	2.0	0.62	ug/Kg	☼	10/15/18 15:30	1
4-Methyl-2-pentanone (MIBK)	16	U	25	16	5.5	ug/Kg	☼	10/15/18 15:30	1
Acetone	16	U	25	16	6.8	ug/Kg	☼	10/15/18 15:30	1
Benzene	2.0	U	6.3	2.0	0.59	ug/Kg	☼	10/15/18 15:30	1
Bromobenzene	2.0	U	6.3	2.0	0.62	ug/Kg	☼	10/15/18 15:30	1
Bromoform	1.0	U	6.3	1.0	0.29	ug/Kg	☼	10/15/18 15:30	1
Bromomethane	2.0	U	13	2.0	0.63	ug/Kg	☼	10/15/18 15:30	1
Carbon disulfide	2.0	U	6.3	2.0	0.53	ug/Kg	☼	10/15/18 15:30	1
Carbon tetrachloride	2.0	U	6.3	2.0	0.79	ug/Kg	☼	10/15/18 15:30	1
Chlorobenzene	2.0	U	6.3	2.0	0.68	ug/Kg	☼	10/15/18 15:30	1
Bromochloromethane	1.0	U	6.3	1.0	0.38	ug/Kg	☼	10/15/18 15:30	1
Dibromochloromethane	2.0	U	6.3	2.0	0.72	ug/Kg	☼	10/15/18 15:30	1
Chloroethane	4.0	U	13	4.0	1.1	ug/Kg	☼	10/15/18 15:30	1
Chloroform	1.0	U	13	1.0	0.37	ug/Kg	☼	10/15/18 15:30	1
Chloromethane	2.0	U	13	2.0	0.97	ug/Kg	☼	10/15/18 15:30	1
cis-1,2-Dichloroethene	2.0	U	6.3	2.0	0.71	ug/Kg	☼	10/15/18 15:30	1
cis-1,3-Dichloropropene	4.0	U	6.3	4.0	1.6	ug/Kg	☼	10/15/18 15:30	1
Dibromomethane	4.0	U	6.3	4.0	1.1	ug/Kg	☼	10/15/18 15:30	1
Bromodichloromethane	1.0	U	6.3	1.0	0.28	ug/Kg	☼	10/15/18 15:30	1
Dichlorodifluoromethane	2.0	U	13	2.0	0.66	ug/Kg	☼	10/15/18 15:30	1
Ethylbenzene	2.0	U	6.3	2.0	0.84	ug/Kg	☼	10/15/18 15:30	1
Ethylene Dibromide	2.0	U	6.3	2.0	0.66	ug/Kg	☼	10/15/18 15:30	1
Hexachlorobutadiene	2.0	U	6.3	2.0	0.69	ug/Kg	☼	10/15/18 15:30	1
Isopropylbenzene	2.0	U	6.3	2.0	0.74	ug/Kg	☼	10/15/18 15:30	1
Methyl tert-butyl ether	1.0	U	25	1.0	0.43	ug/Kg	☼	10/15/18 15:30	1
Methylene Chloride	4.0	U M	6.3	4.0	2.0	ug/Kg	☼	10/15/18 15:30	1
m-Xylene & p-Xylene	4.0	U	4.0	4.0	1.3	ug/Kg	☼	10/15/18 15:30	1
Naphthalene	2.0	U	6.3	2.0	0.79	ug/Kg	☼	10/15/18 15:30	1
n-Butylbenzene	2.0	U	6.3	2.0	0.71	ug/Kg	☼	10/15/18 15:30	1
N-Propylbenzene	2.0	U	6.3	2.0	0.73	ug/Kg	☼	10/15/18 15:30	1
o-Xylene	2.0	U	6.3	2.0	0.77	ug/Kg	☼	10/15/18 15:30	1
sec-Butylbenzene	2.0	U	6.3	2.0	0.97	ug/Kg	☼	10/15/18 15:30	1
Styrene	2.0	U	6.3	2.0	0.79	ug/Kg	☼	10/15/18 15:30	1
tert-Butylbenzene	2.0	U	6.3	2.0	0.63	ug/Kg	☼	10/15/18 15:30	1
Tetrachloroethene	2.0	U	6.3	2.0	0.74	ug/Kg	☼	10/15/18 15:30	1
Toluene	2.0	U	6.3	2.0	0.87	ug/Kg	☼	10/15/18 15:30	1
trans-1,2-Dichloroethene	1.0	U	6.3	1.0	0.49	ug/Kg	☼	10/15/18 15:30	1
trans-1,3-Dichloropropene	2.0	U	6.3	2.0	0.84	ug/Kg	☼	10/15/18 15:30	1
Trichloroethene	1.0	U	6.3	1.0	0.29	ug/Kg	☼	10/15/18 15:30	1
Trichlorofluoromethane	4.0	U	13	4.0	1.3	ug/Kg	☼	10/15/18 15:30	1
Vinyl chloride	4.0	U	6.3	4.0	1.7	ug/Kg	☼	10/15/18 15:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*85 - 116*	*10/06/18 15:40*	*10/15/18 15:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*	*10/06/18 15:40*	*10/15/18 15:30*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*10/06/18 15:40*	*10/15/18 15:30*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*10/06/18 15:40*	*10/15/18 15:30*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Client Sample ID: V-S9-071018-174
Date Collected: 10/07/18 13:30
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115294-4
Matrix: Solid
Percent Solids: 66.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.2	U	7.0	2.2	0.79	ug/Kg	☼	10/15/18 15:50	1
1,1,1-Trichloroethane	2.2	U	7.0	2.2	0.73	ug/Kg	☼	10/15/18 15:50	1
1,1,2,2-Tetrachloroethane	2.2	U	7.0	2.2	0.86	ug/Kg	☼	10/15/18 15:50	1
1,1,2-Trichloroethane	4.5	U	7.0	4.5	1.2	ug/Kg	☼	10/15/18 15:50	1
1,1-Dichloroethane	1.1	U	7.0	1.1	0.29	ug/Kg	☼	10/15/18 15:50	1
1,1-Dichloroethene	2.2	U	7.0	2.2	0.83	ug/Kg	☼	10/15/18 15:50	1
1,1-Dichloropropene	2.2	U	7.0	2.2	0.76	ug/Kg	☼	10/15/18 15:50	1
1,2,3-Trichlorobenzene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	10/15/18 15:50	1
1,2,3-Trichloropropane	4.5	U	7.0	4.5	1.1	ug/Kg	☼	10/15/18 15:50	1
1,2,4-Trichlorobenzene	2.2	U	7.0	2.2	1.0	ug/Kg	☼	10/15/18 15:50	1
1,2,4-Trimethylbenzene	4.5	U	7.0	4.5	0.81	ug/Kg	☼	10/15/18 15:50	1
1,2-Dibromo-3-Chloropropane	2.2	U	14	2.2	0.84	ug/Kg	☼	10/15/18 15:50	1
1,2-Dichlorobenzene	2.2	U	7.0	2.2	0.63	ug/Kg	☼	10/15/18 15:50	1
1,2-Dichloroethane	2.2	U	7.0	2.2	0.98	ug/Kg	☼	10/15/18 15:50	1
1,2-Dichloroethene, Total	2.2	U	7.0	2.2	0.55	ug/Kg	☼	10/15/18 15:50	1
1,2-Dichloropropane	2.2	U	7.0	2.2	0.77	ug/Kg	☼	10/15/18 15:50	1
1,3,5-Trimethylbenzene	2.2	U	7.0	2.2	0.80	ug/Kg	☼	10/15/18 15:50	1
1,3-Dichlorobenzene	2.2	U	7.0	2.2	0.67	ug/Kg	☼	10/15/18 15:50	1
1,3-Dichloropropane	2.2	U	7.0	2.2	0.72	ug/Kg	☼	10/15/18 15:50	1
1,4-Dichlorobenzene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	10/15/18 15:50	1
2,2-Dichloropropane	2.2	U	7.0	2.2	0.62	ug/Kg	☼	10/15/18 15:50	1
2-Butanone (MEK)	9.0	U	28	9.0	2.6	ug/Kg	☼	10/15/18 15:50	1
2-Chlorotoluene	2.2	U	7.0	2.2	0.72	ug/Kg	☼	10/15/18 15:50	1
2-Hexanone	18	U Q	28	18	6.9	ug/Kg	☼	10/15/18 15:50	1
4-Chlorotoluene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	10/15/18 15:50	1
4-Isopropyltoluene	2.2	U	7.0	2.2	0.69	ug/Kg	☼	10/15/18 15:50	1
4-Methyl-2-pentanone (MIBK)	18	U	28	18	6.1	ug/Kg	☼	10/15/18 15:50	1
Acetone	**750**	**B**	28	18	7.5	ug/Kg	☼	10/15/18 15:50	1
Benzene	**11**		7.0	2.2	0.66	ug/Kg	☼	10/15/18 15:50	1
Bromobenzene	2.2	U	7.0	2.2	0.69	ug/Kg	☼	10/15/18 15:50	1
Bromoform	1.1	U	7.0	1.1	0.32	ug/Kg	☼	10/15/18 15:50	1
Bromomethane	2.2	U	14	2.2	0.70	ug/Kg	☼	10/15/18 15:50	1
Carbon disulfide	2.2	U	7.0	2.2	0.59	ug/Kg	☼	10/15/18 15:50	1
Carbon tetrachloride	2.2	U	7.0	2.2	0.88	ug/Kg	☼	10/15/18 15:50	1
Chlorobenzene	2.2	U	7.0	2.2	0.76	ug/Kg	☼	10/15/18 15:50	1
Bromochloromethane	1.1	U	7.0	1.1	0.42	ug/Kg	☼	10/15/18 15:50	1
Dibromochloromethane	2.2	U	7.0	2.2	0.80	ug/Kg	☼	10/15/18 15:50	1
Chloroethane	4.5	U	14	4.5	1.2	ug/Kg	☼	10/15/18 15:50	1
Chloroform	1.1	U	14	1.1	0.41	ug/Kg	☼	10/15/18 15:50	1
Chloromethane	2.2	U	14	2.2	1.1	ug/Kg	☼	10/15/18 15:50	1
cis-1,2-Dichloroethene	2.2	U	7.0	2.2	0.79	ug/Kg	☼	10/15/18 15:50	1
cis-1,3-Dichloropropene	4.5	U	7.0	4.5	1.8	ug/Kg	☼	10/15/18 15:50	1
Dibromomethane	4.5	U	7.0	4.5	1.2	ug/Kg	☼	10/15/18 15:50	1
Bromodichloromethane	1.1	U	7.0	1.1	0.31	ug/Kg	☼	10/15/18 15:50	1
Dichlorodifluoromethane	2.2	U	14	2.2	0.73	ug/Kg	☼	10/15/18 15:50	1
Ethylbenzene	2.2	U M	7.0	2.2	0.94	ug/Kg	☼	10/15/18 15:50	1
Ethylene Dibromide	2.2	U	7.0	2.2	0.73	ug/Kg	☼	10/15/18 15:50	1
Hexachlorobutadiene	2.2	U	7.0	2.2	0.77	ug/Kg	☼	10/15/18 15:50	1
Isopropylbenzene	2.2	U	7.0	2.2	0.83	ug/Kg	☼	10/15/18 15:50	1
Methyl tert-butyl ether	1.1	U	28	1.1	0.48	ug/Kg	☼	10/15/18 15:50	1
Methylene Chloride	4.5	U M	7.0	4.5	2.2	ug/Kg	☼	10/15/18 15:50	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-071018-174
Date Collected: 10/07/18 13:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-4
Matrix: Solid
Percent Solids: 66.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	4.5	U	4.5	4.5	1.5	ug/Kg	☼	10/15/18 15:50	1
Naphthalene	2.2	U	7.0	2.2	0.88	ug/Kg	☼	10/15/18 15:50	1
n-Butylbenzene	2.2	U	7.0	2.2	0.79	ug/Kg	☼	10/15/18 15:50	1
N-Propylbenzene	2.2	U	7.0	2.2	0.81	ug/Kg	☼	10/15/18 15:50	1
o-Xylene	2.2	U	7.0	2.2	0.86	ug/Kg	☼	10/15/18 15:50	1
sec-Butylbenzene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	10/15/18 15:50	1
Styrene	2.2	U	7.0	2.2	0.88	ug/Kg	☼	10/15/18 15:50	1
tert-Butylbenzene	2.2	U	7.0	2.2	0.70	ug/Kg	☼	10/15/18 15:50	1
Tetrachloroethene	2.2	U	7.0	2.2	0.83	ug/Kg	☼	10/15/18 15:50	1
Toluene	**17**		7.0	2.2	0.97	ug/Kg	☼	10/15/18 15:50	1
trans-1,2-Dichloroethene	1.1	U	7.0	1.1	0.55	ug/Kg	☼	10/15/18 15:50	1
trans-1,3-Dichloropropene	2.2	U	7.0	2.2	0.94	ug/Kg	☼	10/15/18 15:50	1
Trichloroethene	1.1	U	7.0	1.1	0.32	ug/Kg	☼	10/15/18 15:50	1
Trichlorofluoromethane	4.5	U	14	4.5	1.5	ug/Kg	☼	10/15/18 15:50	1
Vinyl chloride	4.5	U	7.0	4.5	1.9	ug/Kg	☼	10/15/18 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*85 - 116*	*10/07/18 13:30*	*10/15/18 15:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 136*	*10/07/18 13:30*	*10/15/18 15:50*	*1*
4-Bromofluorobenzene (Surr)	*103*		*79 - 119*	*10/07/18 13:30*	*10/15/18 15:50*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 119*	*10/07/18 13:30*	*10/15/18 15:50*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-091018-01
Date Collected: 10/09/18 17:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**16**	**J M**	25	25	10	ug/L		10/16/18 20:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*	*M*	*82 - 110*		*10/16/18 20:41*	*1*

Client Sample ID: P-S9-061018-102
Date Collected: 10/06/18 15:40
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-3
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.80**	**J**	1.8	1.7	0.49	mg/Kg	☼	10/19/18 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*77 - 123*	*10/06/18 15:40*	*10/19/18 13:19*	*1*

Client Sample ID: P-S9-071018-174
Date Collected: 10/07/18 13:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-5
Matrix: Solid
Percent Solids: 67.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.1**	**J**	2.2	2.0	0.60	mg/Kg	☼	10/19/18 13:43	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*111*		*77 - 123*	*10/07/18 13:30*	*10/19/18 13:43*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-061018-102 — **Lab Sample ID: 280-115294-2**
Date Collected: 10/06/18 15:40 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 94.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U J1	0.11	0.040	0.016	ug/Kg	☼	10/18/18 18:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*93*		*55 - 130*	*10/16/18 10:53*	*10/18/18 18:27*	*1*

Client Sample ID: V-S9-071018-174 — **Lab Sample ID: 280-115294-4**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 66.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.058	U	0.15	0.058	0.023	ug/Kg	☼	10/18/18 20:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*80*		*55 - 130*	*10/17/18 11:43*	*10/18/18 20:04*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: V-S9-061018-102 — **Lab Sample ID: 280-115294-2**
Date Collected: 10/06/18 15:40 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 94.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.6**	**J**	8.4	4.2	1.4	mg/Kg	☼	10/14/18 22:27	1
Motor Oil (C20-C38)	25	U	25	25	8.2	mg/Kg	☼	10/14/18 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*82*		*45 - 130*	*10/12/18 07:24*	*10/14/18 22:27*	*1*
n-Octacosane	*85*		*25 - 162*	*10/12/18 07:24*	*10/14/18 22:27*	*1*

Client Sample ID: V-S9-071018-174 — **Lab Sample ID: 280-115294-4**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 66.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.1**	**J**	12	5.8	2.0	mg/Kg	☼	10/15/18 00:12	1
Motor Oil (C20-C38)	34	U	35	34	11	mg/Kg	☼	10/15/18 00:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*57*		*45 - 130*	*10/12/18 07:24*	*10/15/18 00:12*	*1*
n-Octacosane	*44*		*25 - 162*	*10/12/18 07:24*	*10/15/18 00:12*	*1*

General Chemistry

Client Sample ID: V-S9-061018-102 — **Lab Sample ID: 280-115294-2**
Date Collected: 10/06/18 15:40 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 94.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**5.9**		0.1	0.05	0.1	%		10/11/18 15:27	1

General Chemistry

Client Sample ID: P-S9-061018-102
Date Collected: 10/06/18 15:40
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-3
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.6		0.1	0.05	0.1	%		10/22/18 11:25	1

Client Sample ID: V-S9-071018-174
Date Collected: 10/07/18 13:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-4
Matrix: Solid
Percent Solids: 66.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	33.8		0.1	0.05	0.1	%		10/11/18 15:27	1

Client Sample ID: P-S9-071018-174
Date Collected: 10/07/18 13:30
Date Received: 10/10/18 09:00
Lab Sample ID: 280-115294-5
Matrix: Solid
Percent Solids: 67.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	32.3		0.1	0.05	0.1	%		10/22/18 11:25	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115294-2	V-S9-061018-102	92	97	101	90
280-115294-4	V-S9-071018-174	93	104	103	93
LCS 280-433445/2-A	Lab Control Sample	94	100	100	90
LCSD 280-433445/3-A	Lab Control Sample Dup	94	96	100	92
MB 280-433445/1-A	Method Blank	97	99	102	92

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115294-1	TB-S9-091018-01	99	81	103	91
LCS 280-433855/4	Lab Control Sample	95	84	93	91
MB 280-433855/6	Method Blank	95	83	102	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115294-3	P-S9-061018-102	90
280-115294-5	P-S9-071018-174	111
LCS 280-434127/2-A	Lab Control Sample	93
LCSD 280-434127/3-A	Lab Control Sample Dup	95
MB 280-434127/1-A	Method Blank	100

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115294-1	TB-S9-091018-01	91 M

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) TFT1 (82-110)
LCS 280-433621/39	Lab Control Sample	102
LCSD 280-433621/40	Lab Control Sample Dup	99
MB 280-433621/41	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) 12DBP1 (55-130)
280-115294-2	V-S9-061018-102	93
280-115294-2 MS	V-S9-061018-102	111
280-115294-2 MSD	V-S9-061018-102	102
280-115294-4	V-S9-071018-174	80
LCS 280-433609/2-A	Lab Control Sample	104
LCS 280-433779/2-A	Lab Control Sample	102
LCSD 280-433609/3-A	Lab Control Sample Dup	102
LCSD 280-433779/3-A	Lab Control Sample Dup	108
MB 280-433609/4-A	Method Blank	103
MB 280-433779/4-A	Method Blank	109

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) OTPH1 (45-130)	OTCN1 (25-162)
280-115294-2	V-S9-061018-102	82	85
280-115294-2 MS	V-S9-061018-102	83	84
280-115294-2 MS	V-S9-061018-102	92	103
280-115294-2 MSD	V-S9-061018-102	65	70
280-115294-2 MSD	V-S9-061018-102	83	93
280-115294-4	V-S9-071018-174	57	44
LCS 280-433046/2-A	Lab Control Sample	71	74
LCS 280-433046/3-A	Lab Control Sample	87	99
MB 280-433046/1-A	Method Blank	75	74

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-433445/1-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433445

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		10/15/18 11:24	1
2-Butanone (MEK)	4.83	J	20	6.4	1.8	ug/Kg		10/15/18 11:24	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		10/15/18 11:24	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		10/15/18 11:24	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		10/15/18 11:24	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		10/15/18 11:24	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		10/15/18 11:24	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		10/15/18 11:24	1
Acetone	17.4	J	20	13	5.4	ug/Kg		10/15/18 11:24	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/15/18 11:24	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		10/15/18 11:24	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		10/15/18 11:24	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		10/15/18 11:24	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		10/15/18 11:24	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		10/15/18 11:24	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		10/15/18 11:24	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		10/15/18 11:24	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		10/15/18 11:24	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		10/15/18 11:24	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		10/15/18 11:24	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		10/15/18 11:24	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		10/15/18 11:24	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		10/15/18 11:24	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		10/15/18 11:24	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		10/15/18 11:24	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		10/15/18 11:24	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		10/15/18 11:24	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		10/15/18 11:24	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		10/15/18 11:24	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		10/15/18 11:24	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		10/15/18 11:24	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		10/15/18 11:24	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		10/15/18 11:24	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		10/15/18 11:24	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		10/15/18 11:24	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		10/15/18 11:24	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		10/15/18 11:24	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		10/15/18 11:24	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		10/15/18 11:24	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		10/15/18 11:24	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		10/15/18 11:24	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		10/15/18 11:24	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		10/15/18 11:24	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		10/15/18 11:24	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		10/15/18 11:24	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		10/15/18 11:24	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		10/15/18 11:24	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		10/15/18 11:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433445/1-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433445

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		10/15/18 11:24	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		10/15/18 11:24	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		10/15/18 11:24	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		10/15/18 11:24	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		10/15/18 11:24	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		10/15/18 11:24	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/15/18 11:24	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		10/15/18 11:24	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		10/15/18 11:24	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		10/15/18 11:24	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		10/15/18 11:24	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		10/15/18 11:24	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		10/15/18 11:24	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		10/15/18 11:24	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		10/15/18 11:24	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		10/15/18 11:24	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		10/15/18 11:24	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		10/15/18 11:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*10/15/18 11:00*	*10/15/18 11:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*10/15/18 11:00*	*10/15/18 11:24*	*1*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*	*10/15/18 11:00*	*10/15/18 11:24*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*10/15/18 11:00*	*10/15/18 11:24*	*1*

Lab Sample ID: LCS 280-433445/2-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	45.3		ug/Kg		91	61 - 132
2-Butanone (MEK)	200	185		ug/Kg		93	51 - 148
1,2-Dichlorobenzene	50.0	48.5		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	50.0	47.7		ug/Kg		95	77 - 121
4-Chlorotoluene	50.0	51.1		ug/Kg		102	72 - 124
1,4-Dichlorobenzene	50.0	47.8		ug/Kg		96	75 - 120
1,1-Dichloroethane	50.0	49.6		ug/Kg		99	76 - 125
1,2-Dichloroethane	50.0	49.7		ug/Kg		99	73 - 128
Acetone	200	230		ug/Kg		115	36 - 164
1,1-Dichloroethene	50.0	50.0		ug/Kg		100	70 - 131
Benzene	50.0	47.3		ug/Kg		95	77 - 121
Bromobenzene	50.0	47.3		ug/Kg		95	78 - 121
Bromoform	50.0	45.5		ug/Kg		91	67 - 132
Bromomethane	50.0	55.0		ug/Kg		110	53 - 143
1,2-Dichloropropane	50.0	49.3		ug/Kg		99	76 - 123
Carbon disulfide	50.0	52.2		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	49.4		ug/Kg		99	77 - 121
Carbon tetrachloride	50.0	48.2		ug/Kg		96	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433445/2-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	50.0		ug/Kg		100	67 - 133
Chlorobenzene	50.0	47.8		ug/Kg		96	79 - 120
1,1-Dichloropropene	50.0	48.7		ug/Kg		97	76 - 125
Bromochloromethane	50.0	44.7		ug/Kg		89	78 - 125
Dibromochloromethane	50.0	50.2		ug/Kg		100	74 - 126
Chloroethane	50.0	60.3		ug/Kg		121	59 - 139
Chloroform	50.0	47.7		ug/Kg		95	78 - 123
2-Hexanone	200	217		ug/Kg		108	53 - 145
Chloromethane	50.0	55.2		ug/Kg		110	50 - 136
cis-1,2-Dichloroethene	50.0	47.0		ug/Kg		94	77 - 123
cis-1,3-Dichloropropene	50.0	52.7		ug/Kg		105	74 - 126
4-Isopropyltoluene	50.0	49.9		ug/Kg		100	73 - 127
Dibromomethane	50.0	46.5		ug/Kg		93	78 - 125
Bromodichloromethane	50.0	49.6		ug/Kg		99	75 - 127
4-Methyl-2-pentanone (MIBK)	200	197		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	54.6		ug/Kg		109	29 - 149
Ethylbenzene	50.0	47.9		ug/Kg		96	76 - 122
Ethylene Dibromide	50.0	49.9		ug/Kg		100	78 - 122
Hexachlorobutadiene	50.0	44.1		ug/Kg		88	61 - 135
Isopropylbenzene	50.0	51.5		ug/Kg		103	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.5		ug/Kg		99	78 - 125
Methyl tert-butyl ether	50.0	45.3		ug/Kg		91	73 - 125
1,1,2,2-Tetrachloroethane	50.0	51.0		ug/Kg		102	70 - 124
Methylene Chloride	50.0	44.2		ug/Kg		88	70 - 128
Naphthalene	50.0	47.9		ug/Kg		96	62 - 129
1,2,3-Trichlorobenzene	50.0	47.3		ug/Kg		95	66 - 130
n-Butylbenzene	50.0	52.6		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	50.0	48.5		ug/Kg		97	73 - 130
N-Propylbenzene	50.0	50.9		ug/Kg		102	73 - 125
1,1,2-Trichloroethane	50.0	43.5		ug/Kg		87	78 - 121
sec-Butylbenzene	50.0	48.7		ug/Kg		97	73 - 126
Styrene	50.0	48.6		ug/Kg		97	76 - 124
1,2,4-Trichlorobenzene	50.0	48.6		ug/Kg		97	67 - 129
tert-Butylbenzene	50.0	48.9		ug/Kg		98	73 - 125
1,2,3-Trichloropropane	50.0	50.5		ug/Kg		101	73 - 125
Tetrachloroethene	50.0	45.3		ug/Kg		91	73 - 128
1,2,4-Trimethylbenzene	50.0	50.1		ug/Kg		100	75 - 123
Toluene	50.0	44.7		ug/Kg		89	77 - 121
1,3,5-Trimethylbenzene	50.0	50.1		ug/Kg		100	73 - 124
trans-1,2-Dichloroethene	50.0	50.4		ug/Kg		101	74 - 125
trans-1,3-Dichloropropene	50.0	51.2		ug/Kg		102	71 - 130
o-Xylene	50.0	48.8		ug/Kg		98	77 - 123
Trichloroethene	50.0	46.7		ug/Kg		93	77 - 123
m-Xylene & p-Xylene	50.0	47.0		ug/Kg		94	77 - 124
Trichlorofluoromethane	50.0	50.4		ug/Kg		101	62 - 140
Vinyl chloride	50.0	57.3		ug/Kg		115	56 - 135
2-Chlorotoluene	50.0	49.5		ug/Kg		99	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433445/2-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433445

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*90*		*78 - 119*

Lab Sample ID: LCSD 280-433445/3-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433445

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	47.3		ug/Kg		95	61 - 132	4	20
2-Butanone (MEK)			200	189		ug/Kg		94	51 - 148	2	20
1,2-Dichlorobenzene			50.0	48.8		ug/Kg		98	78 - 121	1	20
1,3-Dichlorobenzene			50.0	47.8		ug/Kg		96	77 - 121	0	20
4-Chlorotoluene			50.0	50.0		ug/Kg		100	72 - 124	2	20
1,4-Dichlorobenzene			50.0	46.4		ug/Kg		93	75 - 120	3	20
1,1-Dichloroethane			50.0	48.3		ug/Kg		97	76 - 125	3	20
1,2-Dichloroethane			50.0	49.1		ug/Kg		98	73 - 128	1	20
Acetone			200	233		ug/Kg		117	36 - 164	2	20
1,1-Dichloroethene			50.0	47.3		ug/Kg		95	70 - 131	6	20
Benzene			50.0	45.7		ug/Kg		91	77 - 121	3	20
Bromobenzene			50.0	47.8		ug/Kg		96	78 - 121	1	20
Bromoform			50.0	47.4		ug/Kg		95	67 - 132	4	20
Bromomethane			50.0	50.8		ug/Kg		102	53 - 143	8	20
1,2-Dichloropropane			50.0	48.0		ug/Kg		96	76 - 123	3	20
Carbon disulfide			50.0	49.0		ug/Kg		98	63 - 132	6	20
1,3-Dichloropropane			50.0	49.1		ug/Kg		98	77 - 121	1	20
Carbon tetrachloride			50.0	45.6		ug/Kg		91	70 - 135	5	20
2,2-Dichloropropane			50.0	45.7		ug/Kg		91	67 - 133	9	20
Chlorobenzene			50.0	47.0		ug/Kg		94	79 - 120	2	20
1,1-Dichloropropene			50.0	46.8		ug/Kg		94	76 - 125	4	20
Bromochloromethane			50.0	43.9		ug/Kg		88	78 - 125	2	20
Dibromochloromethane			50.0	51.3		ug/Kg		103	74 - 126	2	20
Chloroethane			50.0	55.3		ug/Kg		111	59 - 139	9	20
Chloroform			50.0	46.2		ug/Kg		92	78 - 123	3	20
2-Hexanone			200	224		ug/Kg		112	53 - 145	3	20
Chloromethane			50.0	51.8		ug/Kg		104	50 - 136	6	20
cis-1,2-Dichloroethene			50.0	44.5		ug/Kg		89	77 - 123	6	20
cis-1,3-Dichloropropene			50.0	53.6		ug/Kg		107	74 - 126	2	20
4-Isopropyltoluene			50.0	48.9		ug/Kg		98	73 - 127	2	20
Dibromomethane			50.0	46.9		ug/Kg		94	78 - 125	1	20
Bromodichloromethane			50.0	48.9		ug/Kg		98	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)			200	204		ug/Kg		102	65 - 135	3	20
Dichlorodifluoromethane			50.0	50.9		ug/Kg		102	29 - 149	7	20
Ethylbenzene			50.0	46.3		ug/Kg		93	76 - 122	3	20
Ethylene Dibromide			50.0	50.5		ug/Kg		101	78 - 122	1	20
Hexachlorobutadiene			50.0	44.1		ug/Kg		88	61 - 135	0	20
Isopropylbenzene			50.0	48.9		ug/Kg		98	68 - 134	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-433445/3-A
Matrix: Solid
Analysis Batch: 433403

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433445

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	49.4		ug/Kg		99	78 - 125	0	20
Methyl tert-butyl ether			50.0	44.9		ug/Kg		90	73 - 125	1	20
1,1,2,2-Tetrachloroethane			50.0	51.2		ug/Kg		102	70 - 124	0	20
Methylene Chloride			50.0	42.9		ug/Kg		86	70 - 128	3	20
Naphthalene			50.0	50.0		ug/Kg		100	62 - 129	4	20
1,2,3-Trichlorobenzene			50.0	48.0		ug/Kg		96	66 - 130	2	20
n-Butylbenzene			50.0	50.3		ug/Kg		101	70 - 128	5	20
1,1,1-Trichloroethane			50.0	46.5		ug/Kg		93	73 - 130	4	20
N-Propylbenzene			50.0	50.0		ug/Kg		100	73 - 125	2	20
1,1,2-Trichloroethane			50.0	43.9		ug/Kg		88	78 - 121	1	20
sec-Butylbenzene			50.0	49.1		ug/Kg		98	73 - 126	1	20
Styrene			50.0	49.6		ug/Kg		99	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	48.2		ug/Kg		96	67 - 129	1	20
tert-Butylbenzene			50.0	48.3		ug/Kg		97	73 - 125	1	20
1,2,3-Trichloropropane			50.0	51.2		ug/Kg		102	73 - 125	1	20
Tetrachloroethene			50.0	43.7		ug/Kg		87	73 - 128	4	20
1,2,4-Trimethylbenzene			50.0	49.4		ug/Kg		99	75 - 123	1	20
Toluene			50.0	43.1		ug/Kg		86	77 - 121	4	20
1,3,5-Trimethylbenzene			50.0	49.0		ug/Kg		98	73 - 124	2	20
trans-1,2-Dichloroethene			50.0	47.1		ug/Kg		94	74 - 125	7	20
trans-1,3-Dichloropropene			50.0	50.7		ug/Kg		101	71 - 130	1	20
o-Xylene			50.0	49.1		ug/Kg		98	77 - 123	1	20
Trichloroethene			50.0	45.6		ug/Kg		91	77 - 123	2	20
m-Xylene & p-Xylene			50.0	46.0		ug/Kg		92	77 - 124	2	20
Trichlorofluoromethane			50.0	46.4		ug/Kg		93	62 - 140	8	20
Vinyl chloride			50.0	54.5		ug/Kg		109	56 - 135	5	20
2-Chlorotoluene			50.0	48.6		ug/Kg		97	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*92*		*78 - 119*

Lab Sample ID: MB 280-433855/6
Matrix: Water
Analysis Batch: 433855

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/17/18 23:22	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/17/18 23:22	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/17/18 23:22	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/17/18 23:22	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/17/18 23:22	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/17/18 23:22	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/17/18 23:22	1
Acetone	6.4	U	10	6.4	1.9	ug/L		10/17/18 23:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433855/6
Matrix: Water
Analysis Batch: 433855

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/17/18 23:22	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/17/18 23:22	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/17/18 23:22	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/17/18 23:22	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/17/18 23:22	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/17/18 23:22	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/17/18 23:22	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/17/18 23:22	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/17/18 23:22	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/17/18 23:22	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/17/18 23:22	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/17/18 23:22	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/17/18 23:22	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/17/18 23:22	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/17/18 23:22	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/17/18 23:22	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/17/18 23:22	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/17/18 23:22	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/17/18 23:22	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/17/18 23:22	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/17/18 23:22	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/17/18 23:22	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/17/18 23:22	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/17/18 23:22	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		10/17/18 23:22	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/17/18 23:22	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/17/18 23:22	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/17/18 23:22	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/17/18 23:22	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/17/18 23:22	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/17/18 23:22	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/17/18 23:22	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/17/18 23:22	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-433855/6
Matrix: Water
Analysis Batch: 433855

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/17/18 23:22	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/17/18 23:22	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/17/18 23:22	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/17/18 23:22	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/17/18 23:22	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/17/18 23:22	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/17/18 23:22	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/17/18 23:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*10/17/18 23:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*81 - 118*		*10/17/18 23:22*	*1*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*		*10/17/18 23:22*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 119*		*10/17/18 23:22*	*1*

Lab Sample ID: LCS 280-433855/4
Matrix: Water
Analysis Batch: 433855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.71	J	ug/L		94	62 - 128
2-Butanone (MEK)	20.0	18.1		ug/L		90	56 - 143
1,2-Dichlorobenzene	5.00	5.46		ug/L		109	80 - 119
1,3-Dichlorobenzene	5.00	5.84		ug/L		117	80 - 119
4-Chlorotoluene	5.00	5.81		ug/L		116	78 - 122
1,4-Dichlorobenzene	5.00	5.60		ug/L		112	79 - 118
1,1-Dichloroethane	5.00	5.04		ug/L		101	77 - 125
1,2-Dichloroethane	5.00	5.03		ug/L		101	73 - 128
Acetone	20.0	20.5		ug/L		102	39 - 160
1,1-Dichloroethene	5.00	5.94		ug/L		119	71 - 131
Benzene	5.00	5.36		ug/L		107	79 - 120
Bromobenzene	5.00	5.51		ug/L		110	80 - 120
Bromoform	5.00	5.01		ug/L		100	66 - 130
Bromomethane	5.00	6.12		ug/L		122	53 - 141
1,2-Dichloropropane	5.00	5.06		ug/L		101	78 - 122
Carbon disulfide	5.00	5.66		ug/L		113	64 - 133
1,3-Dichloropropane	5.00	4.95		ug/L		99	80 - 119
Carbon tetrachloride	5.00	5.71		ug/L		114	72 - 136
2,2-Dichloropropane	5.00	5.75		ug/L		115	60 - 139
Chlorobenzene	5.00	5.60		ug/L		112	82 - 118
1,1-Dichloropropene	5.00	5.60		ug/L		112	79 - 125
Bromochloromethane	5.00	5.42		ug/L		108	78 - 123
Dibromochloromethane	5.00	5.19		ug/L		104	74 - 126
Chloroethane	5.00	6.24		ug/L		125	60 - 138
Chloroform	5.00	5.16		ug/L		103	79 - 124
2-Hexanone	20.0	19.6		ug/L		98	57 - 139
Chloromethane	5.00	5.91		ug/L		118	50 - 139

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-433855/4
Matrix: Water
Analysis Batch: 433855

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.41		ug/L		108	78 - 123
cis-1,3-Dichloropropene	5.00	5.41		ug/L		108	75 - 124
4-Isopropyltoluene	5.00	5.86		ug/L		117	77 - 127
Dibromomethane	5.00	5.03		ug/L		101	79 - 123
Bromodichloromethane	5.00	5.03		ug/L		101	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.3		ug/L		97	67 - 130
Dichlorodifluoromethane	5.00	5.69		ug/L		114	32 - 152
Ethylbenzene	5.00	5.98		ug/L		120	79 - 121
Ethylene Dibromide	5.00	5.25		ug/L		105	77 - 121
Hexachlorobutadiene	5.00	6.19		ug/L		124	66 - 134
Isopropylbenzene	5.00	5.79		ug/L		116	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.59		ug/L		112	78 - 124
Methyl tert-butyl ether	5.00	4.84	J	ug/L		97	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	71 - 121
Methylene Chloride	5.00	4.92	J	ug/L		98	74 - 124
Naphthalene	5.00	5.21		ug/L		104	61 - 128
1,2,3-Trichlorobenzene	5.00	5.83		ug/L		117	69 - 129
n-Butylbenzene	5.00	5.84		ug/L		117	75 - 128
1,1,1-Trichloroethane	5.00	5.73		ug/L		115	74 - 131
N-Propylbenzene	5.00	6.32		ug/L		126	76 - 126
1,1,2-Trichloroethane	5.00	5.40		ug/L		108	80 - 119
sec-Butylbenzene	5.00	5.78		ug/L		116	77 - 126
Styrene	5.00	5.62		ug/L		112	78 - 123
1,2,4-Trichlorobenzene	5.00	5.99		ug/L		120	69 - 130
tert-Butylbenzene	5.00	6.04		ug/L		121	78 - 124
1,2,3-Trichloropropane	5.00	4.85		ug/L		97	73 - 122
Tetrachloroethene	5.00	6.19		ug/L		124	74 - 129
1,2,4-Trimethylbenzene	5.00	5.61		ug/L		112	76 - 124
Toluene	5.00	5.68		ug/L		114	80 - 121
1,3,5-Trimethylbenzene	5.00	5.88		ug/L		118	75 - 124
trans-1,2-Dichloroethene	5.00	5.72		ug/L		114	75 - 124
trans-1,3-Dichloropropene	5.00	5.13		ug/L		103	73 - 127
o-Xylene	5.00	5.88		ug/L		118	78 - 122
Trichloroethene	5.00	5.61		ug/L		112	79 - 123
m-Xylene & p-Xylene	5.00	5.88		ug/L		118	80 - 121
Trichlorofluoromethane	5.00	5.89		ug/L		118	65 - 141
Vinyl chloride	5.00	6.37		ug/L		127	58 - 137
2-Chlorotoluene	5.00	5.74		ug/L		115	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*95*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*84*		*81 - 118*
4-Bromofluorobenzene (Surr)	*93*		*85 - 114*
Dibromofluoromethane (Surr)	*91*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-433621/41
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/16/18 13:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/16/18 13:22*	*1*

Lab Sample ID: LCS 280-433621/39
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	109	M	ug/L		108	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*102*		*82 - 110*

Lab Sample ID: LCSD 280-433621/40
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	101	99.1	M	ug/L		98	78 - 122	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-434127/1-A
Matrix: Solid
Analysis Batch: 434419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434127

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.415	J	1.2	1.1	0.33	mg/Kg		10/22/18 18:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*77 - 123*	*10/19/18 10:53*	*10/22/18 18:11*	*1*

Lab Sample ID: LCS 280-434127/2-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434127

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.97	M	mg/Kg		109	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*93*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-434127/3-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434127

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	6.62	M	mg/Kg		120	79 - 122	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*95*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-433609/4-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433609

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/16/18 19:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*		*55 - 130*	*10/16/18 10:53*	*10/16/18 19:21*	*1*

Lab Sample ID: LCS 280-433609/2-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.875	0.611		ug/Kg		70	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*55 - 130*

Lab Sample ID: LCSD 280-433609/3-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.622		ug/Kg		71	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*102*		*55 - 130*

Lab Sample ID: 280-115294-2 MS
Matrix: Solid
Analysis Batch: 434037

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433609

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.040	U J1	0.930	0.441	J1	ug/Kg	☼	47	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: 280-115294-2 MS
Matrix: Solid
Analysis Batch: 434037

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433609

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dibromopropane	111		55 - 130

Lab Sample ID: 280-115294-2 MSD
Matrix: Solid
Analysis Batch: 434037

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433609

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.040	U J1	0.930	0.393	J1	ug/Kg	☼	42	70 - 130	11	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dibromopropane	102		55 - 130

Lab Sample ID: MB 280-433779/4-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433779

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/17/18 14:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	109		55 - 130	10/17/18 11:43	10/17/18 14:45	1

Lab Sample ID: LCS 280-433779/2-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433779

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.744		ug/Kg		85	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	102		55 - 130

Lab Sample ID: LCSD 280-433779/3-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433779

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.727		ug/Kg		83	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	108		55 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-433046/1-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433046

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.89	J	7.8	3.9	1.3	mg/Kg		10/14/18 21:23	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg		10/14/18 21:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*10/12/18 07:24*	*10/14/18 21:23*	*1*
n-Octacosane	*74*		*25 - 162*	*10/12/18 07:24*	*10/14/18 21:23*	*1*

Lab Sample ID: LCS 280-433046/2-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	120	76.4		mg/Kg		63	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*71*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

Lab Sample ID: LCS 280-433046/3-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	314		mg/Kg		100	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*87*		*45 - 130*
n-Octacosane	*99*		*25 - 162*

Lab Sample ID: 280-115294-2 MS
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	3.6	J	126	85.2		mg/Kg	☼	65	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*84*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-115294-2 MS
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	25	U	339	352		mg/Kg	☼	104	45 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*92*		*45 - 130*
n-Octacosane	*103*		*25 - 162*

Lab Sample ID: 280-115294-2 MSD
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	3.6	J	138	81.9		mg/Kg	☼	57	38 - 132	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*65*		*45 - 130*
n-Octacosane	*70*		*25 - 162*

Lab Sample ID: 280-115294-2 MSD
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: V-S9-061018-102
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	25	U	317	301		mg/Kg	☼	95	45 - 130	16	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*93*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115294-3 DU
Matrix: Solid
Analysis Batch: 434394

Client Sample ID: P-S9-061018-102
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	4.6			4.6		%				0	20

GC/MS VOA

Analysis Batch: 433403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	8260B	433445
280-115294-4	V-S9-071018-174	Total/NA	Solid	8260B	433445
MB 280-433445/1-A	Method Blank	Total/NA	Solid	8260B	433445
LCS 280-433445/2-A	Lab Control Sample	Total/NA	Solid	8260B	433445
LCSD 280-433445/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	433445

Prep Batch: 433445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	5035	
280-115294-4	V-S9-071018-174	Total/NA	Solid	5035	
MB 280-433445/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-433445/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-433445/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 433855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-1	TB-S9-091018-01	Total/NA	Water	8260B	
MB 280-433855/6	Method Blank	Total/NA	Water	8260B	
LCS 280-433855/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 433621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-1	TB-S9-091018-01	Total/NA	Water	8015D GRO	
MB 280-433621/41	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-433621/39	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-433621/40	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 434127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-3	P-S9-061018-102	Total/NA	Solid	5035	
280-115294-5	P-S9-071018-174	Total/NA	Solid	5035	
MB 280-434127/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 434148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-3	P-S9-061018-102	Total/NA	Solid	8015D GRO	434127
280-115294-5	P-S9-071018-174	Total/NA	Solid	8015D GRO	434127
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	434127
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	434127

Analysis Batch: 434419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-434127/1-A	Method Blank	Total/NA	Solid	8015D GRO	434127

GC Semi VOA

Prep Batch: 433046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	3546	
280-115294-4	V-S9-071018-174	Total/NA	Solid	3546	
MB 280-433046/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	3546	
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	3546	
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	3546	
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	3546	

Analysis Batch: 433356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	8015D DRO	433046
280-115294-4	V-S9-071018-174	Total/NA	Solid	8015D DRO	433046
MB 280-433046/1-A	Method Blank	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	8015D DRO	433046
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	8015D DRO	433046
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	8015D DRO	433046
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	8015D DRO	433046

Prep Batch: 433609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	8011	
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	8011	
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	8011	

Analysis Batch: 433627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	433609
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	433609
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433609

Prep Batch: 433779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-4	V-S9-071018-174	Total/NA	Solid	8011	
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 433800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	433779
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	433779
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433779

GC Semi VOA (Continued)

Analysis Batch: 434037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	8011	433609
280-115294-4	V-S9-071018-174	Total/NA	Solid	8011	433779
280-115294-2 MS	V-S9-061018-102	Total/NA	Solid	8011	433609
280-115294-2 MSD	V-S9-061018-102	Total/NA	Solid	8011	433609

General Chemistry

Analysis Batch: 433001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-2	V-S9-061018-102	Total/NA	Solid	Moisture	
280-115294-4	V-S9-071018-174	Total/NA	Solid	Moisture	

Analysis Batch: 434394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115294-3	P-S9-061018-102	Total/NA	Solid	Moisture	
280-115294-5	P-S9-071018-174	Total/NA	Solid	Moisture	
280-115294-3 DU	P-S9-061018-102	Total/NA	Solid	Moisture	

Client Sample ID: TB-S9-091018-01

Lab Sample ID: 280-115294-1
Date Collected: 10/09/18 17:30
Matrix: Water
Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	433855	10/18/18 00:23	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	433621	10/16/18 20:41	CAS	TAL DEN

Client Sample ID: V-S9-061018-102

Lab Sample ID: 280-115294-2
Date Collected: 10/06/18 15:40
Matrix: Solid
Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			433001	10/11/18 15:27	JDR	TAL DEN

Client Sample ID: V-S9-061018-102

Lab Sample ID: 280-115294-2
Date Collected: 10/06/18 15:40
Matrix: Solid
Date Received: 10/10/18 09:00
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.213 g	5 mL	433445	10/06/18 15:40	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	433403	10/15/18 15:30	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	433609	10/16/18 10:53	SU	TAL DEN
Total/NA	Analysis	8011		1			434037	10/18/18 18:27	MJS	TAL DEN
Total/NA	Prep	3546			15.2 g	1 mL	433046	10/12/18 07:24	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			433356	10/14/18 22:27	CSM	TAL DEN

Client Sample ID: P-S9-061018-102

Lab Sample ID: 280-115294-3
Date Collected: 10/06/18 15:40
Matrix: Solid
Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434394	10/22/18 11:25	CCJ	TAL DEN

Client Sample ID: P-S9-061018-102

Lab Sample ID: 280-115294-3
Date Collected: 10/06/18 15:40
Matrix: Solid
Date Received: 10/10/18 09:00
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.603 g	5 mL	434127	10/06/18 15:40	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434148	10/19/18 13:19	CAS	TAL DEN

Client Sample ID: V-S9-071018-174 — **Lab Sample ID: 280-115294-4**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			433001	10/11/18 15:27	JDR	TAL DEN

Client Sample ID: V-S9-071018-174 — **Lab Sample ID: 280-115294-4**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 66.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.388 g	5 mL	433445	10/07/18 13:30	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	433403	10/15/18 15:50	JLS	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	433779	10/17/18 11:43	SU	TAL DEN
Total/NA	Analysis	8011		1			434037	10/18/18 20:04	MJS	TAL DEN
Total/NA	Prep	3546			15.6 g	1 mL	433046	10/12/18 07:24	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			433356	10/15/18 00:12	CSM	TAL DEN

Client Sample ID: P-S9-071018-174 — **Lab Sample ID: 280-115294-5**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434394	10/22/18 11:25	CCJ	TAL DEN

Client Sample ID: P-S9-071018-174 — **Lab Sample ID: 280-115294-5**
Date Collected: 10/07/18 13:30 — **Matrix: Solid**
Date Received: 10/10/18 09:00 — **Percent Solids: 67.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.441 g	5 mL	434127	10/07/18 13:30	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434148	10/19/18 13:43	CAS	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115294-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

(1) Revised COC to include Sample ID for TPH-GRO -Pmoss 10/11/18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andress	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443733927553	COC No: COC1-59-TA
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose-Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-59-091018-01	10/9/18	1730	G	W	N	N						X			X		
V-59-061018-102	10/6/18	1540	G	S	N	N	X	X	X	X	X						
V-59-071018-174	10/7/18	1330	G	S	N	N	X	X	X	X	X						
P-59-061018-102	10/7/18	1540	G	S							X						
P-59-071018-174	10/7/18	1530	G	S							X						

Pmoss 10/11/18

280-115294 Chain of Custody

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 10/09/18 1900	Company: EA	Received by: Fed EX	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/10/18 0900	Company: TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.8°C IR#9 CF+0.7

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115294-1

Login Number: 115294
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	Preservation labels on samples match COC
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115297-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/15/2018 7:10:21 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115297-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115297-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/10/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-S5-091018-210 (280-115297-1) and P-S5-091018-360 (280-115297-2) were analyzed for Gasoline Range Organics (GRO) in accordance with EPA SW-846 Method 8015D - GRO. The samples were analyzed on 10/23/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-434576/9-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. The detection was greater than 1/2 the LOQ. As instructed by the client, the data have been reported.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria low for P-S5-091018-360 (280-115297-2). Associated results have been flagged "Q". As instructed by the client, the data have been qualified and reported.

Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria low for the MS of sample P-S5-091018-210 (280-115297-1) in batch 280-434594. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S5-091018-01 (280-115297-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/12/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S5-091018-210 (280-115297-1) and P-S5-091018-360 (280-115297-2) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/12/2018 and analyzed on 10/15/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-433046/1-A at a level that was above the method detection limit

Job ID: 280-115297-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. This is acceptable as the detection is less than 1/2 the LOQ. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-S5-091018-210 (280-115297-1) and P-S5-091018-360 (280-115297-2) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Client Sample ID: P-S5-091018-210 — Lab Sample ID: 280-115297-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.5	J1 B M	1.2	1.1	0.32	mg/Kg	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	6.3	J	7.9	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S5-091018-360 — Lab Sample ID: 280-115297-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.4	Q B M	1.2	1.1	0.33	mg/Kg	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	4.7	J	7.5	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: TB-S5-091018-01 — Lab Sample ID: 280-115297-3

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115297-1	P-S5-091018-210	Solid	10/09/18 15:00	10/10/18 09:00
280-115297-2	P-S5-091018-360	Solid	10/09/18 15:00	10/10/18 09:00
280-115297-3	TB-S5-091018-01	Water	10/09/18 16:15	10/10/18 09:00

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S5-091018-210
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-1
Matrix: Solid
Percent Solids: 96.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	1.5	J1 B M	1.2	1.1	0.32	mg/Kg		10/23/18 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*10/23/18 13:09*	*10/23/18 18:49*	*1*

Client Sample ID: P-S5-091018-360
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-2
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	1.4	Q B M	1.2	1.1	0.33	mg/Kg		10/23/18 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*67*	*Q*	*77 - 123*	*10/23/18 13:09*	*10/23/18 20:01*	*1*

Client Sample ID: TB-S5-091018-01
Date Collected: 10/09/18 16:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/12/18 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*82 - 110*		*10/12/18 17:54*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S5-091018-210
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-1
Matrix: Solid
Percent Solids: 96.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	6.3	J	7.9	3.9	1.3	mg/Kg	☼	10/15/18 00:34	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg	☼	10/15/18 00:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*86*		*45 - 130*	*10/12/18 07:24*	*10/15/18 00:34*	*1*
n-Octacosane	*93*		*25 - 162*	*10/12/18 07:24*	*10/15/18 00:34*	*1*

Client Sample ID: P-S5-091018-360
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-2
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.7	J	7.5	3.8	1.3	mg/Kg	☼	10/15/18 00:55	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg	☼	10/15/18 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*10/12/18 07:24*	*10/15/18 00:55*	*1*
n-Octacosane	*81*		*25 - 162*	*10/12/18 07:24*	*10/15/18 00:55*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

General Chemistry

Client Sample ID: P-S5-091018-210
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-1
Matrix: Solid
Percent Solids: 96.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.0		0.1	0.05	0.1	%		10/11/18 15:27	1

Client Sample ID: P-S5-091018-360
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-2
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.6		0.1	0.05	0.1	%		10/11/18 15:27	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (77-123)
280-115297-1	P-S5-091018-210	102
280-115297-1 MS	P-S5-091018-210	99
280-115297-1 MSD	P-S5-091018-210	102
280-115297-2	P-S5-091018-360	67 Q
LCS 280-434576/2-A	Lab Control Sample	112
LCS 280-434576/2-A	Lab Control Sample	111
MB 280-434576/9-A	Method Blank	81

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-115297-3	TB-S5-091018-01	108
LCS 280-433136/4	Lab Control Sample	107
LCSD 280-433136/5	Lab Control Sample Dup	102
MB 280-433136/3	Method Blank	93

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-115297-1	P-S5-091018-210	86	93
280-115297-2	P-S5-091018-360	75	81
LCS 280-433046/2-A	Lab Control Sample	71	74
LCS 280-433046/3-A	Lab Control Sample	87	99
MB 280-433046/1-A	Method Blank	75	74

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-433136/3
Matrix: Water
Analysis Batch: 433136

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/12/18 12:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*82 - 110*		*10/12/18 12:21*	*1*

Lab Sample ID: LCS 280-433136/4
Matrix: Water
Analysis Batch: 433136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			101	91.4	M	ug/L		91	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*107*		*82 - 110*

Lab Sample ID: LCSD 280-433136/5
Matrix: Water
Analysis Batch: 433136

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			101	90.0	M	ug/L		89	78 - 122	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*102*		*82 - 110*

Lab Sample ID: MB 280-434576/9-A
Matrix: Solid
Analysis Batch: 434594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434576

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.846	J	1.2	1.1	0.33	mg/Kg		10/23/18 17:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*81*		*77 - 123*	*10/23/18 13:09*	*10/23/18 17:44*	*1*

Lab Sample ID: LCS 280-434576/2-A
Matrix: Solid
Analysis Batch: 434594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434576

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			5.50	6.51	M	mg/Kg		118	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*111*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-434576/2-A
Matrix: Solid
Analysis Batch: 434594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434576

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			5.50	6.13	M	mg/Kg		111	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*112*		*77 - 123*

Lab Sample ID: 280-115297-1 MS
Matrix: Solid
Analysis Batch: 434594

Client Sample ID: P-S5-091018-210
Prep Type: Total/NA
Prep Batch: 434576

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10	1.5	J1 B M	5.53	5.77	J1	mg/Kg		78	79 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: 280-115297-1 MSD
Matrix: Solid
Analysis Batch: 434594

Client Sample ID: P-S5-091018-210
Prep Type: Total/NA
Prep Batch: 434576

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.5	J1 B M	5.50	5.91	M	mg/Kg		81	79 - 122	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-433046/1-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433046

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.89	J	7.8	3.9	1.3	mg/Kg		10/14/18 21:23	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg		10/14/18 21:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*10/12/18 07:24*	*10/14/18 21:23*	*1*
n-Octacosane	*74*		*25 - 162*	*10/12/18 07:24*	*10/14/18 21:23*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-433046/2-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	120	76.4		mg/Kg		63	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*71*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

Lab Sample ID: LCS 280-433046/3-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	314		mg/Kg		100	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*87*		*45 - 130*
n-Octacosane	*99*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115297-1 DU
Matrix: Solid
Analysis Batch: 433001

Client Sample ID: P-S5-091018-210
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	4.0		3.8		%		6	20

GC VOA

Analysis Batch: 433136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-3	TB-S5-091018-01	Total/NA	Water	8015D GRO	
MB 280-433136/3	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-433136/4	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-433136/5	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 434576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-1	P-S5-091018-210	Total/NA	Solid	5030B	
280-115297-2	P-S5-091018-360	Total/NA	Solid	5030B	
MB 280-434576/9-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-434576/2-A	Lab Control Sample	Total/NA	Solid	5030B	
280-115297-1 MS	P-S5-091018-210	Total/NA	Solid	5030B	
280-115297-1 MSD	P-S5-091018-210	Total/NA	Solid	5030B	

Analysis Batch: 434594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-1	P-S5-091018-210	Total/NA	Solid	8015D GRO	434576
280-115297-2	P-S5-091018-360	Total/NA	Solid	8015D GRO	434576
MB 280-434576/9-A	Method Blank	Total/NA	Solid	8015D GRO	434576
LCS 280-434576/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	434576
LCS 280-434576/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	434576
280-115297-1 MS	P-S5-091018-210	Total/NA	Solid	8015D GRO	434576
280-115297-1 MSD	P-S5-091018-210	Total/NA	Solid	8015D GRO	434576

GC Semi VOA

Prep Batch: 433046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-1	P-S5-091018-210	Total/NA	Solid	3546	
280-115297-2	P-S5-091018-360	Total/NA	Solid	3546	
MB 280-433046/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 433356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-1	P-S5-091018-210	Total/NA	Solid	8015D DRO	433046
280-115297-2	P-S5-091018-360	Total/NA	Solid	8015D DRO	433046
MB 280-433046/1-A	Method Blank	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046

General Chemistry

Analysis Batch: 433001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115297-1	P-S5-091018-210	Total/NA	Solid	Moisture	
280-115297-2	P-S5-091018-360	Total/NA	Solid	Moisture	
280-115297-1 DU	P-S5-091018-210	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Client Sample ID: P-S5-091018-210
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.039 g	5 mL	434576	10/23/18 13:09	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434594	10/23/18 18:49	CAS	TAL DEN
Total/NA	Analysis	Moisture		1			433001	10/11/18 15:27	JDR	TAL DEN

Client Sample ID: P-S5-091018-210
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-1
Matrix: Solid
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.9 g	1 mL	433046	10/12/18 07:24	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			433356	10/15/18 00:34	CSM	TAL DEN

Client Sample ID: P-S5-091018-360
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.967 g	5 mL	434576	10/23/18 13:09	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434594	10/23/18 20:01	CAS	TAL DEN
Total/NA	Analysis	Moisture		1			433001	10/11/18 15:27	JDR	TAL DEN

Client Sample ID: P-S5-091018-360
Date Collected: 10/09/18 15:00
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-2
Matrix: Solid
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			16.5 g	1 mL	433046	10/12/18 07:24	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			433356	10/15/18 00:55	CSM	TAL DEN

Client Sample ID: TB-S5-091018-01
Date Collected: 10/09/18 16:15
Date Received: 10/10/18 09:00

Lab Sample ID: 280-115297-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	433136	10/12/18 17:54	CAS	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115297-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Messenger	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): Fed EX 4433 3392 7542	COC No: COC 1-S5-TA-20181009
Client Contact: Pamela Moss	Phone: (508) 789-0624	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:							J/F	N	N	N	F	A	R	N	A		
P-S5-091018-210	09OCT18	1500	G	S	N	N	—	—	—	X	X	—	—	—	—	1	
P-S5-091018-360	09OCT18	1500	G	S	N	N	—	—	—	X	X	—	—	—	—	1	
TB-S5-091018-01	09OCT18	1615	G	W	N	N	—	—	—	X	X	—	—	—	—	1	

280-115297 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Per PO

Special Instructions/QC Requirements: Per PO

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Joshua Messenger	Date/Time: 09OCT18 1525	Company EA	Received by: Robert Barker	Date/Time: 09OCT 1525	Company EA
Relinquished by: Robert Barker	Date/Time: 09OCT18 1715	Company EA	Received by:	Date/Time: 10/10/18	Company TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.8°C IR#9 CF°0.7

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115297-1

Login Number: 115297
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Preservation labels on samples match COC
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115432-1
Client Project/Site: Kirtland BFF Vadose Zone Coring
Revision: 1

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
12/3/2018 10:37:41 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115432-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115432-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1 - 11/27/2018
Revision 1 was created in order to correct the prep time for QC samples for solid 8260B. The narrative has also been updated. The Erp_ToolX_Lab Erpims EDD was also revised; however, the Equis EDD had not been posted yet, so no revision was required.

RECEIPT
The samples were received on 10/11/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-S9-091018-252 (280-115432-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/09/2018 and analyzed on 10/22/2018.

Acetone, a common laboratory contaminant, was detected in method blank MB 280-434405/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

2-Butanone (MEK) was detected in method blank MB 280-434405/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. <1/2 LOQ?

The continuing calibration verification (CCV) associated with batch 280-434424 recovered above the upper control limit for Chloroethane (+21.2%D). The associated results have been flagged "Q". The sample associated with this CCV was non-detect for the affected analyte;

Job ID: 280-115432-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S9-101018-01 (280-115432-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 10/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample V-S9-091018-252 (280-115432-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/16/2018 and analyzed on 10/18/2018.

The continuing calibration verification (CCV) associated with batch 280-434037 recovered above the upper control limit for 1,2-Dibromoethane. Associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported with NCM and flags. The following samples are associated: V-S9-091018-252 (280-115432-2), (CCV 280-434037/14) and (CCVRT 280-434037/1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solids
Sample P-S9-091018-252 (280-115432-3) was analyzed for Gasoline Range Organics (GRO)in accordance with 8015D GRO. The samples were prepared on 10/09/2018 and analyzed on 10/19/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-434127/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection in the MB is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S9-101018-01 (280-115432-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Sample P-S9-091018-252 (280-115432-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/12/2018 and analyzed on 10/15/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-433046/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection in the MB is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples V-S9-091018-252 (280-115432-2) and P-S9-091018-252 (280-115432-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/17/2018 and 10/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page..

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Client Sample ID: TB-S9-101018-01 — Lab Sample ID: 280-115432-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.62	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: V-S9-091018-252 — Lab Sample ID: 280-115432-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	5.2	J	5.3	1.7	0.74	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	55		21	6.8	1.9	ug/Kg	1	☼	8260B	Total/NA
Acetone	530	B	21	14	5.7	ug/Kg	1	☼	8260B	Total/NA
Benzene	54		5.3	1.7	0.50	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	1.1	J	5.3	1.7	0.65	ug/Kg	1	☼	8260B	Total/NA
Toluene	51		5.3	1.7	0.73	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	1.0		0.099	0.038	0.015	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S9-091018-252 — Lab Sample ID: 280-115432-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.3	J M	2.2	2.0	0.59	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	4.0	J	11	5.5	1.9	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115432-1	TB-S9-101018-01	Water	10/10/18 13:40	10/11/18 09:10
280-115432-2	V-S9-091018-252	Solid	10/09/18 12:00	10/11/18 09:10
280-115432-3	P-S9-091018-252	Solid	10/09/18 12:00	10/11/18 09:10

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-101018-01
Date Collected: 10/10/18 13:40
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		10/24/18 21:58	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/24/18 21:58	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/24/18 21:58	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/24/18 21:58	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/24/18 21:58	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/24/18 21:58	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/24/18 21:58	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/24/18 21:58	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/24/18 21:58	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/24/18 21:58	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/24/18 21:58	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/24/18 21:58	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/24/18 21:58	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/24/18 21:58	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/24/18 21:58	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/24/18 21:58	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/24/18 21:58	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/24/18 21:58	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/24/18 21:58	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/24/18 21:58	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/24/18 21:58	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/24/18 21:58	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/24/18 21:58	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/24/18 21:58	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/24/18 21:58	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/24/18 21:58	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/24/18 21:58	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/24/18 21:58	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/24/18 21:58	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/24/18 21:58	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/24/18 21:58	1
Methylene Chloride	**0.62**	**J**	5.0	0.80	0.32	ug/L		10/24/18 21:58	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/24/18 21:58	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/24/18 21:58	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/24/18 21:58	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-101018-01
Date Collected: 10/10/18 13:40
Date Received: 10/11/18 09:10
Lab Sample ID: 280-115432-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/24/18 21:58	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/24/18 21:58	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/24/18 21:58	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/24/18 21:58	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/24/18 21:58	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/24/18 21:58	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/24/18 21:58	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/24/18 21:58	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/24/18 21:58	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/24/18 21:58	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/24/18 21:58	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/24/18 21:58	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/24/18 21:58	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/24/18 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*89 - 112*		*10/24/18 21:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*		*10/24/18 21:58*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*10/24/18 21:58*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 119*		*10/24/18 21:58*	*1*

Client Sample ID: V-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10
Lab Sample ID: 280-115432-2
Matrix: Solid
Percent Solids: 100.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.3	1.7	0.60	ug/Kg	☼	10/22/18 15:15	1
1,1,1-Trichloroethane	1.7	U	5.3	1.7	0.55	ug/Kg	☼	10/22/18 15:15	1
1,1,2,2-Tetrachloroethane	1.7	U	5.3	1.7	0.65	ug/Kg	☼	10/22/18 15:15	1
1,1,2-Trichloroethane	3.4	U	5.3	3.4	0.94	ug/Kg	☼	10/22/18 15:15	1
1,1-Dichloroethane	0.85	U	5.3	0.85	0.22	ug/Kg	☼	10/22/18 15:15	1
1,1-Dichloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	10/22/18 15:15	1
1,1-Dichloropropene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	10/22/18 15:15	1
1,2,3-Trichlorobenzene	1.7	U	5.3	1.7	0.80	ug/Kg	☼	10/22/18 15:15	1
1,2,3-Trichloropropane	3.4	U	5.3	3.4	0.86	ug/Kg	☼	10/22/18 15:15	1
1,2,4-Trichlorobenzene	1.7	U M	5.3	1.7	0.78	ug/Kg	☼	10/22/18 15:15	1
1,2,4-Trimethylbenzene	3.4	U	5.3	3.4	0.62	ug/Kg	☼	10/22/18 15:15	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.64	ug/Kg	☼	10/22/18 15:15	1
1,2-Dichlorobenzene	1.7	U	5.3	1.7	0.48	ug/Kg	☼	10/22/18 15:15	1
1,2-Dichloroethane	**5.2**	**J**	5.3	1.7	0.74	ug/Kg	☼	10/22/18 15:15	1
1,2-Dichloroethene, Total	1.7	U	5.3	1.7	0.41	ug/Kg	☼	10/22/18 15:15	1
1,2-Dichloropropane	1.7	U	5.3	1.7	0.58	ug/Kg	☼	10/22/18 15:15	1
1,3,5-Trimethylbenzene	1.7	U	5.3	1.7	0.61	ug/Kg	☼	10/22/18 15:15	1
1,3-Dichlorobenzene	1.7	U	5.3	1.7	0.51	ug/Kg	☼	10/22/18 15:15	1
1,3-Dichloropropane	1.7	U	5.3	1.7	0.54	ug/Kg	☼	10/22/18 15:15	1
1,4-Dichlorobenzene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	10/22/18 15:15	1
2,2-Dichloropropane	1.7	U	5.3	1.7	0.47	ug/Kg	☼	10/22/18 15:15	1
2-Butanone (MEK)	**55**		21	6.8	1.9	ug/Kg	☼	10/22/18 15:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-2
Matrix: Solid
Percent Solids: 100.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.7	U	5.3	1.7	0.54	ug/Kg	☼	10/22/18 15:15	1
2-Hexanone	14	U M	21	14	5.2	ug/Kg	☼	10/22/18 15:15	1
4-Chlorotoluene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	10/22/18 15:15	1
4-Isopropyltoluene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	10/22/18 15:15	1
4-Methyl-2-pentanone (MIBK)	14	U	21	14	4.6	ug/Kg	☼	10/22/18 15:15	1
Acetone	**530**	**B**	21	14	5.7	ug/Kg	☼	10/22/18 15:15	1
Benzene	**54**		5.3	1.7	0.50	ug/Kg	☼	10/22/18 15:15	1
Bromobenzene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	10/22/18 15:15	1
Bromoform	0.85	U	5.3	0.85	0.24	ug/Kg	☼	10/22/18 15:15	1
Bromomethane	1.7	U	11	1.7	0.53	ug/Kg	☼	10/22/18 15:15	1
Carbon disulfide	1.7	U	5.3	1.7	0.45	ug/Kg	☼	10/22/18 15:15	1
Carbon tetrachloride	1.7	U	5.3	1.7	0.67	ug/Kg	☼	10/22/18 15:15	1
Chlorobenzene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	10/22/18 15:15	1
Bromochloromethane	0.85	U	5.3	0.85	0.32	ug/Kg	☼	10/22/18 15:15	1
Dibromochloromethane	1.7	U	5.3	1.7	0.61	ug/Kg	☼	10/22/18 15:15	1
Chloroethane	3.4	U Q	11	3.4	0.95	ug/Kg	☼	10/22/18 15:15	1
Chloroform	0.85	U	11	0.85	0.31	ug/Kg	☼	10/22/18 15:15	1
Chloromethane	1.7	U	11	1.7	0.82	ug/Kg	☼	10/22/18 15:15	1
cis-1,2-Dichloroethene	1.7	U	5.3	1.7	0.60	ug/Kg	☼	10/22/18 15:15	1
cis-1,3-Dichloropropene	3.4	U	5.3	3.4	1.4	ug/Kg	☼	10/22/18 15:15	1
Dibromomethane	3.4	U	5.3	3.4	0.89	ug/Kg	☼	10/22/18 15:15	1
Bromodichloromethane	0.85	U	5.3	0.85	0.23	ug/Kg	☼	10/22/18 15:15	1
Dichlorodifluoromethane	1.7	U	11	1.7	0.55	ug/Kg	☼	10/22/18 15:15	1
Ethylbenzene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	10/22/18 15:15	1
Ethylene Dibromide	1.7	U M	5.3	1.7	0.55	ug/Kg	☼	10/22/18 15:15	1
Hexachlorobutadiene	1.7	U	5.3	1.7	0.58	ug/Kg	☼	10/22/18 15:15	1
Isopropylbenzene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	10/22/18 15:15	1
Methyl tert-butyl ether	0.85	U	21	0.85	0.36	ug/Kg	☼	10/22/18 15:15	1
Methylene Chloride	3.4	U	5.3	3.4	1.7	ug/Kg	☼	10/22/18 15:15	1
m-Xylene & p-Xylene	3.4	U	3.4	3.4	1.1	ug/Kg	☼	10/22/18 15:15	1
Naphthalene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	10/22/18 15:15	1
n-Butylbenzene	1.7	U	5.3	1.7	0.60	ug/Kg	☼	10/22/18 15:15	1
N-Propylbenzene	1.7	U	5.3	1.7	0.62	ug/Kg	☼	10/22/18 15:15	1
o-Xylene	**1.1**	**J**	5.3	1.7	0.65	ug/Kg	☼	10/22/18 15:15	1
sec-Butylbenzene	1.7	U	5.3	1.7	0.82	ug/Kg	☼	10/22/18 15:15	1
Styrene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	10/22/18 15:15	1
tert-Butylbenzene	1.7	U	5.3	1.7	0.53	ug/Kg	☼	10/22/18 15:15	1
Tetrachloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	10/22/18 15:15	1
Toluene	**51**		5.3	1.7	0.73	ug/Kg	☼	10/22/18 15:15	1
trans-1,2-Dichloroethene	0.85	U	5.3	0.85	0.41	ug/Kg	☼	10/22/18 15:15	1
trans-1,3-Dichloropropene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	10/22/18 15:15	1
Trichloroethene	0.85	U	5.3	0.85	0.24	ug/Kg	☼	10/22/18 15:15	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	10/22/18 15:15	1
Vinyl chloride	3.4	U	5.3	3.4	1.4	ug/Kg	☼	10/22/18 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*89*		*85 - 116*	*10/09/18 12:00*	*10/22/18 15:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 136*	*10/09/18 12:00*	*10/22/18 15:15*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*10/09/18 12:00*	*10/22/18 15:15*	*1*
Dibromofluoromethane (Surr)	*86*		*78 - 119*	*10/09/18 12:00*	*10/22/18 15:15*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-101018-01 — **Lab Sample ID: 280-115432-1**
Date Collected: 10/10/18 13:40 — **Matrix: Water**
Date Received: 10/11/18 09:10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/16/18 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*89*		*82 - 110*		*10/16/18 21:30*	*1*

Client Sample ID: P-S9-091018-252 — **Lab Sample ID: 280-115432-3**
Date Collected: 10/09/18 12:00 — **Matrix: Solid**
Date Received: 10/11/18 09:10 — **Percent Solids: 70.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.3**	**J M**	2.2	2.0	0.59	mg/Kg	☼	10/19/18 14:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*	*10/09/18 12:00*	*10/19/18 14:07*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-091018-252 — **Lab Sample ID: 280-115432-2**
Date Collected: 10/09/18 12:00 — **Matrix: Solid**
Date Received: 10/11/18 09:10 — **Percent Solids: 100.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**1.0**		0.099	0.038	0.015	ug/Kg	☼	10/18/18 19:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*111*		*55 - 130*	*10/16/18 10:53*	*10/18/18 19:25*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-091018-252 — **Lab Sample ID: 280-115432-3**
Date Collected: 10/09/18 12:00 — **Matrix: Solid**
Date Received: 10/11/18 09:10 — **Percent Solids: 70.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.0**	**J**	11	5.5	1.9	mg/Kg	☼	10/15/18 01:16	1
Motor Oil (C20-C38)	32	U	33	32	11	mg/Kg	☼	10/15/18 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*52*		*45 - 130*	*10/12/18 07:24*	*10/15/18 01:16*	*1*
n-Octacosane	*53*		*25 - 162*	*10/12/18 07:24*	*10/15/18 01:16*	*1*

General Chemistry

Client Sample ID: V-S9-091018-252 — **Lab Sample ID: 280-115432-2**
Date Collected: 10/09/18 12:00 — **Matrix: Solid**
Date Received: 10/11/18 09:10 — **Percent Solids: 100.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**0.0**		0.1	0.05	0.1	%		10/18/18 17:05	1

Client Sample ID: P-S9-091018-252 — **Lab Sample ID: 280-115432-3**
Date Collected: 10/09/18 12:00 — **Matrix: Solid**
Date Received: 10/11/18 09:10 — **Percent Solids: 70.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**29.5**		0.1	0.05	0.1	%		10/17/18 16:53	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115432-2	V-S9-091018-252	89	83	95	86
LCS 280-434405/2-A	Lab Control Sample	93	99	100	93
LCSD 280-434405/3-A	Lab Control Sample Dup	89	89	96	90
MB 280-434405/1-A	Method Blank	87	97	99	91

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115432-1	TB-S9-101018-01	101	97	101	103
LCS 280-434827/4	Lab Control Sample	101	97	96	101
MB 280-434827/6	Method Blank	101	94	98	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115432-3	P-S9-091018-252	94
LCS 280-434127/2-A	Lab Control Sample	93
LCSD 280-434127/3-A	Lab Control Sample Dup	95
MB 280-434127/1-A	Method Blank	100

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115432-1	TB-S9-101018-01	89
LCS 280-433621/39	Lab Control Sample	102
LCSD 280-433621/40	Lab Control Sample Dup	99

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
MB 280-433621/41	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-115432-2	V-S9-091018-252	111
LCS 280-433609/2-A	Lab Control Sample	104
LCS 280-433779/2-A	Lab Control Sample	102
LCSD 280-433609/3-A	Lab Control Sample Dup	102
LCSD 280-433779/3-A	Lab Control Sample Dup	108
MB 280-433609/4-A	Method Blank	103
MB 280-433779/4-A	Method Blank	109

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-115432-3	P-S9-091018-252	52	53
LCS 280-433046/2-A	Lab Control Sample	71	74
LCS 280-433046/3-A	Lab Control Sample	87	99
MB 280-433046/1-A	Method Blank	75	74

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-434405/1-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434405

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		10/22/18 13:11	1
2-Butanone (MEK)	5.36	J	20	6.4	1.8	ug/Kg		10/22/18 13:11	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		10/22/18 13:11	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		10/22/18 13:11	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		10/22/18 13:11	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		10/22/18 13:11	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		10/22/18 13:11	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		10/22/18 13:11	1
Acetone	25.5		20	13	5.4	ug/Kg		10/22/18 13:11	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/22/18 13:11	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		10/22/18 13:11	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		10/22/18 13:11	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		10/22/18 13:11	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		10/22/18 13:11	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		10/22/18 13:11	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		10/22/18 13:11	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		10/22/18 13:11	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		10/22/18 13:11	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		10/22/18 13:11	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		10/22/18 13:11	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		10/22/18 13:11	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		10/22/18 13:11	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		10/22/18 13:11	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		10/22/18 13:11	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		10/22/18 13:11	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		10/22/18 13:11	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		10/22/18 13:11	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		10/22/18 13:11	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		10/22/18 13:11	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		10/22/18 13:11	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		10/22/18 13:11	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		10/22/18 13:11	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		10/22/18 13:11	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		10/22/18 13:11	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		10/22/18 13:11	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		10/22/18 13:11	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		10/22/18 13:11	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		10/22/18 13:11	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		10/22/18 13:11	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		10/22/18 13:11	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		10/22/18 13:11	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		10/22/18 13:11	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		10/22/18 13:11	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		10/22/18 13:11	1
1,2,3-Trichlorobenzene	1.6	U M	5.0	1.6	0.75	ug/Kg		10/22/18 13:11	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		10/22/18 13:11	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		10/22/18 13:11	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		10/22/18 13:11	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434405/1-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434405

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		10/22/18 13:11	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		10/22/18 13:11	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		10/22/18 13:11	1
1,2,4-Trichlorobenzene	1.6	U M	5.0	1.6	0.73	ug/Kg		10/22/18 13:11	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		10/22/18 13:11	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		10/22/18 13:11	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/22/18 13:11	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		10/22/18 13:11	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		10/22/18 13:11	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		10/22/18 13:11	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		10/22/18 13:11	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		10/22/18 13:11	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		10/22/18 13:11	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		10/22/18 13:11	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		10/22/18 13:11	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		10/22/18 13:11	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		10/22/18 13:11	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		10/22/18 13:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*87*		*85 - 116*	*10/22/18 07:00*	*10/22/18 13:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*	*10/22/18 07:00*	*10/22/18 13:11*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*10/22/18 07:00*	*10/22/18 13:11*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 119*	*10/22/18 07:00*	*10/22/18 13:11*	*1*

Lab Sample ID: LCS 280-434405/2-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434405

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	48.2		ug/Kg		96	61 - 132
2-Butanone (MEK)	200	209		ug/Kg		104	51 - 148
1,2-Dichlorobenzene	50.0	47.3		ug/Kg		95	78 - 121
1,3-Dichlorobenzene	50.0	45.8		ug/Kg		92	77 - 121
4-Chlorotoluene	50.0	48.8		ug/Kg		98	72 - 124
1,4-Dichlorobenzene	50.0	46.2		ug/Kg		92	75 - 120
1,1-Dichloroethane	50.0	50.2		ug/Kg		100	76 - 125
1,2-Dichloroethane	50.0	53.4		ug/Kg		107	73 - 128
Acetone	200	270		ug/Kg		135	36 - 164
1,1-Dichloroethene	50.0	49.9		ug/Kg		100	70 - 131
Benzene	50.0	48.1		ug/Kg		96	77 - 121
Bromobenzene	50.0	46.5		ug/Kg		93	78 - 121
Bromoform	50.0	50.0		ug/Kg		100	67 - 132
Bromomethane	50.0	54.3		ug/Kg		109	53 - 143
1,2-Dichloropropane	50.0	50.2		ug/Kg		100	76 - 123
Carbon disulfide	50.0	50.7		ug/Kg		101	63 - 132
1,3-Dichloropropane	50.0	50.3		ug/Kg		101	77 - 121
Carbon tetrachloride	50.0	50.5		ug/Kg		101	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434405/2-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434405

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	50.6		ug/Kg		101	67 - 133
Chlorobenzene	50.0	47.2		ug/Kg		94	79 - 120
1,1-Dichloropropene	50.0	49.0		ug/Kg		98	76 - 125
Bromochloromethane	50.0	48.3		ug/Kg		97	78 - 125
Dibromochloromethane	50.0	52.1		ug/Kg		104	74 - 126
Chloroethane	50.0	57.4		ug/Kg		115	59 - 139
Chloroform	50.0	49.5		ug/Kg		99	78 - 123
2-Hexanone	200	225		ug/Kg		112	53 - 145
Chloromethane	50.0	50.0		ug/Kg		100	50 - 136
cis-1,2-Dichloroethene	50.0	48.2		ug/Kg		96	77 - 123
cis-1,3-Dichloropropene	50.0	54.0		ug/Kg		108	74 - 126
4-Isopropyltoluene	50.0	47.6		ug/Kg		95	73 - 127
Dibromomethane	50.0	50.6		ug/Kg		101	78 - 125
Bromodichloromethane	50.0	52.5		ug/Kg		105	75 - 127
4-Methyl-2-pentanone (MIBK)	200	218		ug/Kg		109	65 - 135
Dichlorodifluoromethane	50.0	49.2		ug/Kg		98	29 - 149
Ethylbenzene	50.0	46.3		ug/Kg		93	76 - 122
Ethylene Dibromide	50.0	50.6		ug/Kg		101	78 - 122
Hexachlorobutadiene	50.0	47.5		ug/Kg		95	61 - 135
Isopropylbenzene	50.0	47.1		ug/Kg		94	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.5		ug/Kg		99	78 - 125
Methyl tert-butyl ether	50.0	48.6		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	50.0	52.0		ug/Kg		104	70 - 124
Methylene Chloride	50.0	45.7		ug/Kg		91	70 - 128
Naphthalene	50.0	50.4		ug/Kg		101	62 - 129
1,2,3-Trichlorobenzene	50.0	48.9		ug/Kg		98	66 - 130
n-Butylbenzene	50.0	50.3		ug/Kg		101	70 - 128
1,1,1-Trichloroethane	50.0	50.1		ug/Kg		100	73 - 130
N-Propylbenzene	50.0	47.7		ug/Kg		95	73 - 125
1,1,2-Trichloroethane	50.0	47.9		ug/Kg		96	78 - 121
sec-Butylbenzene	50.0	46.9		ug/Kg		94	73 - 126
Styrene	50.0	47.4		ug/Kg		95	76 - 124
1,2,4-Trichlorobenzene	50.0	48.9		ug/Kg		98	67 - 129
tert-Butylbenzene	50.0	47.9		ug/Kg		96	73 - 125
1,2,3-Trichloropropane	50.0	54.2		ug/Kg		108	73 - 125
Tetrachloroethene	50.0	43.4		ug/Kg		87	73 - 128
1,2,4-Trimethylbenzene	50.0	48.2		ug/Kg		96	75 - 123
Toluene	50.0	45.5		ug/Kg		91	77 - 121
1,3,5-Trimethylbenzene	50.0	49.1		ug/Kg		98	73 - 124
trans-1,2-Dichloroethene	50.0	50.2		ug/Kg		100	74 - 125
trans-1,3-Dichloropropene	50.0	53.8		ug/Kg		108	71 - 130
o-Xylene	50.0	48.1		ug/Kg		96	77 - 123
Trichloroethene	50.0	47.3		ug/Kg		95	77 - 123
m-Xylene & p-Xylene	50.0	45.1		ug/Kg		90	77 - 124
Trichlorofluoromethane	50.0	52.3		ug/Kg		105	62 - 140
Vinyl chloride	50.0	53.0		ug/Kg		106	56 - 135
2-Chlorotoluene	50.0	47.8		ug/Kg		96	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434405/2-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434405

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*93*		*78 - 119*

Lab Sample ID: LCSD 280-434405/3-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434405

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	46.0		ug/Kg		92	61 - 132	5	20
2-Butanone (MEK)			200	191		ug/Kg		95	51 - 148	9	20
1,2-Dichlorobenzene			50.0	47.0		ug/Kg		94	78 - 121	1	20
1,3-Dichlorobenzene			50.0	45.3		ug/Kg		91	77 - 121	1	20
4-Chlorotoluene			50.0	47.4		ug/Kg		95	72 - 124	3	20
1,4-Dichlorobenzene			50.0	45.5		ug/Kg		91	75 - 120	1	20
1,1-Dichloroethane			50.0	49.2		ug/Kg		98	76 - 125	2	20
1,2-Dichloroethane			50.0	50.0		ug/Kg		100	73 - 128	7	20
Acetone			200	241		ug/Kg		121	36 - 164	11	20
1,1-Dichloroethene			50.0	50.4		ug/Kg		101	70 - 131	1	20
Benzene			50.0	47.0		ug/Kg		94	77 - 121	2	20
Bromobenzene			50.0	46.5		ug/Kg		93	78 - 121	0	20
Bromoform			50.0	47.8		ug/Kg		96	67 - 132	5	20
Bromomethane			50.0	57.7		ug/Kg		115	53 - 143	6	20
1,2-Dichloropropane			50.0	49.5		ug/Kg		99	76 - 123	1	20
Carbon disulfide			50.0	51.6		ug/Kg		103	63 - 132	2	20
1,3-Dichloropropane			50.0	48.0		ug/Kg		96	77 - 121	5	20
Carbon tetrachloride			50.0	48.6		ug/Kg		97	70 - 135	4	20
2,2-Dichloropropane			50.0	48.4		ug/Kg		97	67 - 133	4	20
Chlorobenzene			50.0	45.9		ug/Kg		92	79 - 120	3	20
1,1-Dichloropropene			50.0	47.4		ug/Kg		95	76 - 125	3	20
Bromochloromethane			50.0	48.1		ug/Kg		96	78 - 125	0	20
Dibromochloromethane			50.0	50.6		ug/Kg		101	74 - 126	3	20
Chloroethane			50.0	59.9		ug/Kg		120	59 - 139	4	20
Chloroform			50.0	48.4		ug/Kg		97	78 - 123	2	20
2-Hexanone			200	209		ug/Kg		104	53 - 145	7	20
Chloromethane			50.0	52.8		ug/Kg		106	50 - 136	6	20
cis-1,2-Dichloroethene			50.0	48.9		ug/Kg		98	77 - 123	1	20
cis-1,3-Dichloropropene			50.0	50.5		ug/Kg		101	74 - 126	7	20
4-Isopropyltoluene			50.0	45.6		ug/Kg		91	73 - 127	4	20
Dibromomethane			50.0	47.8		ug/Kg		96	78 - 125	6	20
Bromodichloromethane			50.0	49.9		ug/Kg		100	75 - 127	5	20
4-Methyl-2-pentanone (MIBK)			200	205		ug/Kg		102	65 - 135	6	20
Dichlorodifluoromethane			50.0	48.5		ug/Kg		97	29 - 149	1	20
Ethylbenzene			50.0	45.5		ug/Kg		91	76 - 122	2	20
Ethylene Dibromide			50.0	48.5		ug/Kg		97	78 - 122	4	20
Hexachlorobutadiene			50.0	44.3		ug/Kg		89	61 - 135	7	20
Isopropylbenzene			50.0	46.9		ug/Kg		94	68 - 134	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434405/3-A
Matrix: Solid
Analysis Batch: 434424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434405

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	48.4		ug/Kg		97	78 - 125	2	20
Methyl tert-butyl ether	50.0	48.7		ug/Kg		97	73 - 125	0	20
1,1,2,2-Tetrachloroethane	50.0	47.0		ug/Kg		94	70 - 124	10	20
Methylene Chloride	50.0	46.1		ug/Kg		92	70 - 128	1	20
Naphthalene	50.0	48.3		ug/Kg		97	62 - 129	4	20
1,2,3-Trichlorobenzene	50.0	46.6		ug/Kg		93	66 - 130	5	20
n-Butylbenzene	50.0	47.0		ug/Kg		94	70 - 128	7	20
1,1,1-Trichloroethane	50.0	48.9		ug/Kg		98	73 - 130	2	20
N-Propylbenzene	50.0	46.7		ug/Kg		93	73 - 125	2	20
1,1,2-Trichloroethane	50.0	46.5		ug/Kg		93	78 - 121	3	20
sec-Butylbenzene	50.0	46.3		ug/Kg		93	73 - 126	1	20
Styrene	50.0	47.7		ug/Kg		95	76 - 124	1	20
1,2,4-Trichlorobenzene	50.0	45.5		ug/Kg		91	67 - 129	7	20
tert-Butylbenzene	50.0	46.3		ug/Kg		93	73 - 125	3	20
1,2,3-Trichloropropane	50.0	49.9		ug/Kg		100	73 - 125	8	20
Tetrachloroethene	50.0	43.5		ug/Kg		87	73 - 128	0	20
1,2,4-Trimethylbenzene	50.0	46.3		ug/Kg		93	75 - 123	4	20
Toluene	50.0	45.3		ug/Kg		91	77 - 121	0	20
1,3,5-Trimethylbenzene	50.0	46.7		ug/Kg		93	73 - 124	5	20
trans-1,2-Dichloroethene	50.0	51.0		ug/Kg		102	74 - 125	2	20
trans-1,3-Dichloropropene	50.0	51.1		ug/Kg		102	71 - 130	5	20
o-Xylene	50.0	47.5		ug/Kg		95	77 - 123	1	20
Trichloroethene	50.0	48.0		ug/Kg		96	77 - 123	1	20
m-Xylene & p-Xylene	50.0	44.3		ug/Kg		89	77 - 124	2	20
Trichlorofluoromethane	50.0	51.1		ug/Kg		102	62 - 140	2	20
Vinyl chloride	50.0	56.0		ug/Kg		112	56 - 135	5	20
2-Chlorotoluene	50.0	47.2		ug/Kg		94	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*90*		*78 - 119*

Lab Sample ID: MB 280-434827/6
Matrix: Water
Analysis Batch: 434827

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/25/18 01:03	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/25/18 01:03	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 01:03	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 01:03	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 01:03	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 01:03	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 01:03	1
Acetone	6.4	U	10	6.4	1.9	ug/L		10/25/18 01:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434827/6
Matrix: Water
Analysis Batch: 434827

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/25/18 01:03	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/25/18 01:03	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 01:03	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/25/18 01:03	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 01:03	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/25/18 01:03	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 01:03	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/25/18 01:03	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 01:03	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 01:03	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/25/18 01:03	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/25/18 01:03	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/25/18 01:03	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/25/18 01:03	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 01:03	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 01:03	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/25/18 01:03	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/25/18 01:03	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 01:03	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/25/18 01:03	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 01:03	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 01:03	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/25/18 01:03	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 01:03	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		10/25/18 01:03	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 01:03	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 01:03	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/25/18 01:03	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/25/18 01:03	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 01:03	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/25/18 01:03	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 01:03	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 01:03	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434827/6
Matrix: Water
Analysis Batch: 434827

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 01:03	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 01:03	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 01:03	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 01:03	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/25/18 01:03	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/25/18 01:03	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/25/18 01:03	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 01:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*89 - 112*		*10/25/18 01:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*81 - 118*		*10/25/18 01:03*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*10/25/18 01:03*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*10/25/18 01:03*	*1*

Lab Sample ID: LCS 280-434827/4
Matrix: Water
Analysis Batch: 434827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.37		ug/L		107	62 - 128
2-Butanone (MEK)	20.0	16.4		ug/L		82	56 - 143
1,2-Dichlorobenzene	5.00	5.20		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	5.11		ug/L		102	80 - 119
4-Chlorotoluene	5.00	5.27		ug/L		105	78 - 122
1,4-Dichlorobenzene	5.00	5.16		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.27		ug/L		105	77 - 125
1,2-Dichloroethane	5.00	4.99		ug/L		100	73 - 128
Acetone	20.0	18.5		ug/L		93	39 - 160
1,1-Dichloroethene	5.00	5.38		ug/L		108	71 - 131
Benzene	5.00	5.26		ug/L		105	79 - 120
Bromobenzene	5.00	5.31		ug/L		106	80 - 120
Bromoform	5.00	4.71		ug/L		94	66 - 130
Bromomethane	5.00	5.31		ug/L		106	53 - 141
1,2-Dichloropropane	5.00	5.50		ug/L		110	78 - 122
Carbon disulfide	5.00	5.43		ug/L		109	64 - 133
1,3-Dichloropropane	5.00	5.08		ug/L		102	80 - 119
Carbon tetrachloride	5.00	4.99		ug/L		100	72 - 136
2,2-Dichloropropane	5.00	4.85		ug/L		97	60 - 139
Chlorobenzene	5.00	5.27		ug/L		105	82 - 118
1,1-Dichloropropene	5.00	5.12		ug/L		102	79 - 125
Bromochloromethane	5.00	5.34		ug/L		107	78 - 123
Dibromochloromethane	5.00	4.79		ug/L		96	74 - 126
Chloroethane	5.00	5.36		ug/L		107	60 - 138
Chloroform	5.00	5.10		ug/L		102	79 - 124
2-Hexanone	20.0	18.9		ug/L		94	57 - 139
Chloromethane	5.00	4.74		ug/L		95	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434827/4
Matrix: Water
Analysis Batch: 434827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.27		ug/L		105	78 - 123
cis-1,3-Dichloropropene	5.00	5.19		ug/L		104	75 - 124
4-Isopropyltoluene	5.00	5.26		ug/L		105	77 - 127
Dibromomethane	5.00	5.21		ug/L		104	79 - 123
Bromodichloromethane	5.00	5.05		ug/L		101	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.0		ug/L		100	67 - 130
Dichlorodifluoromethane	5.00	5.56		ug/L		111	32 - 152
Ethylbenzene	5.00	5.19		ug/L		104	79 - 121
Ethylene Dibromide	5.00	5.32		ug/L		106	77 - 121
Hexachlorobutadiene	5.00	5.07		ug/L		101	66 - 134
Isopropylbenzene	5.00	5.17		ug/L		103	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.12		ug/L		102	78 - 124
Methyl tert-butyl ether	5.00	5.00		ug/L		100	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.15		ug/L		103	71 - 121
Methylene Chloride	5.00	5.03		ug/L		101	74 - 124
Naphthalene	5.00	5.29		ug/L		106	61 - 128
1,2,3-Trichlorobenzene	5.00	5.20		ug/L		104	69 - 129
n-Butylbenzene	5.00	5.15		ug/L		103	75 - 128
1,1,1-Trichloroethane	5.00	5.03		ug/L		101	74 - 131
N-Propylbenzene	5.00	5.21		ug/L		104	76 - 126
1,1,2-Trichloroethane	5.00	5.33		ug/L		107	80 - 119
sec-Butylbenzene	5.00	5.34		ug/L		107	77 - 126
Styrene	5.00	5.20		ug/L		104	78 - 123
1,2,4-Trichlorobenzene	5.00	5.18		ug/L		104	69 - 130
tert-Butylbenzene	5.00	5.19		ug/L		104	78 - 124
1,2,3-Trichloropropane	5.00	5.30		ug/L		106	73 - 122
Tetrachloroethene	5.00	5.23		ug/L		105	74 - 129
1,2,4-Trimethylbenzene	5.00	5.10		ug/L		102	76 - 124
Toluene	5.00	5.32		ug/L		106	80 - 121
1,3,5-Trimethylbenzene	5.00	5.14		ug/L		103	75 - 124
trans-1,2-Dichloroethene	5.00	5.32		ug/L		106	75 - 124
trans-1,3-Dichloropropene	5.00	4.59		ug/L		92	73 - 127
o-Xylene	5.00	5.37		ug/L		107	78 - 122
Trichloroethene	5.00	5.04		ug/L		101	79 - 123
m-Xylene & p-Xylene	5.00	5.35		ug/L		107	80 - 121
Trichlorofluoromethane	5.00	4.94		ug/L		99	65 - 141
Vinyl chloride	5.00	4.86		ug/L		97	58 - 137
2-Chlorotoluene	5.00	5.20		ug/L		104	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-433621/41
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/16/18 13:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/16/18 13:22*	*1*

Lab Sample ID: LCS 280-433621/39
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			101	109	M	ug/L		108	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*102*		*82 - 110*

Lab Sample ID: LCSD 280-433621/40
Matrix: Water
Analysis Batch: 433621

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			101	99.1	M	ug/L		98	78 - 122	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-434127/1-A
Matrix: Solid
Analysis Batch: 434419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434127

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.415	J	1.2	1.1	0.33	mg/Kg		10/22/18 18:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*100*		*77 - 123*	*10/19/18 10:53*	*10/22/18 18:11*	*1*

Lab Sample ID: LCS 280-434127/2-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434127

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			5.50	5.97	M	mg/Kg		109	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-434127/3-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434127

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	6.62	M	mg/Kg		120	79 - 122	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-433609/4-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433609

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/16/18 19:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*		*55 - 130*	*10/16/18 10:53*	*10/16/18 19:21*	*1*

Lab Sample ID: LCS 280-433609/2-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.875	0.611		ug/Kg		70	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*55 - 130*

Lab Sample ID: LCSD 280-433609/3-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.622		ug/Kg		71	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*102*		*55 - 130*

Lab Sample ID: MB 280-433779/4-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433779

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/17/18 14:45	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-433779/4-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433779

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	109		55 - 130	10/17/18 11:43	10/17/18 14:45	1

Lab Sample ID: LCS 280-433779/2-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433779

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.744		ug/Kg		85	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	102		55 - 130

Lab Sample ID: LCSD 280-433779/3-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433779

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.727		ug/Kg		83	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	108		55 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-433046/1-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433046

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.89	J	7.8	3.9	1.3	mg/Kg		10/14/18 21:23	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg		10/14/18 21:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	75		45 - 130	10/12/18 07:24	10/14/18 21:23	1
n-Octacosane	74		25 - 162	10/12/18 07:24	10/14/18 21:23	1

Lab Sample ID: LCS 280-433046/2-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			120	76.4		mg/Kg		63	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	71		45 - 130
n-Octacosane	74		25 - 162

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Lab Sample ID: LCS 280-433046/3-A
Matrix: Solid
Analysis Batch: 433356

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433046

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			313	314		mg/Kg		100	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*87*		*45 - 130*
n-Octacosane	*99*		*25 - 162*

GC/MS VOA

Prep Batch: 434405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-2	V-S9-091018-252	Total/NA	Solid	5035	
MB 280-434405/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-434405/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-434405/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 434424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-2	V-S9-091018-252	Total/NA	Solid	8260B	434405
MB 280-434405/1-A	Method Blank	Total/NA	Solid	8260B	434405
LCS 280-434405/2-A	Lab Control Sample	Total/NA	Solid	8260B	434405
LCSD 280-434405/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	434405

Analysis Batch: 434827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-1	TB-S9-101018-01	Total/NA	Water	8260B	
MB 280-434827/6	Method Blank	Total/NA	Water	8260B	
LCS 280-434827/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 433621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-1	TB-S9-101018-01	Total/NA	Water	8015D GRO	
MB 280-433621/41	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-433621/39	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-433621/40	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 434127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-3	P-S9-091018-252	Total/NA	Solid	5035	
MB 280-434127/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 434148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-3	P-S9-091018-252	Total/NA	Solid	8015D GRO	434127
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	434127
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	434127

Analysis Batch: 434419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-434127/1-A	Method Blank	Total/NA	Solid	8015D GRO	434127

GC Semi VOA

Prep Batch: 433046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-3	P-S9-091018-252	Total/NA	Solid	3546	
MB 280-433046/1-A	Method Blank	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 433046 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 433356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-3	P-S9-091018-252	Total/NA	Solid	8015D DRO	433046
MB 280-433046/1-A	Method Blank	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046
LCS 280-433046/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433046

Prep Batch: 433609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-2	V-S9-091018-252	Total/NA	Solid	8011	
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 433627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	433609
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	433609
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433609

Prep Batch: 433779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 433800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	433779
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	433779
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433779

Analysis Batch: 434037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-2	V-S9-091018-252	Total/NA	Solid	8011	433609

General Chemistry

Analysis Batch: 433836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-3	P-S9-091018-252	Total/NA	Solid	Moisture	

Analysis Batch: 434029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115432-2	V-S9-091018-252	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Client Sample ID: TB-S9-101018-01
Date Collected: 10/10/18 13:40
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434827	10/24/18 21:58	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	433621	10/16/18 21:30	CAS	TAL DEN

Client Sample ID: V-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434029	10/18/18 17:05	JDR	TAL DEN

Client Sample ID: V-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-2
Matrix: Solid
Percent Solids: 100.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.705 g	5 mL	434405	10/09/18 12:00	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	434424	10/22/18 15:15	JLS	TAL DEN
Total/NA	Prep	8011			10.10 g	35 mL	433609	10/16/18 10:53	SU	TAL DEN
Total/NA	Analysis	8011		1			434037	10/18/18 19:25	MJS	TAL DEN

Client Sample ID: P-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			433836	10/17/18 16:53	IEU	TAL DEN

Client Sample ID: P-S9-091018-252
Date Collected: 10/09/18 12:00
Date Received: 10/11/18 09:10

Lab Sample ID: 280-115432-3
Matrix: Solid
Percent Solids: 70.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.065 g	5 mL	434127	10/09/18 12:00	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434148	10/19/18 14:07	CAS	TAL DEN
Total/NA	Prep	3546			15.4 g	1 mL	433046	10/12/18 07:24	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			433356	10/15/18 01:16	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115432-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKenzie	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443333927553	COC No: COC 1-59-TA-20180010
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wwater, Ssolid, Owaste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A		
TB-59-101018-01	10/10/18	1340	G	W		N						X			X		
V-59-091018-252	10/9/18	1200	G	S		N	X	X	X								
P-59-091018-252	10/9/18	1200	G	S		N				X	X						

280-115432 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKenzie	10/10/18	EA		10/11/18 0910	TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115432-1

Login Number: 115432
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115488-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/19/2018 11:40:25 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115488-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115488-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/12/2018 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-S9-111018-342 (280-115488-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/11/2018 and analyzed on 10/24/2018.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-434702: Acetone (+26.5%D) and 2-Chloroethyl vinyl ether (-30.7%D). These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. These compounds are considered "poor performers" therefore, the data have been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S9-111018-01 (280-115488-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 10/25/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample V-S9-111018-342 (280-115488-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/16/2018 and analyzed on 10/18/2018.

The continuing calibration verification (CCV) associated with batch 280-434037 recovered above the upper control limit for 1,2-Dibromoethane on the secondary column. Associated results have been flagged "Q". This is reported from the primary column that is in control. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported with NCM and flags. The following samples are associated: V-S9-111018-342 (280-115488-2), (CCV 280-434037/14) and (CCVRT 280-434037/1)

Surrogate recovery for the following QC samples were outside the upper control limit of 130% on the secondary column: (CCV

Job ID: 280-115488-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

280-434037/14) and (CCVRT 280-434037/1). is reported from the primary column that is in control. This associated sample V-S9-111018-342 (280-115488-2) did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Sample P-S9-111018-342 (280-115488-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 10/11/2018 and analyzed on 10/19/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-434127/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J1". Refer to the QC report for details. This is acceptable because the detection in the MB was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S9-111018-01 (280-115488-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/25/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample P-S9-111018-342 (280-115488-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/17/2018 and analyzed on 10/19/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-433823/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J1". Refer to the QC report for details. This is acceptable because the detection in the MB was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S9-111018-342 (280-115488-2) and P-S9-111018-342 (280-115488-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/22/2018 and 10/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Client Sample ID: TB-S9-111018-01 — Lab Sample ID: 280-115488-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.2	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.51	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	13	J M	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S9-111018-342 — Lab Sample ID: 280-115488-2

No Detections.

Client Sample ID: P-S9-111018-342 — Lab Sample ID: 280-115488-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.65	J M	1.6	1.5	0.44	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.6	J	9.0	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115488-1	TB-S9-111018-01	Water	10/11/18 16:30	10/12/18 09:40
280-115488-2	V-S9-111018-342	Solid	10/11/18 09:30	10/12/18 09:40
280-115488-3	P-S9-111018-342	Solid	10/11/18 09:30	10/12/18 09:40

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-111018-01
Date Collected: 10/11/18 16:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**3.2**	**J**	10	6.4	1.9	ug/L		10/25/18 12:00	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/25/18 12:00	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 12:00	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/25/18 12:00	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/25/18 12:00	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/25/18 12:00	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/25/18 12:00	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/25/18 12:00	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/25/18 12:00	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/25/18 12:00	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 12:00	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/25/18 12:00	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/25/18 12:00	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 12:00	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 12:00	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 12:00	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 12:00	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 12:00	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/25/18 12:00	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/25/18 12:00	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 12:00	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 12:00	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 12:00	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 12:00	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 12:00	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 12:00	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 12:00	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/25/18 12:00	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/25/18 12:00	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 12:00	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 12:00	1
Methylene Chloride	**0.51**	**J**	5.0	0.80	0.32	ug/L		10/25/18 12:00	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/25/18 12:00	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/25/18 12:00	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 12:00	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-111018-01
Date Collected: 10/11/18 16:30
Date Received: 10/12/18 09:40
Lab Sample ID: 280-115488-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 12:00	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 12:00	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 12:00	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 12:00	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/25/18 12:00	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/25/18 12:00	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 12:00	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/25/18 12:00	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 12:00	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 12:00	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/25/18 12:00	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 12:00	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/25/18 12:00	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 12:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*10/25/18 12:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*10/25/18 12:00*	*1*
4-Bromofluorobenzene (Surr)	*112*		*85 - 114*		*10/25/18 12:00*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 119*		*10/25/18 12:00*	*1*

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40
Lab Sample ID: 280-115488-2
Matrix: Solid
Percent Solids: 83.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.0	U	6.2	2.0	0.69	ug/Kg	☼	10/24/18 12:21	1
1,1,1-Trichloroethane	2.0	U	6.2	2.0	0.64	ug/Kg	☼	10/24/18 12:21	1
1,1,2,2-Tetrachloroethane	2.0	U	6.2	2.0	0.76	ug/Kg	☼	10/24/18 12:21	1
1,1,2-Trichloroethane	4.0	U	6.2	4.0	1.1	ug/Kg	☼	10/24/18 12:21	1
1,1-Dichloroethane	0.99	U	6.2	0.99	0.26	ug/Kg	☼	10/24/18 12:21	1
1,1-Dichloroethene	2.0	U	6.2	2.0	0.73	ug/Kg	☼	10/24/18 12:21	1
1,1-Dichloropropene	2.0	U	6.2	2.0	0.67	ug/Kg	☼	10/24/18 12:21	1
1,2,3-Trichlorobenzene	2.0	U	6.2	2.0	0.93	ug/Kg	☼	10/24/18 12:21	1
1,2,3-Trichloropropane	4.0	U	6.2	4.0	1.0	ug/Kg	☼	10/24/18 12:21	1
1,2,4-Trichlorobenzene	2.0	U	6.2	2.0	0.90	ug/Kg	☼	10/24/18 12:21	1
1,2,4-Trimethylbenzene	4.0	U	6.2	4.0	0.72	ug/Kg	☼	10/24/18 12:21	1
1,2-Dibromo-3-Chloropropane	2.0	U	12	2.0	0.74	ug/Kg	☼	10/24/18 12:21	1
1,2-Dichlorobenzene	2.0	U	6.2	2.0	0.56	ug/Kg	☼	10/24/18 12:21	1
1,2-Dichloroethane	2.0	U	6.2	2.0	0.87	ug/Kg	☼	10/24/18 12:21	1
1,2-Dichloroethene, Total	2.0	U	6.2	2.0	0.48	ug/Kg	☼	10/24/18 12:21	1
1,2-Dichloropropane	2.0	U	6.2	2.0	0.68	ug/Kg	☼	10/24/18 12:21	1
1,3,5-Trimethylbenzene	2.0	U	6.2	2.0	0.71	ug/Kg	☼	10/24/18 12:21	1
1,3-Dichlorobenzene	2.0	U	6.2	2.0	0.59	ug/Kg	☼	10/24/18 12:21	1
1,3-Dichloropropane	2.0	U	6.2	2.0	0.63	ug/Kg	☼	10/24/18 12:21	1
1,4-Dichlorobenzene	2.0	U	6.2	2.0	0.97	ug/Kg	☼	10/24/18 12:21	1
2,2-Dichloropropane	2.0	U	6.2	2.0	0.54	ug/Kg	☼	10/24/18 12:21	1
2-Butanone (MEK)	7.9	U	25	7.9	2.3	ug/Kg	☼	10/24/18 12:21	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-2
Matrix: Solid
Percent Solids: 83.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	2.0	U	6.2	2.0	0.63	ug/Kg	☼	10/24/18 12:21	1
2-Hexanone	16	U	25	16	6.1	ug/Kg	☼	10/24/18 12:21	1
4-Chlorotoluene	2.0	U	6.2	2.0	0.97	ug/Kg	☼	10/24/18 12:21	1
4-Isopropyltoluene	2.0	U	6.2	2.0	0.61	ug/Kg	☼	10/24/18 12:21	1
4-Methyl-2-pentanone (MIBK)	16	U	25	16	5.4	ug/Kg	☼	10/24/18 12:21	1
Acetone	16	U M Q	25	16	6.7	ug/Kg	☼	10/24/18 12:21	1
Benzene	2.0	U	6.2	2.0	0.58	ug/Kg	☼	10/24/18 12:21	1
Bromobenzene	2.0	U	6.2	2.0	0.61	ug/Kg	☼	10/24/18 12:21	1
Bromoform	0.99	U	6.2	0.99	0.28	ug/Kg	☼	10/24/18 12:21	1
Bromomethane	2.0	U	12	2.0	0.62	ug/Kg	☼	10/24/18 12:21	1
Carbon disulfide	2.0	U	6.2	2.0	0.52	ug/Kg	☼	10/24/18 12:21	1
Carbon tetrachloride	2.0	U	6.2	2.0	0.78	ug/Kg	☼	10/24/18 12:21	1
Chlorobenzene	2.0	U	6.2	2.0	0.67	ug/Kg	☼	10/24/18 12:21	1
Bromochloromethane	0.99	U	6.2	0.99	0.37	ug/Kg	☼	10/24/18 12:21	1
Dibromochloromethane	2.0	U	6.2	2.0	0.71	ug/Kg	☼	10/24/18 12:21	1
Chloroethane	4.0	U	12	4.0	1.1	ug/Kg	☼	10/24/18 12:21	1
Chloroform	0.99	U	12	0.99	0.36	ug/Kg	☼	10/24/18 12:21	1
Chloromethane	2.0	U	12	2.0	0.95	ug/Kg	☼	10/24/18 12:21	1
cis-1,2-Dichloroethene	2.0	U	6.2	2.0	0.69	ug/Kg	☼	10/24/18 12:21	1
cis-1,3-Dichloropropene	4.0	U	6.2	4.0	1.6	ug/Kg	☼	10/24/18 12:21	1
Dibromomethane	4.0	U	6.2	4.0	1.0	ug/Kg	☼	10/24/18 12:21	1
Bromodichloromethane	0.99	U	6.2	0.99	0.27	ug/Kg	☼	10/24/18 12:21	1
Dichlorodifluoromethane	2.0	U	12	2.0	0.64	ug/Kg	☼	10/24/18 12:21	1
Ethylbenzene	2.0	U	6.2	2.0	0.83	ug/Kg	☼	10/24/18 12:21	1
Ethylene Dibromide	2.0	U	6.2	2.0	0.64	ug/Kg	☼	10/24/18 12:21	1
Hexachlorobutadiene	2.0	U	6.2	2.0	0.68	ug/Kg	☼	10/24/18 12:21	1
Isopropylbenzene	2.0	U	6.2	2.0	0.73	ug/Kg	☼	10/24/18 12:21	1
Methyl tert-butyl ether	0.99	U	25	0.99	0.42	ug/Kg	☼	10/24/18 12:21	1
Methylene Chloride	4.0	U M	6.2	4.0	2.0	ug/Kg	☼	10/24/18 12:21	1
m-Xylene & p-Xylene	4.0	U	4.0	4.0	1.3	ug/Kg	☼	10/24/18 12:21	1
Naphthalene	2.0	U	6.2	2.0	0.78	ug/Kg	☼	10/24/18 12:21	1
n-Butylbenzene	2.0	U	6.2	2.0	0.69	ug/Kg	☼	10/24/18 12:21	1
N-Propylbenzene	2.0	U	6.2	2.0	0.72	ug/Kg	☼	10/24/18 12:21	1
o-Xylene	2.0	U	6.2	2.0	0.76	ug/Kg	☼	10/24/18 12:21	1
sec-Butylbenzene	2.0	U	6.2	2.0	0.95	ug/Kg	☼	10/24/18 12:21	1
Styrene	2.0	U	6.2	2.0	0.78	ug/Kg	☼	10/24/18 12:21	1
tert-Butylbenzene	2.0	U	6.2	2.0	0.62	ug/Kg	☼	10/24/18 12:21	1
Tetrachloroethene	2.0	U	6.2	2.0	0.73	ug/Kg	☼	10/24/18 12:21	1
Toluene	2.0	U	6.2	2.0	0.85	ug/Kg	☼	10/24/18 12:21	1
trans-1,2-Dichloroethene	0.99	U	6.2	0.99	0.48	ug/Kg	☼	10/24/18 12:21	1
trans-1,3-Dichloropropene	2.0	U	6.2	2.0	0.83	ug/Kg	☼	10/24/18 12:21	1
Trichloroethene	0.99	U	6.2	0.99	0.28	ug/Kg	☼	10/24/18 12:21	1
Trichlorofluoromethane	4.0	U	12	4.0	1.3	ug/Kg	☼	10/24/18 12:21	1
Vinyl chloride	4.0	U	6.2	4.0	1.7	ug/Kg	☼	10/24/18 12:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*85 - 116*	*10/11/18 09:30*	*10/24/18 12:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*10/11/18 09:30*	*10/24/18 12:21*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*10/11/18 09:30*	*10/24/18 12:21*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*10/11/18 09:30*	*10/24/18 12:21*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-111018-01
Date Collected: 10/11/18 16:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	13	J M	25	25	10	ug/L		10/25/18 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*	*M*	*82 - 110*		*10/25/18 15:15*	*1*

Client Sample ID: P-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-3
Matrix: Solid
Percent Solids: 86.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.65	J M	1.6	1.5	0.44	mg/Kg	☼	10/19/18 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*	*10/11/18 09:30*	*10/19/18 14:31*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-2
Matrix: Solid
Percent Solids: 83.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.045	U	0.12	0.045	0.018	ug/Kg	☼	10/18/18 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*100*		*55 - 130*	*10/16/18 10:53*	*10/18/18 19:45*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-3
Matrix: Solid
Percent Solids: 86.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.6	J	9.0	4.5	1.5	mg/Kg	☼	10/19/18 17:27	1
Motor Oil (C20-C38)	26	U	27	26	8.8	mg/Kg	☼	10/19/18 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*45 - 130*	*10/17/18 18:21*	*10/19/18 17:27*	*1*
n-Octacosane	*59*		*25 - 162*	*10/17/18 18:21*	*10/19/18 17:27*	*1*

General Chemistry

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-2
Matrix: Solid
Percent Solids: 83.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.3		0.1	0.05	0.1	%		10/22/18 11:25	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

General Chemistry

Client Sample ID: P-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-3
Matrix: Solid
Percent Solids: 86.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	14.0		0.1	0.05	0.1	%		10/24/18 10:10	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115488-2	V-S9-111018-342	91	96	96	96
LCS 280-434702/6	Lab Control Sample	97	109	98	105
LCSD 280-434702/7	Lab Control Sample Dup	94	105	95	100
MB 280-434702/8	Method Blank	93	108	97	103

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115488-1	TB-S9-111018-01	102	98	112	93
LCS 280-434878/4	Lab Control Sample	102	97	108	94
LCSD 280-434878/5	Lab Control Sample Dup	99	99	108	98
MB 280-434878/8	Method Blank	99	96	113	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115488-3	P-S9-111018-342	97
LCS 280-434127/2-A	Lab Control Sample	93
LCSD 280-434127/3-A	Lab Control Sample Dup	95
MB 280-434127/1-A	Method Blank	100

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115488-1	TB-S9-111018-01	100 M
LCS 280-434955/11	Lab Control Sample	101

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) TFT1 (82-110)
LCSD 280-434955/12	Lab Control Sample Dup	106
MB 280-434955/5	Method Blank	108

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) 12DBP1 (55-130)
280-115488-2	V-S9-111018-342	100
LCS 280-433609/2-A	Lab Control Sample	104
LCS 280-433779/2-A	Lab Control Sample	102
LCSD 280-433609/3-A	Lab Control Sample Dup	102
LCSD 280-433779/3-A	Lab Control Sample Dup	108
MB 280-433609/4-A	Method Blank	103
MB 280-433779/4-A	Method Blank	109

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) OTPH1 (45-130)	OTCN1 (25-162)
280-115488-3	P-S9-111018-342	72	59
280-115488-3 MS	P-S9-111018-342	76	62
280-115488-3 MS	P-S9-111018-342	77 M	72 M
280-115488-3 MSD	P-S9-111018-342	76	62
280-115488-3 MSD	P-S9-111018-342	68 M	59 M
LCS 280-433823/2-A	Lab Control Sample	76	59
LCS 280-433823/3-A	Lab Control Sample	76 M	69 M
MB 280-433823/1-A	Method Blank	82	68

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-434702/8
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		10/24/18 11:20	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg		10/24/18 11:20	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		10/24/18 11:20	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		10/24/18 11:20	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		10/24/18 11:20	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		10/24/18 11:20	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		10/24/18 11:20	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		10/24/18 11:20	1
Acetone	13	U M	20	13	5.4	ug/Kg		10/24/18 11:20	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/24/18 11:20	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		10/24/18 11:20	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		10/24/18 11:20	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		10/24/18 11:20	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		10/24/18 11:20	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		10/24/18 11:20	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		10/24/18 11:20	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		10/24/18 11:20	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		10/24/18 11:20	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		10/24/18 11:20	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		10/24/18 11:20	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		10/24/18 11:20	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		10/24/18 11:20	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		10/24/18 11:20	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		10/24/18 11:20	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		10/24/18 11:20	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		10/24/18 11:20	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		10/24/18 11:20	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		10/24/18 11:20	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		10/24/18 11:20	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		10/24/18 11:20	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		10/24/18 11:20	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		10/24/18 11:20	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		10/24/18 11:20	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		10/24/18 11:20	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		10/24/18 11:20	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		10/24/18 11:20	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		10/24/18 11:20	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		10/24/18 11:20	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		10/24/18 11:20	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		10/24/18 11:20	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		10/24/18 11:20	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		10/24/18 11:20	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		10/24/18 11:20	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		10/24/18 11:20	1
1,2,3-Trichlorobenzene	1.6	U M	5.0	1.6	0.75	ug/Kg		10/24/18 11:20	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		10/24/18 11:20	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		10/24/18 11:20	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		10/24/18 11:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434702/8
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		10/24/18 11:20	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		10/24/18 11:20	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		10/24/18 11:20	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		10/24/18 11:20	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		10/24/18 11:20	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		10/24/18 11:20	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/24/18 11:20	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		10/24/18 11:20	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		10/24/18 11:20	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		10/24/18 11:20	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		10/24/18 11:20	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		10/24/18 11:20	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		10/24/18 11:20	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		10/24/18 11:20	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		10/24/18 11:20	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		10/24/18 11:20	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		10/24/18 11:20	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		10/24/18 11:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*85 - 116*		*10/24/18 11:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*71 - 136*		*10/24/18 11:20*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*		*10/24/18 11:20*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*		*10/24/18 11:20*	*1*

Lab Sample ID: LCS 280-434702/6
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	46.0		ug/Kg		92	61 - 132
2-Butanone (MEK)	200	209		ug/Kg		104	51 - 148
1,2-Dichlorobenzene	50.0	47.4		ug/Kg		95	78 - 121
1,3-Dichlorobenzene	50.0	46.2		ug/Kg		92	77 - 121
4-Chlorotoluene	50.0	49.9		ug/Kg		100	72 - 124
1,4-Dichlorobenzene	50.0	48.1		ug/Kg		96	75 - 120
1,1-Dichloroethane	50.0	51.8		ug/Kg		104	76 - 125
1,2-Dichloroethane	50.0	54.4		ug/Kg		109	73 - 128
Acetone	200	263		ug/Kg		131	36 - 164
1,1-Dichloroethene	50.0	52.2		ug/Kg		104	70 - 131
Benzene	50.0	49.5		ug/Kg		99	77 - 121
Bromobenzene	50.0	47.5		ug/Kg		95	78 - 121
Bromoform	50.0	48.5		ug/Kg		97	67 - 132
Bromomethane	50.0	52.7		ug/Kg		105	53 - 143
1,2-Dichloropropane	50.0	50.7		ug/Kg		101	76 - 123
Carbon disulfide	50.0	53.6		ug/Kg		107	63 - 132
1,3-Dichloropropane	50.0	49.4		ug/Kg		99	77 - 121
Carbon tetrachloride	50.0	52.2		ug/Kg		104	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434702/6
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	51.3		ug/Kg		103	67 - 133
Chlorobenzene	50.0	46.6		ug/Kg		93	79 - 120
1,1-Dichloropropene	50.0	52.6		ug/Kg		105	76 - 125
Bromochloromethane	50.0	49.9		ug/Kg		100	78 - 125
Dibromochloromethane	50.0	51.4		ug/Kg		103	74 - 126
Chloroethane	50.0	56.4		ug/Kg		113	59 - 139
Chloroform	50.0	51.8		ug/Kg		104	78 - 123
2-Hexanone	200	217		ug/Kg		108	53 - 145
Chloromethane	50.0	48.9		ug/Kg		98	50 - 136
cis-1,2-Dichloroethene	50.0	50.7		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	53.3		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	47.9		ug/Kg		96	73 - 127
Dibromomethane	50.0	52.0		ug/Kg		104	78 - 125
Bromodichloromethane	50.0	54.4		ug/Kg		109	75 - 127
4-Methyl-2-pentanone (MIBK)	200	220		ug/Kg		110	65 - 135
Dichlorodifluoromethane	50.0	48.6		ug/Kg		97	29 - 149
Ethylbenzene	50.0	46.6		ug/Kg		93	76 - 122
Ethylene Dibromide	50.0	49.2		ug/Kg		98	78 - 122
Hexachlorobutadiene	50.0	46.7		ug/Kg		93	61 - 135
Isopropylbenzene	50.0	47.6		ug/Kg		95	68 - 134
1,1,1,2-Tetrachloroethane	50.0	48.8		ug/Kg		98	78 - 125
Methyl tert-butyl ether	50.0	48.9		ug/Kg		98	73 - 125
1,1,2,2-Tetrachloroethane	50.0	49.4		ug/Kg		99	70 - 124
Methylene Chloride	50.0	47.2		ug/Kg		94	70 - 128
Naphthalene	50.0	47.9		ug/Kg		96	62 - 129
1,2,3-Trichlorobenzene	50.0	48.1		ug/Kg		96	66 - 130
n-Butylbenzene	50.0	49.8		ug/Kg		100	70 - 128
1,1,1-Trichloroethane	50.0	53.5		ug/Kg		107	73 - 130
N-Propylbenzene	50.0	48.5		ug/Kg		97	73 - 125
1,1,2-Trichloroethane	50.0	48.7		ug/Kg		97	78 - 121
sec-Butylbenzene	50.0	46.8		ug/Kg		94	73 - 126
Styrene	50.0	47.7		ug/Kg		95	76 - 124
1,2,4-Trichlorobenzene	50.0	47.8		ug/Kg		96	67 - 129
tert-Butylbenzene	50.0	47.1		ug/Kg		94	73 - 125
1,2,3-Trichloropropane	50.0	49.9		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	45.4		ug/Kg		91	73 - 128
1,2,4-Trimethylbenzene	50.0	47.5		ug/Kg		95	75 - 123
Toluene	50.0	47.7		ug/Kg		95	77 - 121
1,3,5-Trimethylbenzene	50.0	47.9		ug/Kg		96	73 - 124
trans-1,2-Dichloroethene	50.0	52.9		ug/Kg		106	74 - 125
trans-1,3-Dichloropropene	50.0	55.8		ug/Kg		112	71 - 130
o-Xylene	50.0	48.2		ug/Kg		96	77 - 123
Trichloroethene	50.0	49.7		ug/Kg		99	77 - 123
m-Xylene & p-Xylene	50.0	45.8		ug/Kg		92	77 - 124
Trichlorofluoromethane	50.0	51.8		ug/Kg		104	62 - 140
Vinyl chloride	50.0	53.9		ug/Kg		108	56 - 135
2-Chlorotoluene	50.0	48.3		ug/Kg		97	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434702/6
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*105*		*78 - 119*

Lab Sample ID: LCSD 280-434702/7
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	45.3		ug/Kg		91	61 - 132	2	20
2-Butanone (MEK)			200	201		ug/Kg		101	51 - 148	3	20
1,2-Dichlorobenzene			50.0	48.9		ug/Kg		98	78 - 121	3	20
1,3-Dichlorobenzene			50.0	47.3		ug/Kg		95	77 - 121	2	20
4-Chlorotoluene			50.0	49.3		ug/Kg		99	72 - 124	1	20
1,4-Dichlorobenzene			50.0	47.0		ug/Kg		94	75 - 120	2	20
1,1-Dichloroethane			50.0	52.9		ug/Kg		106	76 - 125	2	20
1,2-Dichloroethane			50.0	53.9		ug/Kg		108	73 - 128	1	20
Acetone			200	252		ug/Kg		126	36 - 164	4	20
1,1-Dichloroethene			50.0	53.3		ug/Kg		107	70 - 131	2	20
Benzene			50.0	51.1		ug/Kg		102	77 - 121	3	20
Bromobenzene			50.0	47.8		ug/Kg		96	78 - 121	1	20
Bromoform			50.0	48.3		ug/Kg		97	67 - 132	0	20
Bromomethane			50.0	53.0		ug/Kg		106	53 - 143	1	20
1,2-Dichloropropane			50.0	53.3		ug/Kg		107	76 - 123	5	20
Carbon disulfide			50.0	54.6		ug/Kg		109	63 - 132	2	20
1,3-Dichloropropane			50.0	50.0		ug/Kg		100	77 - 121	1	20
Carbon tetrachloride			50.0	51.5		ug/Kg		103	70 - 135	1	20
2,2-Dichloropropane			50.0	50.2		ug/Kg		100	67 - 133	2	20
Chlorobenzene			50.0	47.3		ug/Kg		95	79 - 120	1	20
1,1-Dichloropropene			50.0	53.1		ug/Kg		106	76 - 125	1	20
Bromochloromethane			50.0	50.5		ug/Kg		101	78 - 125	1	20
Dibromochloromethane			50.0	53.0		ug/Kg		106	74 - 126	3	20
Chloroethane			50.0	57.3		ug/Kg		115	59 - 139	2	20
Chloroform			50.0	52.5		ug/Kg		105	78 - 123	1	20
2-Hexanone			200	210		ug/Kg		105	53 - 145	3	20
Chloromethane			50.0	51.2		ug/Kg		102	50 - 136	5	20
cis-1,2-Dichloroethene			50.0	50.8		ug/Kg		102	77 - 123	0	20
cis-1,3-Dichloropropene			50.0	53.7		ug/Kg		107	74 - 126	1	20
4-Isopropyltoluene			50.0	49.7		ug/Kg		99	73 - 127	4	20
Dibromomethane			50.0	51.8		ug/Kg		104	78 - 125	0	20
Bromodichloromethane			50.0	55.0		ug/Kg		110	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)			200	212		ug/Kg		106	65 - 135	4	20
Dichlorodifluoromethane			50.0	47.5		ug/Kg		95	29 - 149	2	20
Ethylbenzene			50.0	48.0		ug/Kg		96	76 - 122	3	20
Ethylene Dibromide			50.0	49.9		ug/Kg		100	78 - 122	1	20
Hexachlorobutadiene			50.0	45.7		ug/Kg		91	61 - 135	2	20
Isopropylbenzene			50.0	49.7		ug/Kg		99	68 - 134	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434702/7
Matrix: Solid
Analysis Batch: 434702

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	50.5		ug/Kg		101	78 - 125	3	20
Methyl tert-butyl ether			50.0	49.9		ug/Kg		100	73 - 125	2	20
1,1,2,2-Tetrachloroethane			50.0	48.8		ug/Kg		98	70 - 124	1	20
Methylene Chloride			50.0	47.0		ug/Kg		94	70 - 128	0	20
Naphthalene			50.0	48.2		ug/Kg		96	62 - 129	1	20
1,2,3-Trichlorobenzene			50.0	47.4		ug/Kg		95	66 - 130	1	20
n-Butylbenzene			50.0	49.7		ug/Kg		99	70 - 128	0	20
1,1,1-Trichloroethane			50.0	53.4		ug/Kg		107	73 - 130	0	20
N-Propylbenzene			50.0	50.3		ug/Kg		101	73 - 125	4	20
1,1,2-Trichloroethane			50.0	48.7		ug/Kg		97	78 - 121	0	20
sec-Butylbenzene			50.0	49.0		ug/Kg		98	73 - 126	5	20
Styrene			50.0	49.2		ug/Kg		98	76 - 124	3	20
1,2,4-Trichlorobenzene			50.0	47.9		ug/Kg		96	67 - 129	0	20
tert-Butylbenzene			50.0	49.1		ug/Kg		98	73 - 125	4	20
1,2,3-Trichloropropane			50.0	49.2		ug/Kg		98	73 - 125	1	20
Tetrachloroethene			50.0	45.8		ug/Kg		92	73 - 128	1	20
1,2,4-Trimethylbenzene			50.0	48.9		ug/Kg		98	75 - 123	3	20
Toluene			50.0	49.3		ug/Kg		99	77 - 121	3	20
1,3,5-Trimethylbenzene			50.0	47.5		ug/Kg		95	73 - 124	1	20
trans-1,2-Dichloroethene			50.0	54.3		ug/Kg		109	74 - 125	3	20
trans-1,3-Dichloropropene			50.0	56.3		ug/Kg		113	71 - 130	1	20
o-Xylene			50.0	50.5		ug/Kg		101	77 - 123	5	20
Trichloroethene			50.0	51.4		ug/Kg		103	77 - 123	3	20
m-Xylene & p-Xylene			50.0	46.6		ug/Kg		93	77 - 124	2	20
Trichlorofluoromethane			50.0	52.8		ug/Kg		106	62 - 140	2	20
Vinyl chloride			50.0	55.0		ug/Kg		110	56 - 135	2	20
2-Chlorotoluene			50.0	48.6		ug/Kg		97	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*105*		*71 - 136*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: MB 280-434878/8
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/25/18 11:17	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/25/18 11:17	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 11:17	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 11:17	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 11:17	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 11:17	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/25/18 11:17	1
Acetone	6.4	U	10	6.4	1.9	ug/L		10/25/18 11:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434878/8
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/25/18 11:17	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/25/18 11:17	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 11:17	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/25/18 11:17	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 11:17	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/25/18 11:17	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 11:17	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/25/18 11:17	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 11:17	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 11:17	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/25/18 11:17	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/25/18 11:17	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/25/18 11:17	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/25/18 11:17	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 11:17	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 11:17	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/25/18 11:17	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/25/18 11:17	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/25/18 11:17	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/25/18 11:17	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 11:17	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 11:17	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/25/18 11:17	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 11:17	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		10/25/18 11:17	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/25/18 11:17	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 11:17	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/25/18 11:17	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/25/18 11:17	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/25/18 11:17	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/25/18 11:17	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/25/18 11:17	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 11:17	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-434878/8
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/25/18 11:17	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 11:17	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/25/18 11:17	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/25/18 11:17	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/25/18 11:17	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/25/18 11:17	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/25/18 11:17	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/25/18 11:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*10/25/18 11:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*81 - 118*		*10/25/18 11:17*	*1*
4-Bromofluorobenzene (Surr)	*113*		*85 - 114*		*10/25/18 11:17*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*10/25/18 11:17*	*1*

Lab Sample ID: LCS 280-434878/4
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.35		ug/L		107	62 - 128
2-Butanone (MEK)	20.0	14.6		ug/L		73	56 - 143
1,2-Dichlorobenzene	5.00	5.17		ug/L		103	80 - 119
1,3-Dichlorobenzene	5.00	5.21		ug/L		104	80 - 119
4-Chlorotoluene	5.00	5.25		ug/L		105	78 - 122
1,4-Dichlorobenzene	5.00	5.25		ug/L		105	79 - 118
1,1-Dichloroethane	5.00	4.30		ug/L		86	77 - 125
1,2-Dichloroethane	5.00	4.77		ug/L		95	73 - 128
Acetone	20.0	16.0		ug/L		80	39 - 160
1,1-Dichloroethene	5.00	4.27		ug/L		85	71 - 131
Benzene	5.00	4.68		ug/L		94	79 - 120
Bromobenzene	5.00	5.31		ug/L		106	80 - 120
Bromoform	5.00	5.46		ug/L		109	66 - 130
Bromomethane	5.00	4.35		ug/L		87	53 - 141
1,2-Dichloropropane	5.00	4.91		ug/L		98	78 - 122
Carbon disulfide	5.00	4.42		ug/L		88	64 - 133
1,3-Dichloropropane	5.00	5.31		ug/L		106	80 - 119
Carbon tetrachloride	5.00	4.33		ug/L		87	72 - 136
2,2-Dichloropropane	5.00	4.48		ug/L		90	60 - 139
Chlorobenzene	5.00	5.15		ug/L		103	82 - 118
1,1-Dichloropropene	5.00	4.63		ug/L		93	79 - 125
Bromochloromethane	5.00	4.57		ug/L		91	78 - 123
Dibromochloromethane	5.00	5.34		ug/L		107	74 - 126
Chloroethane	5.00	4.37		ug/L		87	60 - 138
Chloroform	5.00	4.52		ug/L		90	79 - 124
2-Hexanone	20.0	17.9		ug/L		89	57 - 139
Chloromethane	5.00	3.96		ug/L		79	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-434878/4
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.40		ug/L		88	78 - 123
cis-1,3-Dichloropropene	5.00	5.69		ug/L		114	75 - 124
4-Isopropyltoluene	5.00	5.17		ug/L		103	77 - 127
Dibromomethane	5.00	4.80		ug/L		96	79 - 123
Bromodichloromethane	5.00	4.62		ug/L		92	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.7		ug/L		89	67 - 130
Dichlorodifluoromethane	5.00	4.62		ug/L		92	32 - 152
Ethylbenzene	5.00	5.00		ug/L		100	79 - 121
Ethylene Dibromide	5.00	5.48		ug/L		110	77 - 121
Hexachlorobutadiene	5.00	4.78		ug/L		96	66 - 134
Isopropylbenzene	5.00	5.05		ug/L		101	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.32		ug/L		106	78 - 124
Methyl tert-butyl ether	5.00	4.71	J	ug/L		94	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.50		ug/L		110	71 - 121
Methylene Chloride	5.00	4.11	J	ug/L		82	74 - 124
Naphthalene	5.00	5.01		ug/L		100	61 - 128
1,2,3-Trichlorobenzene	5.00	5.13		ug/L		103	69 - 129
n-Butylbenzene	5.00	4.96		ug/L		99	75 - 128
1,1,1-Trichloroethane	5.00	4.50		ug/L		90	74 - 131
N-Propylbenzene	5.00	5.02		ug/L		100	76 - 126
1,1,2-Trichloroethane	5.00	4.98		ug/L		100	80 - 119
sec-Butylbenzene	5.00	4.98		ug/L		100	77 - 126
Styrene	5.00	5.26		ug/L		105	78 - 123
1,2,4-Trichlorobenzene	5.00	5.18		ug/L		104	69 - 130
tert-Butylbenzene	5.00	4.96		ug/L		99	78 - 124
1,2,3-Trichloropropane	5.00	5.43		ug/L		109	73 - 122
Tetrachloroethene	5.00	5.03		ug/L		101	74 - 129
1,2,4-Trimethylbenzene	5.00	5.19		ug/L		104	76 - 124
Toluene	5.00	4.65		ug/L		93	80 - 121
1,3,5-Trimethylbenzene	5.00	5.03		ug/L		101	75 - 124
trans-1,2-Dichloroethene	5.00	4.26		ug/L		85	75 - 124
trans-1,3-Dichloropropene	5.00	4.54		ug/L		91	73 - 127
o-Xylene	5.00	5.29		ug/L		106	78 - 122
Trichloroethene	5.00	4.54		ug/L		91	79 - 123
m-Xylene & p-Xylene	5.00	5.04		ug/L		101	80 - 121
Trichlorofluoromethane	5.00	4.34		ug/L		87	65 - 141
Vinyl chloride	5.00	4.19		ug/L		84	58 - 137
2-Chlorotoluene	5.00	5.10		ug/L		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*
4-Bromofluorobenzene (Surr)	*108*		*85 - 114*
Dibromofluoromethane (Surr)	*94*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434878/5
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.31		ug/L		106	62 - 128	1	20
2-Butanone (MEK)	20.0	14.8		ug/L		74	56 - 143	1	20
1,2-Dichlorobenzene	5.00	5.52		ug/L		110	80 - 119	6	20
1,3-Dichlorobenzene	5.00	5.36		ug/L		107	80 - 119	3	20
4-Chlorotoluene	5.00	5.37		ug/L		107	78 - 122	2	20
1,4-Dichlorobenzene	5.00	5.35		ug/L		107	79 - 118	2	20
1,1-Dichloroethane	5.00	4.97		ug/L		99	77 - 125	14	20
1,2-Dichloroethane	5.00	4.89		ug/L		98	73 - 128	2	20
Acetone	20.0	19.0		ug/L		95	39 - 160	17	20
1,1-Dichloroethene	5.00	5.18		ug/L		104	71 - 131	19	20
Benzene	5.00	4.86		ug/L		97	79 - 120	4	20
Bromobenzene	5.00	5.45		ug/L		109	80 - 120	3	20
Bromoform	5.00	5.35		ug/L		107	66 - 130	2	20
Bromomethane	5.00	4.65		ug/L		93	53 - 141	7	20
1,2-Dichloropropane	5.00	5.12		ug/L		102	78 - 122	4	20
Carbon disulfide	5.00	5.28		ug/L		106	64 - 133	18	20
1,3-Dichloropropane	5.00	5.33		ug/L		107	80 - 119	0	20
Carbon tetrachloride	5.00	4.98		ug/L		100	72 - 136	14	20
2,2-Dichloropropane	5.00	5.00		ug/L		100	60 - 139	11	20
Chlorobenzene	5.00	5.23		ug/L		105	82 - 118	2	20
1,1-Dichloropropene	5.00	4.83		ug/L		97	79 - 125	4	20
Bromochloromethane	5.00	5.23		ug/L		105	78 - 123	14	20
Dibromochloromethane	5.00	5.42		ug/L		108	74 - 126	1	20
Chloroethane	5.00	4.61		ug/L		92	60 - 138	5	20
Chloroform	5.00	5.12		ug/L		102	79 - 124	13	20
2-Hexanone	20.0	18.7		ug/L		93	57 - 139	4	20
Chloromethane	5.00	4.30		ug/L		86	50 - 139	8	20
cis-1,2-Dichloroethene	5.00	5.03		ug/L		101	78 - 123	13	20
cis-1,3-Dichloropropene	5.00	5.62		ug/L		112	75 - 124	1	20
4-Isopropyltoluene	5.00	5.45		ug/L		109	77 - 127	5	20
Dibromomethane	5.00	4.97		ug/L		99	79 - 123	3	20
Bromodichloromethane	5.00	5.00		ug/L		100	79 - 125	8	20
4-Methyl-2-pentanone (MIBK)	20.0	19.6		ug/L		98	67 - 130	10	20
Dichlorodifluoromethane	5.00	4.98		ug/L		100	32 - 152	8	20
Ethylbenzene	5.00	5.06		ug/L		101	79 - 121	1	20
Ethylene Dibromide	5.00	5.47		ug/L		109	77 - 121	0	20
Hexachlorobutadiene	5.00	5.14		ug/L		103	66 - 134	7	20
Isopropylbenzene	5.00	5.29		ug/L		106	72 - 131	4	20
1,1,1,2-Tetrachloroethane	5.00	5.38		ug/L		108	78 - 124	1	20
Methyl tert-butyl ether	5.00	5.25		ug/L		105	71 - 124	11	20
1,1,2,2-Tetrachloroethane	5.00	5.77		ug/L		115	71 - 121	5	20
Methylene Chloride	5.00	4.91	J	ug/L		98	74 - 124	18	20
Naphthalene	5.00	5.57		ug/L		111	61 - 128	11	20
1,2,3-Trichlorobenzene	5.00	5.63		ug/L		113	69 - 129	9	20
n-Butylbenzene	5.00	5.34		ug/L		107	75 - 128	7	20
1,1,1-Trichloroethane	5.00	5.05		ug/L		101	74 - 131	12	20
N-Propylbenzene	5.00	5.13		ug/L		103	76 - 126	2	20
1,1,2-Trichloroethane	5.00	5.22		ug/L		104	80 - 119	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-434878/5
Matrix: Water
Analysis Batch: 434878

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			5.00	5.30		ug/L		106	77 - 126	6	20
Styrene			5.00	5.28		ug/L		106	78 - 123	1	20
1,2,4-Trichlorobenzene			5.00	5.45		ug/L		109	69 - 130	5	20
tert-Butylbenzene			5.00	5.23		ug/L		105	78 - 124	5	20
1,2,3-Trichloropropane			5.00	5.57		ug/L		111	73 - 122	3	20
Tetrachloroethene			5.00	4.99		ug/L		100	74 - 129	1	20
1,2,4-Trimethylbenzene			5.00	5.39		ug/L		108	76 - 124	4	20
Toluene			5.00	4.97		ug/L		99	80 - 121	7	20
1,3,5-Trimethylbenzene			5.00	5.30		ug/L		106	75 - 124	5	20
trans-1,2-Dichloroethene			5.00	5.19		ug/L		104	75 - 124	20	20
trans-1,3-Dichloropropene			5.00	4.77		ug/L		95	73 - 127	5	20
o-Xylene			5.00	5.27		ug/L		105	78 - 122	0	20
Trichloroethene			5.00	4.76		ug/L		95	79 - 123	5	20
m-Xylene & p-Xylene			5.00	4.95		ug/L		99	80 - 121	2	20
Trichlorofluoromethane			5.00	4.93		ug/L		99	65 - 141	13	20
Vinyl chloride			5.00	4.40		ug/L		88	58 - 137	5	20
2-Chlorotoluene			5.00	5.32		ug/L		106	79 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*
4-Bromofluorobenzene (Surr)	*108*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-434127/1-A
Matrix: Solid
Analysis Batch: 434419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434127

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.415	J	1.2	1.1	0.33	mg/Kg		10/22/18 18:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*100*		*77 - 123*	*10/19/18 10:53*	*10/22/18 18:11*	*1*

Lab Sample ID: LCS 280-434127/2-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434127

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			5.50	5.97	M	mg/Kg		109	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-434127/3-A
Matrix: Solid
Analysis Batch: 434148

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434127

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	6.62	M	mg/Kg		120	79 - 122	10	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*

Lab Sample ID: MB 280-434955/5
Matrix: Water
Analysis Batch: 434955

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/25/18 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*82 - 110*		*10/25/18 14:03*	*1*

Lab Sample ID: LCS 280-434955/11
Matrix: Water
Analysis Batch: 434955

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10			101	98.6	M	ug/L		98	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*82 - 110*

Lab Sample ID: LCSD 280-434955/12
Matrix: Water
Analysis Batch: 434955

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			101	104	M	ug/L		103	78 - 122	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*106*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-433609/4-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433609

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/16/18 19:21	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-433609/4-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433609

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	103		55 - 130	10/16/18 10:53	10/16/18 19:21	1

Lab Sample ID: LCS 280-433609/2-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.611		ug/Kg		70	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	104		55 - 130

Lab Sample ID: LCSD 280-433609/3-A
Matrix: Solid
Analysis Batch: 433627

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433609

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.622		ug/Kg		71	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	102		55 - 130

Lab Sample ID: MB 280-433779/4-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433779

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/17/18 14:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	109		55 - 130	10/17/18 11:43	10/17/18 14:45	1

Lab Sample ID: LCS 280-433779/2-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433779

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.744		ug/Kg		85	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	102		55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-433779/3-A
Matrix: Solid
Analysis Batch: 433800

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433779

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.727		ug/Kg		83	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*108*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-433823/1-A
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433823

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.76	J	7.1	3.6	1.2	mg/Kg		10/19/18 16:21	1
Motor Oil (C20-C38)	21	U	21	21	7.0	mg/Kg		10/19/18 16:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*45 - 130*	*10/17/18 18:21*	*10/19/18 16:21*	*1*
n-Octacosane	*68*		*25 - 162*	*10/17/18 18:21*	*10/19/18 16:21*	*1*

Lab Sample ID: LCS 280-433823/2-A
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433823

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			128	97.0		mg/Kg		76	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*59*		*25 - 162*

Lab Sample ID: LCS 280-433823/3-A
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433823

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			295	224		mg/Kg		76	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*	*M*	*45 - 130*
n-Octacosane	*69*	*M*	*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-115488-3 MS
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: P-S9-111018-342
Prep Type: Total/NA
Prep Batch: 433823

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	3.6	J	151	113		mg/Kg	☼	73	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*62*		*25 - 162*

Lab Sample ID: 280-115488-3 MS
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: P-S9-111018-342
Prep Type: Total/NA
Prep Batch: 433823

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	26	U	381	280		mg/Kg	☼	74	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*	*M*	*45 - 130*
n-Octacosane	*72*	*M*	*25 - 162*

Lab Sample ID: 280-115488-3 MSD
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: P-S9-111018-342
Prep Type: Total/NA
Prep Batch: 433823

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	3.6	J	145	105		mg/Kg	☼	70	38 - 132	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*62*		*25 - 162*

Lab Sample ID: 280-115488-3 MSD
Matrix: Solid
Analysis Batch: 434086

Client Sample ID: P-S9-111018-342
Prep Type: Total/NA
Prep Batch: 433823

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	26	U	378	240		mg/Kg	☼	63	45 - 130	15	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*68*	*M*	*45 - 130*
n-Octacosane	*59*	*M*	*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115488-3 DU
Matrix: Solid
Analysis Batch: 434729

Client Sample ID: P-S9-111018-342
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	14.0			11.4		%				20	20

GC/MS VOA

Analysis Batch: 434702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-2	V-S9-111018-342	Total/NA	Solid	8260B	434755
MB 280-434702/8	Method Blank	Total/NA	Solid	8260B	
LCS 280-434702/6	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 280-434702/7	Lab Control Sample Dup	Total/NA	Solid	8260B	

Prep Batch: 434755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-2	V-S9-111018-342	Total/NA	Solid	5035	

Analysis Batch: 434878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-1	TB-S9-111018-01	Total/NA	Water	8260B	
MB 280-434878/8	Method Blank	Total/NA	Water	8260B	
LCS 280-434878/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-434878/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 434127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-3	P-S9-111018-342	Total/NA	Solid	5035	
MB 280-434127/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 434148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-3	P-S9-111018-342	Total/NA	Solid	8015D GRO	434127
LCS 280-434127/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	434127
LCSD 280-434127/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	434127

Analysis Batch: 434419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-434127/1-A	Method Blank	Total/NA	Solid	8015D GRO	434127

Analysis Batch: 434955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-1	TB-S9-111018-01	Total/NA	Water	8015D GRO	
MB 280-434955/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-434955/11	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-434955/12	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 433609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-2	V-S9-111018-342	Total/NA	Solid	8011	
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Analysis Batch: 433627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433609/4-A	Method Blank	Total/NA	Solid	8011	433609
LCS 280-433609/2-A	Lab Control Sample	Total/NA	Solid	8011	433609
LCSD 280-433609/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433609

Prep Batch: 433779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 433800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-433779/4-A	Method Blank	Total/NA	Solid	8011	433779
LCS 280-433779/2-A	Lab Control Sample	Total/NA	Solid	8011	433779
LCSD 280-433779/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	433779

Prep Batch: 433823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-3	P-S9-111018-342	Total/NA	Solid	3546	
MB 280-433823/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-433823/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-433823/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-115488-3 MS	P-S9-111018-342	Total/NA	Solid	3546	
280-115488-3 MS	P-S9-111018-342	Total/NA	Solid	3546	
280-115488-3 MSD	P-S9-111018-342	Total/NA	Solid	3546	
280-115488-3 MSD	P-S9-111018-342	Total/NA	Solid	3546	

Analysis Batch: 434037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-2	V-S9-111018-342	Total/NA	Solid	8011	433609

Analysis Batch: 434086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-3	P-S9-111018-342	Total/NA	Solid	8015D DRO	433823
MB 280-433823/1-A	Method Blank	Total/NA	Solid	8015D DRO	433823
LCS 280-433823/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433823
LCS 280-433823/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	433823
280-115488-3 MS	P-S9-111018-342	Total/NA	Solid	8015D DRO	433823
280-115488-3 MS	P-S9-111018-342	Total/NA	Solid	8015D DRO	433823
280-115488-3 MSD	P-S9-111018-342	Total/NA	Solid	8015D DRO	433823
280-115488-3 MSD	P-S9-111018-342	Total/NA	Solid	8015D DRO	433823

General Chemistry

Analysis Batch: 434394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-2	V-S9-111018-342	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 434729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115488-3	P-S9-111018-342	Total/NA	Solid	Moisture	
280-115488-3 DU	P-S9-111018-342	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Client Sample ID: TB-S9-111018-01
Date Collected: 10/11/18 16:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	434878	10/25/18 12:00	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	434955	10/25/18 15:15	CAS	TAL DEN

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434394	10/22/18 11:25	CCJ	TAL DEN

Client Sample ID: V-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-2
Matrix: Solid
Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.826 g	5 mL	434755	10/11/18 09:30	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	434702	10/24/18 12:21	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	433609	10/16/18 10:53	SU	TAL DEN
Total/NA	Analysis	8011		1			434037	10/18/18 19:45	MJS	TAL DEN

Client Sample ID: P-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434729	10/24/18 10:10	LMD	TAL DEN

Client Sample ID: P-S9-111018-342
Date Collected: 10/11/18 09:30
Date Received: 10/12/18 09:40

Lab Sample ID: 280-115488-3
Matrix: Solid
Percent Solids: 86.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.871 g	5 mL	434127	10/11/18 09:30	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	434148	10/19/18 14:31	CAS	TAL DEN
Total/NA	Prep	3546			15.5 g	1 mL	433823	10/17/18 18:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			434086	10/19/18 17:27	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115488-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andress	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7564	COC No: COC1-TA-2018bk
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-59-111018-01	10/11/18	1630	G	W	N	N	—					X	—		X	—	
V-59-111018-342	10/11/18	0930	G	S	N	N	X	X	X	—						—	
P-59-111018-342	10/11/18	0930	G	S	N	N	—			X	X	—				—	

280-115488 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	11/10/18 1800	EA	Fedex		
2				[signature]	10/12/18 0940	TADEN
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.6 +0.7 IR #9 Transfer by JD

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115488-1

Login Number: 115488
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115708-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/20/2018 9:18:38 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115708-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115708-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/17/2018 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-S9-161018-415 (280-115708-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/16/2018 and analyzed on 10/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S9-161018-01 (280-115708-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/01/2018.

The following sample in analytical batch 280-435795 was analyzed outside of analytical holding time due to department capacity issues: TB-S9-161018-01 (280-115708-1). The client was notified, and instructed the laboratory to report the data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample V-S9-161018-415 (280-115708-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/29/2018 and analyzed on 11/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Sample P-S9-161018-415 (280-115708-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 10/16/2018 and analyzed on 10/30/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-435575/2-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". The concentration in the blank was just above one-half the LOQ. The associated sample was less than the LOQ; therefore, the data have been reported. If the

Job ID: 280-115708-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S9-161018-01 (280-115708-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/26/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample P-S9-161018-415 (280-115708-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/23/2018 and analyzed on 10/25/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434617/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J1". Refer to the QC report for details. This is acceptable, as the concentration in the MB is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S9-161018-415 (280-115708-2) and P-S9-161018-415 (280-115708-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/20/2018 and 10/22/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Client Sample ID: TB-S9-161018-01 — Lab Sample ID: 280-115708-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.5	J H	10	6.4	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.53	J H	5.0	0.80	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: V-S9-161018-415 — Lab Sample ID: 280-115708-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.4	J	5.8	3.7	1.8	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S9-161018-415 — Lab Sample ID: 280-115708-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.59	J B	1.5	1.4	0.40	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	1.6	J	7.5	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115708-1	TB-S9-161018-01	Water	10/16/18 17:05	10/17/18 09:40
280-115708-2	V-S9-161018-415	Solid	10/16/18 12:08	10/17/18 09:40
280-115708-3	P-S9-161018-415	Solid	10/16/18 12:08	10/17/18 09:40

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-161018-01
Date Collected: 10/16/18 17:05
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.5**	**J H**	10	6.4	1.9	ug/L		11/01/18 00:52	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		11/01/18 00:52	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		11/01/18 00:52	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		11/01/18 00:52	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		11/01/18 00:52	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		11/01/18 00:52	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		11/01/18 00:52	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		11/01/18 00:52	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		11/01/18 00:52	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		11/01/18 00:52	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		11/01/18 00:52	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		11/01/18 00:52	1
Dichlorodifluoromethane	0.80	U H	2.0	0.80	0.31	ug/L		11/01/18 00:52	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		11/01/18 00:52	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/01/18 00:52	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		11/01/18 00:52	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		11/01/18 00:52	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		11/01/18 00:52	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		11/01/18 00:52	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		11/01/18 00:52	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/01/18 00:52	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/01/18 00:52	1
1,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/01/18 00:52	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		11/01/18 00:52	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/01/18 00:52	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/01/18 00:52	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/01/18 00:52	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		11/01/18 00:52	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		11/01/18 00:52	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		11/01/18 00:52	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		11/01/18 00:52	1
Methylene Chloride	**0.53**	**J H**	5.0	0.80	0.32	ug/L		11/01/18 00:52	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		11/01/18 00:52	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		11/01/18 00:52	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		11/01/18 00:52	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-161018-01
Date Collected: 10/16/18 17:05
Date Received: 10/17/18 09:40
Lab Sample ID: 280-115708-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/01/18 00:52	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/01/18 00:52	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		11/01/18 00:52	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/01/18 00:52	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
1,1,2-Trichloroethane	0.80	U H	1.0	0.80	0.27	ug/L		11/01/18 00:52	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		11/01/18 00:52	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/01/18 00:52	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		11/01/18 00:52	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/01/18 00:52	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/01/18 00:52	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		11/01/18 00:52	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		11/01/18 00:52	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		11/01/18 00:52	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		11/01/18 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/01/18 00:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*81 - 118*		*11/01/18 00:52*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*11/01/18 00:52*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*11/01/18 00:52*	*1*

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40
Lab Sample ID: 280-115708-2
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.8	1.8	0.65	ug/Kg	☼	10/29/18 13:32	1
1,1,1-Trichloroethane	1.8	U	5.8	1.8	0.60	ug/Kg	☼	10/29/18 13:32	1
1,1,2,2-Tetrachloroethane	1.8	U	5.8	1.8	0.70	ug/Kg	☼	10/29/18 13:32	1
1,1,2-Trichloroethane	3.7	U	5.8	3.7	1.0	ug/Kg	☼	10/29/18 13:32	1
1,1-Dichloroethane	0.92	U	5.8	0.92	0.24	ug/Kg	☼	10/29/18 13:32	1
1,1-Dichloroethene	1.8	U	5.8	1.8	0.68	ug/Kg	☼	10/29/18 13:32	1
1,1-Dichloropropene	1.8	U	5.8	1.8	0.62	ug/Kg	☼	10/29/18 13:32	1
1,2,3-Trichlorobenzene	1.8	U	5.8	1.8	0.87	ug/Kg	☼	10/29/18 13:32	1
1,2,3-Trichloropropane	3.7	U	5.8	3.7	0.94	ug/Kg	☼	10/29/18 13:32	1
1,2,4-Trichlorobenzene	1.8	U	5.8	1.8	0.84	ug/Kg	☼	10/29/18 13:32	1
1,2,4-Trimethylbenzene	3.7	U	5.8	3.7	0.67	ug/Kg	☼	10/29/18 13:32	1
1,2-Dibromo-3-Chloropropane	1.8	U	12	1.8	0.69	ug/Kg	☼	10/29/18 13:32	1
1,2-Dichlorobenzene	1.8	U	5.8	1.8	0.52	ug/Kg	☼	10/29/18 13:32	1
1,2-Dichloroethane	1.8	U	5.8	1.8	0.81	ug/Kg	☼	10/29/18 13:32	1
1,2-Dichloroethene, Total	1.8	U	5.8	1.8	0.45	ug/Kg	☼	10/29/18 13:32	1
1,2-Dichloropropane	1.8	U	5.8	1.8	0.64	ug/Kg	☼	10/29/18 13:32	1
1,3,5-Trimethylbenzene	1.8	U	5.8	1.8	0.66	ug/Kg	☼	10/29/18 13:32	1
1,3-Dichlorobenzene	1.8	U	5.8	1.8	0.55	ug/Kg	☼	10/29/18 13:32	1
1,3-Dichloropropane	1.8	U	5.8	1.8	0.59	ug/Kg	☼	10/29/18 13:32	1
1,4-Dichlorobenzene	1.8	U	5.8	1.8	0.90	ug/Kg	☼	10/29/18 13:32	1
2,2-Dichloropropane	1.8	U	5.8	1.8	0.51	ug/Kg	☼	10/29/18 13:32	1
2-Butanone (MEK)	7.4	U	23	7.4	2.1	ug/Kg	☼	10/29/18 13:32	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-2
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.8	U	5.8	1.8	0.59	ug/Kg	☼	10/29/18 13:32	1
2-Hexanone	15	U	23	15	5.7	ug/Kg	☼	10/29/18 13:32	1
4-Chlorotoluene	1.8	U	5.8	1.8	0.90	ug/Kg	☼	10/29/18 13:32	1
4-Isopropyltoluene	1.8	U	5.8	1.8	0.57	ug/Kg	☼	10/29/18 13:32	1
4-Methyl-2-pentanone (MIBK)	15	U	23	15	5.0	ug/Kg	☼	10/29/18 13:32	1
Acetone	15	U	23	15	6.2	ug/Kg	☼	10/29/18 13:32	1
Benzene	1.8	U	5.8	1.8	0.54	ug/Kg	☼	10/29/18 13:32	1
Bromobenzene	1.8	U	5.8	1.8	0.57	ug/Kg	☼	10/29/18 13:32	1
Bromoform	0.92	U	5.8	0.92	0.27	ug/Kg	☼	10/29/18 13:32	1
Bromomethane	1.8	U	12	1.8	0.58	ug/Kg	☼	10/29/18 13:32	1
Carbon disulfide	1.8	U	5.8	1.8	0.49	ug/Kg	☼	10/29/18 13:32	1
Carbon tetrachloride	1.8	U	5.8	1.8	0.73	ug/Kg	☼	10/29/18 13:32	1
Chlorobenzene	1.8	U	5.8	1.8	0.62	ug/Kg	☼	10/29/18 13:32	1
Bromochloromethane	0.92	U	5.8	0.92	0.35	ug/Kg	☼	10/29/18 13:32	1
Dibromochloromethane	1.8	U	5.8	1.8	0.66	ug/Kg	☼	10/29/18 13:32	1
Chloroethane	3.7	U	12	3.7	1.0	ug/Kg	☼	10/29/18 13:32	1
Chloroform	0.92	U	12	0.92	0.34	ug/Kg	☼	10/29/18 13:32	1
Chloromethane	1.8	U	12	1.8	0.89	ug/Kg	☼	10/29/18 13:32	1
cis-1,2-Dichloroethene	1.8	U	5.8	1.8	0.65	ug/Kg	☼	10/29/18 13:32	1
cis-1,3-Dichloropropene	3.7	U	5.8	3.7	1.5	ug/Kg	☼	10/29/18 13:32	1
Dibromomethane	3.7	U	5.8	3.7	0.97	ug/Kg	☼	10/29/18 13:32	1
Bromodichloromethane	0.92	U	5.8	0.92	0.25	ug/Kg	☼	10/29/18 13:32	1
Dichlorodifluoromethane	1.8	U	12	1.8	0.60	ug/Kg	☼	10/29/18 13:32	1
Ethylbenzene	1.8	U	5.8	1.8	0.77	ug/Kg	☼	10/29/18 13:32	1
Ethylene Dibromide	1.8	U	5.8	1.8	0.60	ug/Kg	☼	10/29/18 13:32	1
Hexachlorobutadiene	1.8	U	5.8	1.8	0.64	ug/Kg	☼	10/29/18 13:32	1
Isopropylbenzene	1.8	U	5.8	1.8	0.68	ug/Kg	☼	10/29/18 13:32	1
Methyl tert-butyl ether	0.92	U	23	0.92	0.39	ug/Kg	☼	10/29/18 13:32	1
Methylene Chloride	**3.4**	**J**	5.8	3.7	1.8	ug/Kg	☼	10/29/18 13:32	1
m-Xylene & p-Xylene	3.7	U	3.7	3.7	1.2	ug/Kg	☼	10/29/18 13:32	1
Naphthalene	1.8	U	5.8	1.8	0.73	ug/Kg	☼	10/29/18 13:32	1
n-Butylbenzene	1.8	U	5.8	1.8	0.65	ug/Kg	☼	10/29/18 13:32	1
N-Propylbenzene	1.8	U	5.8	1.8	0.67	ug/Kg	☼	10/29/18 13:32	1
o-Xylene	1.8	U	5.8	1.8	0.70	ug/Kg	☼	10/29/18 13:32	1
sec-Butylbenzene	1.8	U	5.8	1.8	0.89	ug/Kg	☼	10/29/18 13:32	1
Styrene	1.8	U	5.8	1.8	0.73	ug/Kg	☼	10/29/18 13:32	1
tert-Butylbenzene	1.8	U	5.8	1.8	0.58	ug/Kg	☼	10/29/18 13:32	1
Tetrachloroethene	1.8	U	5.8	1.8	0.68	ug/Kg	☼	10/29/18 13:32	1
Toluene	1.8	U	5.8	1.8	0.80	ug/Kg	☼	10/29/18 13:32	1
trans-1,2-Dichloroethene	0.92	U	5.8	0.92	0.45	ug/Kg	☼	10/29/18 13:32	1
trans-1,3-Dichloropropene	1.8	U	5.8	1.8	0.77	ug/Kg	☼	10/29/18 13:32	1
Trichloroethene	0.92	U	5.8	0.92	0.27	ug/Kg	☼	10/29/18 13:32	1
Trichlorofluoromethane	3.7	U	12	3.7	1.2	ug/Kg	☼	10/29/18 13:32	1
Vinyl chloride	3.7	U	5.8	3.7	1.5	ug/Kg	☼	10/29/18 13:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*85 - 116*	*10/16/18 12:08*	*10/29/18 13:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*10/16/18 12:08*	*10/29/18 13:32*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*10/16/18 12:08*	*10/29/18 13:32*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*10/16/18 12:08*	*10/29/18 13:32*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-161018-01
Date Collected: 10/16/18 17:05
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/26/18 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*82 - 110*		*10/26/18 18:35*	*1*

Client Sample ID: P-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-3
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.59**	**J B**	1.5	1.4	0.40	mg/Kg	☼	10/30/18 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*10/16/18 12:08*	*10/30/18 15:32*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-2
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	11/01/18 21:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*107*		*55 - 130*	*10/29/18 14:26*	*11/01/18 21:29*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-3
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1.6**	**J**	7.5	3.8	1.3	mg/Kg	☼	10/25/18 12:39	1
Motor Oil (C20-C38)	22	U	23	22	7.3	mg/Kg	☼	10/25/18 12:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*45 - 130*	*10/23/18 20:22*	*10/25/18 12:39*	*1*
n-Octacosane	*64*		*25 - 162*	*10/23/18 20:22*	*10/25/18 12:39*	*1*

General Chemistry

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-2
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.6**		0.1	0.05	0.1	%		10/22/18 11:25	1

Client Sample ID: P-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-3
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.8**		0.1	0.05	0.1	%		10/20/18 14:00	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115708-2	V-S9-161018-415	94	91	96	97
LCS 280-435387/4	Lab Control Sample	101	92	100	96
LCSD 280-435387/5	Lab Control Sample Dup	100	93	101	95
MB 280-435387/6	Method Blank	95	94	101	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115708-1	TB-S9-161018-01	97	91	97	94
LCS 280-435795/4	Lab Control Sample	100	88	92	92
MB 280-435795/6	Method Blank	98	97	95	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115708-3	P-S9-161018-415	92
LCS 280-435575/1-A	Lab Control Sample	91
MB 280-435575/2-A	Method Blank	88

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115708-1	TB-S9-161018-01	85
LCS 280-435095/6	Lab Control Sample	100
LCSD 280-435095/7	Lab Control Sample Dup	96
MB 280-435095/8	Method Blank	96

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-115708-2	V-S9-161018-415	107
LCS 280-435369/2-A	Lab Control Sample	110
LCSD 280-435369/3-A	Lab Control Sample Dup	109
MB 280-435369/4-A	Method Blank	106

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-115708-3	P-S9-161018-415	82	64
280-115708-3 MS	P-S9-161018-415	82	71
280-115708-3 MS	P-S9-161018-415	83 M	76 M
280-115708-3 MSD	P-S9-161018-415	82	71
280-115708-3 MSD	P-S9-161018-415	90	83
LCS 280-434617/2-A	Lab Control Sample	75	67
LCS 280-434617/3-A	Lab Control Sample	89 M	80 M
MB 280-434617/1-A	Method Blank	81	72

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-435387/6
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		10/29/18 10:28	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		10/29/18 10:28	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		10/29/18 10:28	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		10/29/18 10:28	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		10/29/18 10:28	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		10/29/18 10:28	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		10/29/18 10:28	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		10/29/18 10:28	1
Acetone	13	U M	20	13	5.4	ug/Kg		10/29/18 10:28	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/29/18 10:28	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		10/29/18 10:28	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		10/29/18 10:28	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		10/29/18 10:28	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		10/29/18 10:28	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		10/29/18 10:28	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		10/29/18 10:28	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		10/29/18 10:28	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		10/29/18 10:28	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		10/29/18 10:28	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		10/29/18 10:28	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		10/29/18 10:28	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		10/29/18 10:28	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		10/29/18 10:28	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		10/29/18 10:28	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		10/29/18 10:28	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		10/29/18 10:28	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		10/29/18 10:28	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		10/29/18 10:28	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		10/29/18 10:28	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		10/29/18 10:28	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		10/29/18 10:28	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		10/29/18 10:28	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		10/29/18 10:28	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		10/29/18 10:28	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		10/29/18 10:28	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		10/29/18 10:28	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		10/29/18 10:28	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		10/29/18 10:28	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		10/29/18 10:28	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		10/29/18 10:28	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		10/29/18 10:28	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		10/29/18 10:28	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		10/29/18 10:28	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		10/29/18 10:28	1
1,2,3-Trichlorobenzene	1.6	U M	5.0	1.6	0.75	ug/Kg		10/29/18 10:28	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		10/29/18 10:28	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		10/29/18 10:28	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		10/29/18 10:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435387/6
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		10/29/18 10:28	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		10/29/18 10:28	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		10/29/18 10:28	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		10/29/18 10:28	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		10/29/18 10:28	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		10/29/18 10:28	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		10/29/18 10:28	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		10/29/18 10:28	1
Toluene	1.6	U M	5.0	1.6	0.69	ug/Kg		10/29/18 10:28	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		10/29/18 10:28	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		10/29/18 10:28	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		10/29/18 10:28	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		10/29/18 10:28	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		10/29/18 10:28	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		10/29/18 10:28	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		10/29/18 10:28	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		10/29/18 10:28	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		10/29/18 10:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*85 - 116*		*10/29/18 10:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*		*10/29/18 10:28*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*		*10/29/18 10:28*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*		*10/29/18 10:28*	*1*

Lab Sample ID: LCS 280-435387/4
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	50.3		ug/Kg		101	61 - 132
2-Butanone (MEK)	200	189		ug/Kg		95	51 - 148
1,2-Dichlorobenzene	50.0	50.3		ug/Kg		101	78 - 121
1,3-Dichlorobenzene	50.0	49.2		ug/Kg		98	77 - 121
4-Chlorotoluene	50.0	53.8		ug/Kg		108	72 - 124
1,4-Dichlorobenzene	50.0	48.4		ug/Kg		97	75 - 120
1,1-Dichloroethane	50.0	48.4		ug/Kg		97	76 - 125
1,2-Dichloroethane	50.0	46.5		ug/Kg		93	73 - 128
Acetone	200	193		ug/Kg		97	36 - 164
1,1-Dichloroethene	50.0	52.8		ug/Kg		106	70 - 131
Benzene	50.0	48.6		ug/Kg		97	77 - 121
Bromobenzene	50.0	51.3		ug/Kg		103	78 - 121
Bromoform	50.0	52.2		ug/Kg		104	67 - 132
Bromomethane	50.0	45.9		ug/Kg		92	53 - 143
1,2-Dichloropropane	50.0	47.9		ug/Kg		96	76 - 123
Carbon disulfide	50.0	52.2		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	49.8		ug/Kg		100	77 - 121
Carbon tetrachloride	50.0	49.5		ug/Kg		99	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435387/4
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	48.3		ug/Kg		97	67 - 133
Chlorobenzene	50.0	48.8		ug/Kg		98	79 - 120
1,1-Dichloropropene	50.0	49.8		ug/Kg		100	76 - 125
Bromochloromethane	50.0	50.7		ug/Kg		101	78 - 125
Dibromochloromethane	50.0	52.0		ug/Kg		104	74 - 126
Chloroethane	50.0	48.9		ug/Kg		98	59 - 139
Chloroform	50.0	47.9		ug/Kg		96	78 - 123
2-Hexanone	200	205		ug/Kg		102	53 - 145
Chloromethane	50.0	44.6		ug/Kg		89	50 - 136
cis-1,2-Dichloroethene	50.0	48.5		ug/Kg		97	77 - 123
cis-1,3-Dichloropropene	50.0	56.9		ug/Kg		114	74 - 126
4-Isopropyltoluene	50.0	50.4		ug/Kg		101	73 - 127
Dibromomethane	50.0	47.4		ug/Kg		95	78 - 125
Bromodichloromethane	50.0	49.7		ug/Kg		99	75 - 127
4-Methyl-2-pentanone (MIBK)	200	199		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	52.0		ug/Kg		104	29 - 149
Ethylbenzene	50.0	49.9		ug/Kg		100	76 - 122
Ethylene Dibromide	50.0	51.1		ug/Kg		102	78 - 122
Hexachlorobutadiene	50.0	42.9		ug/Kg		86	61 - 135
Isopropylbenzene	50.0	51.4		ug/Kg		103	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.8		ug/Kg		100	78 - 125
Methyl tert-butyl ether	50.0	48.7		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	50.0	49.0		ug/Kg		98	70 - 124
Methylene Chloride	50.0	47.0		ug/Kg		94	70 - 128
Naphthalene	50.0	49.7		ug/Kg		99	62 - 129
1,2,3-Trichlorobenzene	50.0	48.1		ug/Kg		96	66 - 130
n-Butylbenzene	50.0	50.7		ug/Kg		101	70 - 128
1,1,1-Trichloroethane	50.0	50.3		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	53.2		ug/Kg		106	73 - 125
1,1,2-Trichloroethane	50.0	50.6		ug/Kg		101	78 - 121
sec-Butylbenzene	50.0	53.6		ug/Kg		107	73 - 126
Styrene	50.0	49.8		ug/Kg		100	76 - 124
1,2,4-Trichlorobenzene	50.0	51.4		ug/Kg		103	67 - 129
tert-Butylbenzene	50.0	50.3		ug/Kg		101	73 - 125
1,2,3-Trichloropropane	50.0	50.9		ug/Kg		102	73 - 125
Tetrachloroethene	50.0	49.8		ug/Kg		100	73 - 128
1,2,4-Trimethylbenzene	50.0	49.6		ug/Kg		99	75 - 123
Toluene	50.0	50.7		ug/Kg		101	77 - 121
1,3,5-Trimethylbenzene	50.0	50.3		ug/Kg		101	73 - 124
trans-1,2-Dichloroethene	50.0	55.5		ug/Kg		111	74 - 125
trans-1,3-Dichloropropene	50.0	51.2		ug/Kg		102	71 - 130
o-Xylene	50.0	52.1		ug/Kg		104	77 - 123
Trichloroethene	50.0	49.2		ug/Kg		98	77 - 123
m-Xylene & p-Xylene	50.0	50.6		ug/Kg		101	77 - 124
Trichlorofluoromethane	50.0	49.9		ug/Kg		100	62 - 140
Vinyl chloride	50.0	46.7		ug/Kg		93	56 - 135
2-Chlorotoluene	50.0	51.7		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435387/4
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*96*		*78 - 119*

Lab Sample ID: LCSD 280-435387/5
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	57.2		ug/Kg		114	61 - 132	13	20
2-Butanone (MEK)			200	208		ug/Kg		104	51 - 148	9	20
1,2-Dichlorobenzene			50.0	49.5		ug/Kg		99	78 - 121	2	20
1,3-Dichlorobenzene			50.0	47.7		ug/Kg		95	77 - 121	3	20
4-Chlorotoluene			50.0	51.3		ug/Kg		103	72 - 124	5	20
1,4-Dichlorobenzene			50.0	46.0		ug/Kg		92	75 - 120	5	20
1,1-Dichloroethane			50.0	49.1		ug/Kg		98	76 - 125	1	20
1,2-Dichloroethane			50.0	50.1		ug/Kg		100	73 - 128	7	20
Acetone			200	210		ug/Kg		105	36 - 164	8	20
1,1-Dichloroethene			50.0	54.7		ug/Kg		109	70 - 131	4	20
Benzene			50.0	49.2		ug/Kg		98	77 - 121	1	20
Bromobenzene			50.0	52.7		ug/Kg		105	78 - 121	3	20
Bromoform			50.0	56.9		ug/Kg		114	67 - 132	9	20
Bromomethane			50.0	50.4		ug/Kg		101	53 - 143	9	20
1,2-Dichloropropane			50.0	50.1		ug/Kg		100	76 - 123	4	20
Carbon disulfide			50.0	54.1		ug/Kg		108	63 - 132	4	20
1,3-Dichloropropane			50.0	52.9		ug/Kg		106	77 - 121	6	20
Carbon tetrachloride			50.0	50.5		ug/Kg		101	70 - 135	2	20
2,2-Dichloropropane			50.0	48.9		ug/Kg		98	67 - 133	1	20
Chlorobenzene			50.0	50.0		ug/Kg		100	79 - 120	3	20
1,1-Dichloropropene			50.0	49.5		ug/Kg		99	76 - 125	0	20
Bromochloromethane			50.0	53.2		ug/Kg		106	78 - 125	5	20
Dibromochloromethane			50.0	55.6		ug/Kg		111	74 - 126	7	20
Chloroethane			50.0	52.7		ug/Kg		105	59 - 139	7	20
Chloroform			50.0	49.1		ug/Kg		98	78 - 123	3	20
2-Hexanone			200	228		ug/Kg		114	53 - 145	11	20
Chloromethane			50.0	48.4		ug/Kg		97	50 - 136	8	20
cis-1,2-Dichloroethene			50.0	50.3		ug/Kg		101	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	58.4		ug/Kg		117	74 - 126	3	20
4-Isopropyltoluene			50.0	49.6		ug/Kg		99	73 - 127	2	20
Dibromomethane			50.0	52.1		ug/Kg		104	78 - 125	9	20
Bromodichloromethane			50.0	51.1		ug/Kg		102	75 - 127	3	20
4-Methyl-2-pentanone (MIBK)			200	222		ug/Kg		111	65 - 135	11	20
Dichlorodifluoromethane			50.0	52.6		ug/Kg		105	29 - 149	1	20
Ethylbenzene			50.0	49.7		ug/Kg		99	76 - 122	0	20
Ethylene Dibromide			50.0	55.6		ug/Kg		111	78 - 122	9	20
Hexachlorobutadiene			50.0	43.9		ug/Kg		88	61 - 135	2	20
Isopropylbenzene			50.0	50.8		ug/Kg		102	68 - 134	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435387/5
Matrix: Solid
Analysis Batch: 435387

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	51.0		ug/Kg		102	78 - 125	2	20
Methyl tert-butyl ether	50.0	54.1		ug/Kg		108	73 - 125	10	20
1,1,2,2-Tetrachloroethane	50.0	53.0		ug/Kg		106	70 - 124	8	20
Methylene Chloride	50.0	49.9		ug/Kg		100	70 - 128	6	20
Naphthalene	50.0	54.9		ug/Kg		110	62 - 129	10	20
1,2,3-Trichlorobenzene	50.0	48.8		ug/Kg		98	66 - 130	1	20
n-Butylbenzene	50.0	47.1		ug/Kg		94	70 - 128	7	20
1,1,1-Trichloroethane	50.0	50.5		ug/Kg		101	73 - 130	0	20
N-Propylbenzene	50.0	52.2		ug/Kg		104	73 - 125	2	20
1,1,2-Trichloroethane	50.0	54.7		ug/Kg		109	78 - 121	8	20
sec-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 126	1	20
Styrene	50.0	50.1		ug/Kg		100	76 - 124	1	20
1,2,4-Trichlorobenzene	50.0	50.1		ug/Kg		100	67 - 129	3	20
tert-Butylbenzene	50.0	50.3		ug/Kg		101	73 - 125	0	20
1,2,3-Trichloropropane	50.0	55.9		ug/Kg		112	73 - 125	9	20
Tetrachloroethene	50.0	50.9		ug/Kg		102	73 - 128	2	20
1,2,4-Trimethylbenzene	50.0	49.4		ug/Kg		99	75 - 123	0	20
Toluene	50.0	51.8		ug/Kg		104	77 - 121	2	20
1,3,5-Trimethylbenzene	50.0	50.3		ug/Kg		101	73 - 124	0	20
trans-1,2-Dichloroethene	50.0	56.0		ug/Kg		112	74 - 125	1	20
trans-1,3-Dichloropropene	50.0	53.2		ug/Kg		106	71 - 130	4	20
o-Xylene	50.0	53.2		ug/Kg		106	77 - 123	2	20
Trichloroethene	50.0	50.0		ug/Kg		100	77 - 123	2	20
m-Xylene & p-Xylene	50.0	50.1		ug/Kg		100	77 - 124	1	20
Trichlorofluoromethane	50.0	51.4		ug/Kg		103	62 - 140	3	20
Vinyl chloride	50.0	50.2		ug/Kg		100	56 - 135	7	20
2-Chlorotoluene	50.0	50.4		ug/Kg		101	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-435795/6
Matrix: Water
Analysis Batch: 435795

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		10/31/18 23:10	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		10/31/18 23:10	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		10/31/18 23:10	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		10/31/18 23:10	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		10/31/18 23:10	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		10/31/18 23:10	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		10/31/18 23:10	1
Acetone	6.4	U	10	6.4	1.9	ug/L		10/31/18 23:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435795/6
Matrix: Water
Analysis Batch: 435795

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		10/31/18 23:10	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		10/31/18 23:10	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		10/31/18 23:10	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		10/31/18 23:10	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/31/18 23:10	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		10/31/18 23:10	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		10/31/18 23:10	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		10/31/18 23:10	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		10/31/18 23:10	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/31/18 23:10	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		10/31/18 23:10	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		10/31/18 23:10	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		10/31/18 23:10	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		10/31/18 23:10	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/31/18 23:10	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		10/31/18 23:10	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		10/31/18 23:10	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		10/31/18 23:10	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		10/31/18 23:10	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		10/31/18 23:10	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		10/31/18 23:10	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/31/18 23:10	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		10/31/18 23:10	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		10/31/18 23:10	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		10/31/18 23:10	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		10/31/18 23:10	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/31/18 23:10	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		10/31/18 23:10	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		10/31/18 23:10	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		10/31/18 23:10	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		10/31/18 23:10	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		10/31/18 23:10	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		10/31/18 23:10	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435795/6
Matrix: Water
Analysis Batch: 435795

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		10/31/18 23:10	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		10/31/18 23:10	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		10/31/18 23:10	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		10/31/18 23:10	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		10/31/18 23:10	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		10/31/18 23:10	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		10/31/18 23:10	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		10/31/18 23:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*10/31/18 23:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*		*10/31/18 23:10*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*10/31/18 23:10*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*10/31/18 23:10*	*1*

Lab Sample ID: LCS 280-435795/4
Matrix: Water
Analysis Batch: 435795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.50	J	ug/L		90	62 - 128
2-Butanone (MEK)	20.0	18.3		ug/L		91	56 - 143
1,2-Dichlorobenzene	5.00	4.69		ug/L		94	80 - 119
1,3-Dichlorobenzene	5.00	4.76		ug/L		95	80 - 119
4-Chlorotoluene	5.00	5.00		ug/L		100	78 - 122
1,4-Dichlorobenzene	5.00	4.82		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	4.84		ug/L		97	77 - 125
1,2-Dichloroethane	5.00	4.58		ug/L		92	73 - 128
Acetone	20.0	16.5		ug/L		82	39 - 160
1,1-Dichloroethene	5.00	5.12		ug/L		102	71 - 131
Benzene	5.00	4.83		ug/L		97	79 - 120
Bromobenzene	5.00	4.85		ug/L		97	80 - 120
Bromoform	5.00	4.37		ug/L		87	66 - 130
Bromomethane	5.00	5.00		ug/L		100	53 - 141
1,2-Dichloropropane	5.00	4.96		ug/L		99	78 - 122
Carbon disulfide	5.00	5.04		ug/L		101	64 - 133
1,3-Dichloropropane	5.00	4.60		ug/L		92	80 - 119
Carbon tetrachloride	5.00	4.71		ug/L		94	72 - 136
2,2-Dichloropropane	5.00	4.95		ug/L		99	60 - 139
Chlorobenzene	5.00	4.83		ug/L		97	82 - 118
1,1-Dichloropropene	5.00	4.89		ug/L		98	79 - 125
Bromochloromethane	5.00	4.58		ug/L		92	78 - 123
Dibromochloromethane	5.00	4.77		ug/L		95	74 - 126
Chloroethane	5.00	5.27		ug/L		105	60 - 138
Chloroform	5.00	4.83		ug/L		97	79 - 124
2-Hexanone	20.0	15.5		ug/L		77	57 - 139
Chloromethane	5.00	5.11		ug/L		102	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435795/4
Matrix: Water
Analysis Batch: 435795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.72		ug/L		94	78 - 123
cis-1,3-Dichloropropene	5.00	4.99		ug/L		100	75 - 124
4-Isopropyltoluene	5.00	4.98		ug/L		100	77 - 127
Dibromomethane	5.00	4.68		ug/L		94	79 - 123
Bromodichloromethane	5.00	4.64		ug/L		93	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.5		ug/L		88	67 - 130
Dichlorodifluoromethane	5.00	5.16		ug/L		103	32 - 152
Ethylbenzene	5.00	4.98		ug/L		100	79 - 121
Ethylene Dibromide	5.00	4.46		ug/L		89	77 - 121
Hexachlorobutadiene	5.00	4.87		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.00		ug/L		100	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.84		ug/L		97	78 - 124
Methyl tert-butyl ether	5.00	4.40	J	ug/L		88	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.44		ug/L		89	71 - 121
Methylene Chloride	5.00	4.53	J	ug/L		91	74 - 124
Naphthalene	5.00	4.52		ug/L		90	61 - 128
1,2,3-Trichlorobenzene	5.00	4.31		ug/L		86	69 - 129
n-Butylbenzene	5.00	4.80		ug/L		96	75 - 128
1,1,1-Trichloroethane	5.00	4.87		ug/L		97	74 - 131
N-Propylbenzene	5.00	5.09		ug/L		102	76 - 126
1,1,2-Trichloroethane	5.00	4.72		ug/L		94	80 - 119
sec-Butylbenzene	5.00	5.03		ug/L		101	77 - 126
Styrene	5.00	5.06		ug/L		101	78 - 123
1,2,4-Trichlorobenzene	5.00	4.63		ug/L		93	69 - 130
tert-Butylbenzene	5.00	5.05		ug/L		101	78 - 124
1,2,3-Trichloropropane	5.00	4.29		ug/L		86	73 - 122
Tetrachloroethene	5.00	4.85		ug/L		97	74 - 129
1,2,4-Trimethylbenzene	5.00	4.89		ug/L		98	76 - 124
Toluene	5.00	4.90		ug/L		98	80 - 121
1,3,5-Trimethylbenzene	5.00	4.89		ug/L		98	75 - 124
trans-1,2-Dichloroethene	5.00	5.03		ug/L		101	75 - 124
trans-1,3-Dichloropropene	5.00	4.44		ug/L		89	73 - 127
o-Xylene	5.00	5.13		ug/L		103	78 - 122
Trichloroethene	5.00	4.80		ug/L		96	79 - 123
m-Xylene & p-Xylene	5.00	5.15		ug/L		103	80 - 121
Trichlorofluoromethane	5.00	5.05		ug/L		101	65 - 141
Vinyl chloride	5.00	5.35		ug/L		107	58 - 137
2-Chlorotoluene	5.00	4.77		ug/L		95	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*88*		*81 - 118*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*
Dibromofluoromethane (Surr)	*92*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435095/8
Matrix: Water
Analysis Batch: 435095

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/26/18 11:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*10/26/18 11:42*	*1*

Lab Sample ID: LCS 280-435095/6
Matrix: Water
Analysis Batch: 435095

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	99.0	M	ug/L		98	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*100*		*82 - 110*

Lab Sample ID: LCSD 280-435095/7
Matrix: Water
Analysis Batch: 435095

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	101	106	M	ug/L		106	78 - 122	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: MB 280-435575/2-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435575

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.606	J	1.2	1.1	0.33	mg/Kg		10/30/18 14:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*10/30/18 01:00*	*10/30/18 14:49*	*1*

Lab Sample ID: LCS 280-435575/1-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.89	M	mg/Kg		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/01/18 21:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*55 - 130*	*10/29/18 14:26*	*11/01/18 21:10*	*1*

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.874		ug/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Lab Sample ID: LCSD 280-435369/3-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.855		ug/Kg		98	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434617/1-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434617

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.77	J	7.3	3.6	1.2	mg/Kg		10/25/18 11:33	1
Motor Oil (C20-C38)	21	U	22	21	7.1	mg/Kg		10/25/18 11:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*81*		*45 - 130*	*10/23/18 20:22*	*10/25/18 11:33*	*1*
n-Octacosane	*72*		*25 - 162*	*10/23/18 20:22*	*10/25/18 11:33*	*1*

Lab Sample ID: LCS 280-434617/2-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			126	88.8		mg/Kg		71	38 - 132		

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-434617/2-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434617

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	75		45 - 130
n-Octacosane	67		25 - 162

Lab Sample ID: LCS 280-434617/3-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			319	269		mg/Kg		84	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	89	M	45 - 130
n-Octacosane	80	M	25 - 162

Lab Sample ID: 280-115708-3 MS
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: P-S9-161018-415
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	1.6	J	131	105		mg/Kg	☼	79	38 - 132		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	82		45 - 130
n-Octacosane	71		25 - 162

Lab Sample ID: 280-115708-3 MS
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: P-S9-161018-415
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	22	U	310	248		mg/Kg	☼	80	45 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	83	M	45 - 130
n-Octacosane	76	M	25 - 162

Lab Sample ID: 280-115708-3 MSD
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: P-S9-161018-415
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	1.6	J	133	103		mg/Kg	☼	76	38 - 132	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	82		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-115708-3 MSD
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: P-S9-161018-415
Prep Type: Total/NA
Prep Batch: 434617

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*71*		*25 - 162*

Lab Sample ID: 280-115708-3 MSD
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: P-S9-161018-415
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	22	U	324	268		mg/Kg	☼	83	45 - 130	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*90*		*45 - 130*
n-Octacosane	*83*		*25 - 162*

GC/MS VOA

Prep Batch: 435321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-2	V-S9-161018-415	Total/NA	Solid	5035	

Analysis Batch: 435387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-2	V-S9-161018-415	Total/NA	Solid	8260B	435321
MB 280-435387/6	Method Blank	Total/NA	Solid	8260B	
LCS 280-435387/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 280-435387/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 435795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-1	TB-S9-161018-01	Total/NA	Water	8260B	
MB 280-435795/6	Method Blank	Total/NA	Water	8260B	
LCS 280-435795/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-1	TB-S9-161018-01	Total/NA	Water	8015D GRO	
MB 280-435095/8	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435095/6	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-435095/7	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Analysis Batch: 435565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-3	P-S9-161018-415	Total/NA	Solid	8015D GRO	435575
MB 280-435575/2-A	Method Blank	Total/NA	Solid	8015D GRO	435575
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	435575

Prep Batch: 435575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-3	P-S9-161018-415	Total/NA	Solid	5035	
MB 280-435575/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 434617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-3	P-S9-161018-415	Total/NA	Solid	3546	
MB 280-434617/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434617/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434617/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-115708-3 MS	P-S9-161018-415	Total/NA	Solid	3546	
280-115708-3 MS	P-S9-161018-415	Total/NA	Solid	3546	
280-115708-3 MSD	P-S9-161018-415	Total/NA	Solid	3546	
280-115708-3 MSD	P-S9-161018-415	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Analysis Batch: 434866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-3	P-S9-161018-415	Total/NA	Solid	8015D DRO	434617
MB 280-434617/1-A	Method Blank	Total/NA	Solid	8015D DRO	434617
LCS 280-434617/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434617
LCS 280-434617/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434617
280-115708-3 MS	P-S9-161018-415	Total/NA	Solid	8015D DRO	434617
280-115708-3 MS	P-S9-161018-415	Total/NA	Solid	8015D DRO	434617
280-115708-3 MSD	P-S9-161018-415	Total/NA	Solid	8015D DRO	434617
280-115708-3 MSD	P-S9-161018-415	Total/NA	Solid	8015D DRO	434617

Prep Batch: 435369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-2	V-S9-161018-415	Total/NA	Solid	8011	
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 435949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-2	V-S9-161018-415	Total/NA	Solid	8011	435369
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369

General Chemistry

Analysis Batch: 434293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-3	P-S9-161018-415	Total/NA	Solid	Moisture	

Analysis Batch: 434394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115708-2	V-S9-161018-415	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Client Sample ID: TB-S9-161018-01
Date Collected: 10/16/18 17:05
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435795	11/01/18 00:52	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435095	10/26/18 18:35	CAS	TAL DEN

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434394	10/22/18 11:25	CCJ	TAL DEN

Client Sample ID: V-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-2
Matrix: Solid
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.533 g	5 mL	435321	10/16/18 12:08	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	435387	10/29/18 13:32	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/01/18 21:29	MJS	TAL DEN

Client Sample ID: P-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434293	10/20/18 14:00	JDR	TAL DEN

Client Sample ID: P-S9-161018-415
Date Collected: 10/16/18 12:08
Date Received: 10/17/18 09:40

Lab Sample ID: 280-115708-3
Matrix: Solid
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.313 g	5 mL	435575	10/16/18 12:08	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 15:32	GPM	TAL DEN
Total/NA	Prep	3546			16.6 g	1 mL	434617	10/23/18 20:22	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			434866	10/25/18 12:39	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115708-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443737927575	COC No: COC1-TA-20181016
Client Contact: Pamela Moss	Phone: 336-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	Analysis Requested	Preservation Codes:
City: Greenwood Village	TAT Requested (days): Per PO		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:
State, Zip: CO, 80111			
Phone: 303-590-9143(Tel)	PO #: 16065		
Email: pmoss@eaest.com	WO #: 62735DM02.1017		
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071		
Site: Kirtland BFF	SSOW#: —		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-59-161018-01	10/16/18	1705	G	W	N	N	—	—	—	—	—	X	—	X	—	—	
V-59-161018-415	10/16/18	1208	G	S	N	N	X	X	X	—	—	—	—	—	—	—	
P-59-161018-415	10/16/18	1208	G	S	N	N	—	—	—	X	X	—	—	—	—	—	


280-115708 Chain of Custody

Loc: 280
115708

Possible Hazard Identification						
☐ Non-Hazard	☐ Flammable	☐ Skin Irritant	☐ Poison B	☐ Unknown	☐ Radiological	

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 10/16/18 1800	Company: EA	Received by: FedEx	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/17/18 0940	Company: TA DEN

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115708-1

Login Number: 115708
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115762-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/20/2018 9:28:11 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115762-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115762-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/18/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3º C.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-S4-171018-040 (280-115762-1), P-S4-171018-110 (280-115762-2) and P-S4-171018-300 (280-115762-3) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 10/17/2018 and analyzed on 10/30/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-435575/2-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". The concentration in the blank was just above one-half the LOQ. The associated samples were less than the LOQ; therefore, the data have been reported. If the associated samples reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S4-171018-01 (280-115762-4) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/31/2018.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S4-171018-040 (280-115762-1), P-S4-171018-110 (280-115762-2) and P-S4-171018-300 (280-115762-3) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/23/2018 and analyzed on 10/25/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434617/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J1". Refer to the QC report for details.

Job ID: 280-115762-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

This is acceptable, as the concentration in the MB is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-S4-171018-040 (280-115762-1), P-S4-171018-110 (280-115762-2) and P-S4-171018-300 (280-115762-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/23/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Client Sample ID: P-S4-171018-040 — Lab Sample ID: 280-115762-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.49	J B	1.1	1.0	0.31	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.3	J	9.4	4.7	1.6	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S4-171018-110 — Lab Sample ID: 280-115762-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.71	J B	1.6	1.4	0.43	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.2	J	8.4	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S4-171018-300 — Lab Sample ID: 280-115762-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.56	J B	1.4	1.3	0.37	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.1	J	7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: TB-S4-171018-01 — Lab Sample ID: 280-115762-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	14	J	25	25	10	ug/L	1		8015D GRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115762-1	P-S4-171018-040	Solid	10/17/18 09:45	10/18/18 09:15
280-115762-2	P-S4-171018-110	Solid	10/17/18 09:36	10/18/18 09:15
280-115762-3	P-S4-171018-300	Solid	10/17/18 09:26	10/18/18 09:15
280-115762-4	TB-S4-171018-01	Water	10/17/18 09:00	10/18/18 09:15

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S4-171018-040
Date Collected: 10/17/18 09:45
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-1
Matrix: Solid
Percent Solids: 85.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.49	J B	1.1	1.0	0.31	mg/Kg	☼	10/30/18 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	101		77 - 123	10/17/18 09:45	10/30/18 15:56	1

Client Sample ID: P-S4-171018-110
Date Collected: 10/17/18 09:36
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-2
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.71	J B	1.6	1.4	0.43	mg/Kg	☼	10/30/18 16:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	99		77 - 123	10/17/18 09:36	10/30/18 16:20	1

Client Sample ID: P-S4-171018-300
Date Collected: 10/17/18 09:26
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-3
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.56	J B	1.4	1.3	0.37	mg/Kg	☼	10/30/18 16:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	95		77 - 123	10/17/18 09:26	10/30/18 16:44	1

Client Sample ID: TB-S4-171018-01
Date Collected: 10/17/18 09:00
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-4
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	14	J	25	25	10	ug/L		10/31/18 16:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	107		82 - 110		10/31/18 16:04	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S4-171018-040
Date Collected: 10/17/18 09:45
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-1
Matrix: Solid
Percent Solids: 85.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.3	J	9.4	4.7	1.6	mg/Kg	☼	10/25/18 15:11	1
Motor Oil (C20-C38)	27	U	28	27	9.2	mg/Kg	☼	10/25/18 15:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	10/23/18 20:22	10/25/18 15:11	1
n-Octacosane	63		25 - 162	10/23/18 20:22	10/25/18 15:11	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S4-171018-110 — **Lab Sample ID: 280-115762-2**
Date Collected: 10/17/18 09:36 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.2**	**J**	8.4	4.2	1.4	mg/Kg	☼	10/25/18 15:33	1
Motor Oil (C20-C38)	24	U	25	24	8.2	mg/Kg	☼	10/25/18 15:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*77*		*45 - 130*	*10/23/18 20:22*	*10/25/18 15:33*	*1*
n-Octacosane	*69*		*25 - 162*	*10/23/18 20:22*	*10/25/18 15:33*	*1*

Client Sample ID: P-S4-171018-300 — **Lab Sample ID: 280-115762-3**
Date Collected: 10/17/18 09:26 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.1**	**J**	7.6	3.8	1.3	mg/Kg	☼	10/25/18 15:54	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg	☼	10/25/18 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*45 - 130*	*10/23/18 20:22*	*10/25/18 15:54*	*1*
n-Octacosane	*73*		*25 - 162*	*10/23/18 20:22*	*10/25/18 15:54*	*1*

General Chemistry

Client Sample ID: P-S4-171018-040 — **Lab Sample ID: 280-115762-1**
Date Collected: 10/17/18 09:45 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 85.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**14.8**		0.1	0.05	0.1	%		10/23/18 12:29	1

Client Sample ID: P-S4-171018-110 — **Lab Sample ID: 280-115762-2**
Date Collected: 10/17/18 09:36 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**10.2**		0.1	0.05	0.1	%		10/23/18 12:29	1

Client Sample ID: P-S4-171018-300 — **Lab Sample ID: 280-115762-3**
Date Collected: 10/17/18 09:26 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**2.6**		0.1	0.05	0.1	%		10/23/18 12:29	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115762-1	P-S4-171018-040	101
280-115762-2	P-S4-171018-110	99
280-115762-3	P-S4-171018-300	95
LCS 280-435575/1-A	Lab Control Sample	91
MB 280-435575/2-A	Method Blank	88

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115762-4	TB-S4-171018-01	107
LCS 280-435717/3	Lab Control Sample	86
MB 280-435717/5	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-115762-1	P-S4-171018-040	70	63
280-115762-2	P-S4-171018-110	77	69
280-115762-3	P-S4-171018-300	82	73
LCS 280-434617/2-A	Lab Control Sample	75	67
LCS 280-434617/3-A	Lab Control Sample	89 M	80 M
MB 280-434617/1-A	Method Blank	81	72

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435575/2-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435575

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.606	J	1.2	1.1	0.33	mg/Kg		10/30/18 14:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*10/30/18 01:00*	*10/30/18 14:49*	*1*

Lab Sample ID: LCS 280-435575/1-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	5.50	5.89	M	mg/Kg		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-435717/5
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/31/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/31/18 12:07*	*1*

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	94.4	M	ug/L		94	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*86*		*82 - 110*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434617/1-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434617

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.77	J	7.3	3.6	1.2	mg/Kg		10/25/18 11:33	1
Motor Oil (C20-C38)	21	U	22	21	7.1	mg/Kg		10/25/18 11:33	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-434617/1-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434617

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	81		45 - 130	10/23/18 20:22	10/25/18 11:33	1
n-Octacosane	72		25 - 162	10/23/18 20:22	10/25/18 11:33	1

Lab Sample ID: LCS 280-434617/2-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	126	88.8		mg/Kg		71	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	75		45 - 130
n-Octacosane	67		25 - 162

Lab Sample ID: LCS 280-434617/3-A
Matrix: Solid
Analysis Batch: 434866

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434617

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	319	269		mg/Kg		84	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	89	M	45 - 130
n-Octacosane	80	M	25 - 162

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

GC VOA

Analysis Batch: 435565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-1	P-S4-171018-040	Total/NA	Solid	8015D GRO	435575
280-115762-2	P-S4-171018-110	Total/NA	Solid	8015D GRO	435575
280-115762-3	P-S4-171018-300	Total/NA	Solid	8015D GRO	435575
MB 280-435575/2-A	Method Blank	Total/NA	Solid	8015D GRO	435575
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	435575

Prep Batch: 435575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-1	P-S4-171018-040	Total/NA	Solid	5035	
280-115762-2	P-S4-171018-110	Total/NA	Solid	5035	
280-115762-3	P-S4-171018-300	Total/NA	Solid	5035	
MB 280-435575/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 435717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-4	TB-S4-171018-01	Total/NA	Water	8015D GRO	
MB 280-435717/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435717/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 434617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-1	P-S4-171018-040	Total/NA	Solid	3546	
280-115762-2	P-S4-171018-110	Total/NA	Solid	3546	
280-115762-3	P-S4-171018-300	Total/NA	Solid	3546	
MB 280-434617/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434617/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434617/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 434866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-1	P-S4-171018-040	Total/NA	Solid	8015D DRO	434617
280-115762-2	P-S4-171018-110	Total/NA	Solid	8015D DRO	434617
280-115762-3	P-S4-171018-300	Total/NA	Solid	8015D DRO	434617
MB 280-434617/1-A	Method Blank	Total/NA	Solid	8015D DRO	434617
LCS 280-434617/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434617
LCS 280-434617/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434617

General Chemistry

Analysis Batch: 434565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115762-1	P-S4-171018-040	Total/NA	Solid	Moisture	
280-115762-2	P-S4-171018-110	Total/NA	Solid	Moisture	
280-115762-3	P-S4-171018-300	Total/NA	Solid	Moisture	

Client Sample ID: P-S4-171018-040 — **Lab Sample ID: 280-115762-1**
Date Collected: 10/17/18 09:45 — **Matrix: Solid**
Date Received: 10/18/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: P-S4-171018-040 — **Lab Sample ID: 280-115762-1**
Date Collected: 10/17/18 09:45 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 85.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.601 g	5 mL	435575	10/17/18 09:45	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 15:56	GPM	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	434617	10/23/18 20:22	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			434866	10/25/18 15:11	CSM	TAL DEN

Client Sample ID: P-S4-171018-110 — **Lab Sample ID: 280-115762-2**
Date Collected: 10/17/18 09:36 — **Matrix: Solid**
Date Received: 10/18/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: P-S4-171018-110 — **Lab Sample ID: 280-115762-2**
Date Collected: 10/17/18 09:36 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 89.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.631 g	5 mL	435575	10/17/18 09:36	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 16:20	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	434617	10/23/18 20:22	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			434866	10/25/18 15:33	CSM	TAL DEN

Client Sample ID: P-S4-171018-300 — **Lab Sample ID: 280-115762-3**
Date Collected: 10/17/18 09:26 — **Matrix: Solid**
Date Received: 10/18/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: P-S4-171018-300 — **Lab Sample ID: 280-115762-3**
Date Collected: 10/17/18 09:26 — **Matrix: Solid**
Date Received: 10/18/18 09:15 — **Percent Solids: 97.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.623 g	5 mL	435575	10/17/18 09:26	GPM	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Client Sample ID: P-S4-171018-300

Date Collected: 10/17/18 09:26
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-3

Matrix: Solid
Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 16:44	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	434617	10/23/18 20:22	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			434866	10/25/18 15:54	CSM	TAL DEN

Client Sample ID: TB-S4-171018-01

Date Collected: 10/17/18 09:00
Date Received: 10/18/18 09:15

Lab Sample ID: 280-115762-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 16:04	GPM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115762-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Messenger	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): FedEx 4433 3392 7586	COC No: COC1-S4-TA-20181017
Client Contact: Pamela Moss	Phone: (508) 789-0624	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-690-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X										X	
P-S4-171018-040	17OCT18	0945	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—
P-S4-171018-110	17OCT18	0936	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—
P-S4-171018-300	17OCT18	0926	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—
TB-S4-171018-01	17OCT18	0900	G	W	N	N	—	—	—	—	—	—	—	—	X	2	—

280-115762 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Joshua Messenger	17OCT18 1130	EA		10/18/18 0915	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 4.6 to 7 Iced/ice

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115762-1

Login Number: 115762
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115813-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/20/2018 10:14:32 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

GC VOA

Qualifier	Qualifier Description
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115813-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115813-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/19/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-S9-171018-470 (280-115813-3) and V-S9-171018-475 (280-115813-5) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/17/2018 and analyzed on 10/30/2018.

Sample V-S9-171018-475 (280-115813-5)[10X] required dilution prior to analysis due to the nature of the sample matrix. Associated results have been flagged "D". Elevated reporting limits (RLs) are provided.

Dibromofluoromethane (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria low for V-S9-171018-475 (280-115813-5). Associated results have been flagged "Q". Because of the required dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

4-Bromofluorobenzene (Surr), Dibromofluoromethane (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for V-S9-171018-470 (280-115813-3). Associated results have been flagged "Q". Evidence of matrix interference is present as evident in the chromatogram; therefore, re-extraction and/or re-analysis was not performed.

Naphthalene was detected in method blank MB 280-435215/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. Refer to the QC report for details. This is acceptable because the concentration in the method blank is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S9-181018-01 (280-115813-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/01/2018.

The surrogate spike for the original method blank MB 280-435843/6 was inadvertently omitted. The next sample was a trip blank which was copied as a secondary method blank, MB 280-435843/1010, with passing surrogates for reference. Both have been reported.

Job ID: 280-115813-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

1,1,2-Trichloroethane failed the recovery criteria high for LCS 280-435843/4 and LCSD 280-435843/5. All associated results have been flagged "Q". Refer to the QC report for details. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples V-S9-171018-470 (280-115813-3) and V-S9-171018-475 (280-115813-5) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/29/2018 and analyzed on 11/01/2018.

The surrogate recovery for the following sample was outside acceptance limits (high biased) on the primary column due to matrix interference: V-S9-171018-475 (280-115813-5). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control; therefore, the data have been reported from the in control column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S9-171018-470 (280-115813-2) and P-S9-171018-475 (280-115813-4) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 10/17/2018 and analyzed on 10/30/2018.

Sample P-S9-171018-475 (280-115813-4)[10X] required dilution prior to analysis due to abundance of target analytes. Associated results have been flagged "D". Elevated reporting limits (RLs) are provided.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S9-171018-475 (280-115813-4). Associated results have been flagged "Q". Refer to the QC report for details. Because of the required dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-435575/2-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". The concentration in the blank was just above one-half the LOQ. The associated samples were >10x the concentration in the method blank; therefore, the data have been reported. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S9-181018-01 (280-115813-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/31/2018.

It was noted that the trip blank had a detection greater than the LOQ. The laboratory noted that the method blank for this batch was non-detect and the LCS recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S9-171018-470 (280-115813-2) and P-S9-171018-475 (280-115813-4) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/24/2018 and analyzed on 10/26/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434808/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J1". Refer to the QC report for details. This is acceptable, as the concentration in the method blank is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Job ID: 280-115813-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples P-S9-171018-470 (280-115813-2), V-S9-171018-470 (280-115813-3), P-S9-171018-475 (280-115813-4) and V-S9-171018-475 (280-115813-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/23/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Client Sample ID: TB-S9-181018-01 — Lab Sample ID: 280-115813-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.7	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.59	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	65		25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: P-S9-171018-470 — Lab Sample ID: 280-115813-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	34	B	1.4	1.3	0.37	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	68		7.9	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S9-171018-470 — Lab Sample ID: 280-115813-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2200	Q	2200	1800	570	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	95	J Q	720	110	55	ug/Kg	1	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	120	J Q	360	110	44	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	79	J Q	360	110	56	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	69	J Q	180	110	50	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	120	J Q	360	230	110	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S9-171018-475 — Lab Sample ID: 280-115813-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	440	D B Q	14	13	3.8	mg/Kg	10	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	180		9.0	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S9-171018-475 — Lab Sample ID: 280-115813-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
sec-Butylbenzene	1100	J D	2800	900	430	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	590	J D Q	2800	900	380	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	480	J D	2800	900	330	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	890	J D	5600	900	430	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	1100	J D	2800	1800	460	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	1600	J D	2800	900	350	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	1200	J D	2800	900	440	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	1600	D Q	1400	900	390	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	4300	D Q	2800	1800	880	ug/Kg	10	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115813-1	TB-S9-181018-01	Water	10/18/18 15:30	10/19/18 09:20
280-115813-2	P-S9-171018-470	Solid	10/17/18 17:20	10/19/18 09:20
280-115813-3	V-S9-171018-470	Solid	10/17/18 17:20	10/19/18 09:20
280-115813-4	P-S9-171018-475	Solid	10/17/18 17:30	10/19/18 09:20
280-115813-5	V-S9-171018-475	Solid	10/17/18 17:30	10/19/18 09:20

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-181018-01
Date Collected: 10/18/18 15:30
Date Received: 10/19/18 09:20

Lab Sample ID: 280-115813-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.7**	**J**	10	6.4	1.9	ug/L		11/01/18 15:33	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/01/18 15:33	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 15:33	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/01/18 15:33	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/01/18 15:33	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/01/18 15:33	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/01/18 15:33	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/01/18 15:33	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/01/18 15:33	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/01/18 15:33	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 15:33	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/01/18 15:33	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/01/18 15:33	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 15:33	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 15:33	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 15:33	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 15:33	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 15:33	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/01/18 15:33	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/01/18 15:33	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 15:33	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 15:33	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 15:33	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 15:33	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 15:33	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 15:33	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 15:33	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/01/18 15:33	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/01/18 15:33	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 15:33	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 15:33	1
Methylene Chloride	**0.59**	**J**	5.0	0.80	0.32	ug/L		11/01/18 15:33	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/01/18 15:33	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/01/18 15:33	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 15:33	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-181018-01
Date Collected: 10/18/18 15:30
Date Received: 10/19/18 09:20
Lab Sample ID: 280-115813-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 15:33	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 15:33	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 15:33	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 15:33	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		11/01/18 15:33	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/01/18 15:33	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 15:33	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/01/18 15:33	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 15:33	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 15:33	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/01/18 15:33	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 15:33	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/01/18 15:33	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 15:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*89 - 112*		*11/01/18 15:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*81 - 118*		*11/01/18 15:33*	*1*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*11/01/18 15:33*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 119*		*11/01/18 15:33*	*1*

Client Sample ID: V-S9-171018-470
Date Collected: 10/17/18 17:20
Date Received: 10/19/18 09:20
Lab Sample ID: 280-115813-3
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2200**	**Q**	2200	1800	570	ug/Kg	☼	10/30/18 17:07	1
Benzene	230	U M	360	230	65	ug/Kg	☼	10/30/18 17:07	1
Bromobenzene	57	U Q	360	57	27	ug/Kg	☼	10/30/18 17:07	1
Bromochloromethane	230	U Q	360	230	68	ug/Kg	☼	10/30/18 17:07	1
Bromodichloromethane	110	U	360	110	57	ug/Kg	☼	10/30/18 17:07	1
Bromoform	230	U Q	360	230	230	ug/Kg	☼	10/30/18 17:07	1
Bromomethane	230	U Q	720	230	63	ug/Kg	☼	10/30/18 17:07	1
2-Butanone (MEK)	920	U M Q	1400	920	420	ug/Kg	☼	10/30/18 17:07	1
n-Butylbenzene	110	U Q	360	110	46	ug/Kg	☼	10/30/18 17:07	1
sec-Butylbenzene	110	U Q	360	110	55	ug/Kg	☼	10/30/18 17:07	1
tert-Butylbenzene	110	U Q	360	110	40	ug/Kg	☼	10/30/18 17:07	1
Carbon disulfide	230	U Q	360	230	92	ug/Kg	☼	10/30/18 17:07	1
Carbon tetrachloride	57	U	360	57	24	ug/Kg	☼	10/30/18 17:07	1
Chlorobenzene	110	U Q	360	110	43	ug/Kg	☼	10/30/18 17:07	1
Chloroethane	230	U Q	720	230	63	ug/Kg	☼	10/30/18 17:07	1
Chloroform	230	U Q	360	230	66	ug/Kg	☼	10/30/18 17:07	1
Chloromethane	230	U Q	720	230	72	ug/Kg	☼	10/30/18 17:07	1
4-Chlorotoluene	110	U Q	360	110	33	ug/Kg	☼	10/30/18 17:07	1
Dibromochloromethane	110	U Q	360	110	47	ug/Kg	☼	10/30/18 17:07	1
1,2-Dibromo-3-Chloropropane	460	U Q	720	460	120	ug/Kg	☼	10/30/18 17:07	1
Dichlorodifluoromethane	110	U Q	720	110	32	ug/Kg	☼	10/30/18 17:07	1
Dibromomethane	110	U	360	110	43	ug/Kg	☼	10/30/18 17:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-171018-470
Date Collected: 10/17/18 17:20
Date Received: 10/19/18 09:20

Lab Sample ID: 280-115813-3
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	110	U Q	360	110	36	ug/Kg	☼	10/30/18 17:07	1
1,2-Dichlorobenzene	460	U Q	720	460	130	ug/Kg	☼	10/30/18 17:07	1
1,3-Dichlorobenzene	230	U Q	360	230	58	ug/Kg	☼	10/30/18 17:07	1
1,4-Dichlorobenzene	110	U Q	360	110	36	ug/Kg	☼	10/30/18 17:07	1
1,1-Dichloroethane	230	U Q	360	230	72	ug/Kg	☼	10/30/18 17:07	1
1,2-Dichloroethane	110	U	360	110	36	ug/Kg	☼	10/30/18 17:07	1
1,1-Dichloroethene	230	U Q	360	230	72	ug/Kg	☼	10/30/18 17:07	1
1,2-Dichloroethene, Total	110	U	180	110	32	ug/Kg	☼	10/30/18 17:07	1
cis-1,2-Dichloroethene	110	U Q	180	110	32	ug/Kg	☼	10/30/18 17:07	1
trans-1,2-Dichloroethene	230	U Q	360	230	64	ug/Kg	☼	10/30/18 17:07	1
1,2-Dichloropropane	230	U	360	230	66	ug/Kg	☼	10/30/18 17:07	1
1,3-Dichloropropane	110	U Q	360	110	40	ug/Kg	☼	10/30/18 17:07	1
2,2-Dichloropropane	110	U Q	360	110	39	ug/Kg	☼	10/30/18 17:07	1
1,1-Dichloropropene	230	U	360	230	69	ug/Kg	☼	10/30/18 17:07	1
cis-1,3-Dichloropropene	110	U	360	110	39	ug/Kg	☼	10/30/18 17:07	1
trans-1,3-Dichloropropene	230	U	360	230	59	ug/Kg	☼	10/30/18 17:07	1
Ethylbenzene	110	U Q	360	110	49	ug/Kg	☼	10/30/18 17:07	1
2-Hexanone	920	U M Q	1400	920	310	ug/Kg	☼	10/30/18 17:07	1
Hexachlorobutadiene	230	U Q	360	230	70	ug/Kg	☼	10/30/18 17:07	1
Isopropylbenzene	110	U Q	360	110	42	ug/Kg	☼	10/30/18 17:07	1
4-Isopropyltoluene	110	U Q	360	110	46	ug/Kg	☼	10/30/18 17:07	1
Methylene Chloride	230	U Q	360	230	99	ug/Kg	☼	10/30/18 17:07	1
4-Methyl-2-pentanone (MIBK)	920	U M	1400	920	320	ug/Kg	☼	10/30/18 17:07	1
Methyl tert-butyl ether	230	U Q	360	230	72	ug/Kg	☼	10/30/18 17:07	1
Naphthalene	**95**	**J Q**	720	110	55	ug/Kg	☼	10/30/18 17:07	1
N-Propylbenzene	230	U Q	360	230	59	ug/Kg	☼	10/30/18 17:07	1
Styrene	110	U M Q	360	110	37	ug/Kg	☼	10/30/18 17:07	1
1,1,1,2-Tetrachloroethane	110	U Q	360	110	30	ug/Kg	☼	10/30/18 17:07	1
1,1,2,2-Tetrachloroethane	110	U M Q	360	110	42	ug/Kg	☼	10/30/18 17:07	1
Tetrachloroethene	110	U Q	360	110	39	ug/Kg	☼	10/30/18 17:07	1
Toluene	110	U	360	110	56	ug/Kg	☼	10/30/18 17:07	1
1,2,3-Trichlorobenzene	110	U Q	360	110	50	ug/Kg	☼	10/30/18 17:07	1
1,1,1-Trichloroethane	57	U Q	360	57	29	ug/Kg	☼	10/30/18 17:07	1
1,1,2-Trichloroethane	110	U M	360	110	39	ug/Kg	☼	10/30/18 17:07	1
Trichloroethene	110	U	360	110	33	ug/Kg	☼	10/30/18 17:07	1
Trichlorofluoromethane	230	U Q	720	230	72	ug/Kg	☼	10/30/18 17:07	1
1,2,4-Trichlorobenzene	230	U Q	360	230	67	ug/Kg	☼	10/30/18 17:07	1
1,2,3-Trichloropropane	230	U M Q	360	230	67	ug/Kg	☼	10/30/18 17:07	1
1,2,4-Trimethylbenzene	**120**	**J Q**	360	110	44	ug/Kg	☼	10/30/18 17:07	1
1,3,5-Trimethylbenzene	**79**	**J Q**	360	110	56	ug/Kg	☼	10/30/18 17:07	1
Vinyl chloride	110	U Q	720	110	39	ug/Kg	☼	10/30/18 17:07	1
o-Xylene	**69**	**J Q**	180	110	50	ug/Kg	☼	10/30/18 17:07	1
m-Xylene & p-Xylene	**120**	**J Q**	360	230	110	ug/Kg	☼	10/30/18 17:07	1
2-Chlorotoluene	110	U M Q	360	110	37	ug/Kg	☼	10/30/18 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*121*	*Q*	*85 - 116*	*10/17/18 17:20*	*10/30/18 17:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*134*		*71 - 136*	*10/17/18 17:20*	*10/30/18 17:07*	*1*
4-Bromofluorobenzene (Surr)	*126*	*Q*	*79 - 119*	*10/17/18 17:20*	*10/30/18 17:07*	*1*
Dibromofluoromethane (Surr)	*136*	*Q*	*78 - 119*	*10/17/18 17:20*	*10/30/18 17:07*	*1*

Client Sample ID: V-S9-171018-475
Date Collected: 10/17/18 17:30
Date Received: 10/19/18 09:20

Lab Sample ID: 280-115813-5
Matrix: Solid
Percent Solids: 81.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	14000	U Q	17000	14000	4500	ug/Kg	☼	10/30/18 17:25	10
Benzene	1800	U M	2800	1800	510	ug/Kg	☼	10/30/18 17:25	10
Bromobenzene	450	U	2800	450	210	ug/Kg	☼	10/30/18 17:25	10
Bromochloromethane	1800	U Q	2800	1800	530	ug/Kg	☼	10/30/18 17:25	10
Bromodichloromethane	900	U	2800	900	440	ug/Kg	☼	10/30/18 17:25	10
Bromoform	1800	U Q	2800	1800	1800	ug/Kg	☼	10/30/18 17:25	10
Bromomethane	1800	U Q	5600	1800	490	ug/Kg	☼	10/30/18 17:25	10
2-Butanone (MEK)	7200	U Q	11000	7200	3300	ug/Kg	☼	10/30/18 17:25	10
n-Butylbenzene	900	U	2800	900	360	ug/Kg	☼	10/30/18 17:25	10
sec-Butylbenzene	**1100**	**J D**	2800	900	430	ug/Kg	☼	10/30/18 17:25	10
tert-Butylbenzene	900	U M	2800	900	310	ug/Kg	☼	10/30/18 17:25	10
Carbon disulfide	1800	U Q	2800	1800	720	ug/Kg	☼	10/30/18 17:25	10
Carbon tetrachloride	450	U	2800	450	190	ug/Kg	☼	10/30/18 17:25	10
Chlorobenzene	900	U Q	2800	900	340	ug/Kg	☼	10/30/18 17:25	10
Chloroethane	1800	U Q	5600	1800	490	ug/Kg	☼	10/30/18 17:25	10
Chloroform	1800	U Q	2800	1800	520	ug/Kg	☼	10/30/18 17:25	10
Chloromethane	1800	U Q	5600	1800	560	ug/Kg	☼	10/30/18 17:25	10
4-Chlorotoluene	900	U M	2800	900	260	ug/Kg	☼	10/30/18 17:25	10
Dibromochloromethane	900	U Q	2800	900	370	ug/Kg	☼	10/30/18 17:25	10
1,2-Dibromo-3-Chloropropane	3600	U	5600	3600	970	ug/Kg	☼	10/30/18 17:25	10
Dichlorodifluoromethane	900	U Q	5600	900	250	ug/Kg	☼	10/30/18 17:25	10
Dibromomethane	900	U	2800	900	340	ug/Kg	☼	10/30/18 17:25	10
Ethylene Dibromide	900	U Q	2800	900	280	ug/Kg	☼	10/30/18 17:25	10
1,2-Dichlorobenzene	3600	U	5600	3600	1100	ug/Kg	☼	10/30/18 17:25	10
1,3-Dichlorobenzene	1800	U	2800	1800	460	ug/Kg	☼	10/30/18 17:25	10
1,4-Dichlorobenzene	900	U	2800	900	280	ug/Kg	☼	10/30/18 17:25	10
1,1-Dichloroethane	1800	U Q	2800	1800	570	ug/Kg	☼	10/30/18 17:25	10
1,2-Dichloroethane	900	U	2800	900	280	ug/Kg	☼	10/30/18 17:25	10
1,1-Dichloroethene	1800	U Q	2800	1800	570	ug/Kg	☼	10/30/18 17:25	10
1,2-Dichloroethene, Total	900	U	1400	900	250	ug/Kg	☼	10/30/18 17:25	10
cis-1,2-Dichloroethene	900	U Q	1400	900	250	ug/Kg	☼	10/30/18 17:25	10
trans-1,2-Dichloroethene	1800	U Q	2800	1800	500	ug/Kg	☼	10/30/18 17:25	10
1,2-Dichloropropane	1800	U	2800	1800	520	ug/Kg	☼	10/30/18 17:25	10
1,3-Dichloropropane	900	U Q	2800	900	310	ug/Kg	☼	10/30/18 17:25	10
2,2-Dichloropropane	900	U Q	2800	900	300	ug/Kg	☼	10/30/18 17:25	10
1,1-Dichloropropene	1800	U	2800	1800	540	ug/Kg	☼	10/30/18 17:25	10
cis-1,3-Dichloropropene	900	U	2800	900	300	ug/Kg	☼	10/30/18 17:25	10
trans-1,3-Dichloropropene	1800	U	2800	1800	460	ug/Kg	☼	10/30/18 17:25	10
Ethylbenzene	**590**	**J D Q**	2800	900	380	ug/Kg	☼	10/30/18 17:25	10
2-Hexanone	7200	U M Q	11000	7200	2400	ug/Kg	☼	10/30/18 17:25	10
Hexachlorobutadiene	1800	U	2800	1800	550	ug/Kg	☼	10/30/18 17:25	10
Isopropylbenzene	**480**	**J D**	2800	900	330	ug/Kg	☼	10/30/18 17:25	10
4-Isopropyltoluene	900	U	2800	900	360	ug/Kg	☼	10/30/18 17:25	10
Methylene Chloride	1800	U M Q	2800	1800	770	ug/Kg	☼	10/30/18 17:25	10
4-Methyl-2-pentanone (MIBK)	7200	U M	11000	7200	2500	ug/Kg	☼	10/30/18 17:25	10
Methyl tert-butyl ether	1800	U Q	2800	1800	560	ug/Kg	☼	10/30/18 17:25	10
Naphthalene	**890**	**J D**	5600	900	430	ug/Kg	☼	10/30/18 17:25	10
N-Propylbenzene	**1100**	**J D**	2800	1800	460	ug/Kg	☼	10/30/18 17:25	10
Styrene	900	U M Q	2800	900	290	ug/Kg	☼	10/30/18 17:25	10
1,1,1,2-Tetrachloroethane	900	U Q	2800	900	240	ug/Kg	☼	10/30/18 17:25	10
1,1,2,2-Tetrachloroethane	900	U M	2800	900	330	ug/Kg	☼	10/30/18 17:25	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-171018-475 — **Lab Sample ID: 280-115813-5**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 81.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Tetrachloroethene	900	U Q	2800	900	300	ug/Kg	☼	10/30/18 17:25	10
Toluene	900	U	2800	900	440	ug/Kg	☼	10/30/18 17:25	10
1,2,3-Trichlorobenzene	900	U	2800	900	390	ug/Kg	☼	10/30/18 17:25	10
1,1,1-Trichloroethane	450	U Q	2800	450	220	ug/Kg	☼	10/30/18 17:25	10
1,1,2-Trichloroethane	900	U M	2800	900	300	ug/Kg	☼	10/30/18 17:25	10
Trichloroethene	900	U	2800	900	260	ug/Kg	☼	10/30/18 17:25	10
Trichlorofluoromethane	1800	U Q	5600	1800	560	ug/Kg	☼	10/30/18 17:25	10
1,2,4-Trichlorobenzene	1800	U	2800	1800	530	ug/Kg	☼	10/30/18 17:25	10
1,2,3-Trichloropropane	1800	U M	2800	1800	530	ug/Kg	☼	10/30/18 17:25	10
1,2,4-Trimethylbenzene	**1600**	**J D**	2800	900	350	ug/Kg	☼	10/30/18 17:25	10
1,3,5-Trimethylbenzene	**1200**	**J D**	2800	900	440	ug/Kg	☼	10/30/18 17:25	10
Vinyl chloride	900	U Q	5600	900	300	ug/Kg	☼	10/30/18 17:25	10
o-Xylene	**1600**	**D Q**	1400	900	390	ug/Kg	☼	10/30/18 17:25	10
m-Xylene & p-Xylene	**4300**	**D Q**	2800	1800	880	ug/Kg	☼	10/30/18 17:25	10
2-Chlorotoluene	900	U	2800	900	290	ug/Kg	☼	10/30/18 17:25	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*71*	*D Q*	*85 - 116*	*10/17/18 17:30*	*10/30/18 17:25*	*10*
1,2-Dichloroethane-d4 (Surr)	*76*	*D*	*71 - 136*	*10/17/18 17:30*	*10/30/18 17:25*	*10*
4-Bromofluorobenzene (Surr)	*87*	*D*	*79 - 119*	*10/17/18 17:30*	*10/30/18 17:25*	*10*
Dibromofluoromethane (Surr)	*73*	*D Q*	*78 - 119*	*10/17/18 17:30*	*10/30/18 17:25*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-181018-01 — **Lab Sample ID: 280-115813-1**
Date Collected: 10/18/18 15:30 — **Matrix: Water**
Date Received: 10/19/18 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**65**		25	25	10	ug/L		10/31/18 23:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*109*		*82 - 110*		*10/31/18 23:06*	*1*

Client Sample ID: P-S9-171018-470 — **Lab Sample ID: 280-115813-2**
Date Collected: 10/17/18 17:20 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**34**	**B**	1.4	1.3	0.37	mg/Kg	☼	10/30/18 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*10/17/18 17:20*	*10/30/18 17:19*	*1*

Client Sample ID: P-S9-171018-475 — **Lab Sample ID: 280-115813-4**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 83.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**440**	**D B Q**	14	13	3.8	mg/Kg	☼	10/30/18 20:32	10

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	*194*	*Q*	*77 - 123*	*10/17/18 17:30*	*10/30/18 20:32*	*10*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-171018-470 — **Lab Sample ID: 280-115813-3**
Date Collected: 10/17/18 17:20 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 96.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.016	ug/Kg	☼	11/01/18 21:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*110*	*M*	*55 - 130*	*10/29/18 14:26*	*11/01/18 21:49*	*1*

Client Sample ID: V-S9-171018-475 — **Lab Sample ID: 280-115813-5**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 81.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.047	U	0.12	0.047	0.018	ug/Kg	☼	11/01/18 22:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*108*		*55 - 130*	*10/29/18 14:26*	*11/01/18 22:08*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-171018-470 — **Lab Sample ID: 280-115813-2**
Date Collected: 10/17/18 17:20 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**68**		7.9	3.9	1.3	mg/Kg	☼	10/26/18 17:13	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg	☼	10/26/18 17:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*81*		*45 - 130*	*10/24/18 20:26*	*10/26/18 17:13*	*1*
n-Octacosane	*71*		*25 - 162*	*10/24/18 20:26*	*10/26/18 17:13*	*1*

Client Sample ID: P-S9-171018-475 — **Lab Sample ID: 280-115813-4**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 83.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**180**		9.0	4.5	1.5	mg/Kg	☼	10/26/18 17:35	1
Motor Oil (C20-C38)	26	U	27	26	8.8	mg/Kg	☼	10/26/18 17:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*80*		*45 - 130*	*10/24/18 20:26*	*10/26/18 17:35*	*1*
n-Octacosane	*69*		*25 - 162*	*10/24/18 20:26*	*10/26/18 17:35*	*1*

General Chemistry

Client Sample ID: P-S9-171018-470 — **Lab Sample ID: 280-115813-2**
Date Collected: 10/17/18 17:20 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.3**		0.1	0.05	0.1	%		10/23/18 12:29	1

General Chemistry

Client Sample ID: V-S9-171018-470
Date Collected: 10/17/18 17:20
Date Received: 10/19/18 09:20
Lab Sample ID: 280-115813-3
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.5		0.1	0.05	0.1	%		10/23/18 12:29	1

Client Sample ID: P-S9-171018-475
Date Collected: 10/17/18 17:30
Date Received: 10/19/18 09:20
Lab Sample ID: 280-115813-4
Matrix: Solid
Percent Solids: 83.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.5		0.1	0.05	0.1	%		10/23/18 12:29	1

Client Sample ID: V-S9-171018-475
Date Collected: 10/17/18 17:30
Date Received: 10/19/18 09:20
Lab Sample ID: 280-115813-5
Matrix: Solid
Percent Solids: 81.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	18.5		0.1	0.05	0.1	%		10/23/18 12:29	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115813-3	V-S9-171018-470	121 Q	134	126 Q	136 Q
280-115813-5	V-S9-171018-475	71 D Q	76 D	87 D	73 D Q
LCS 280-435215/2-A	Lab Control Sample	99	96	98	99
LCSD 280-435215/3-A	Lab Control Sample Dup	97	92	100	99
MB 280-435215/1-A	Method Blank	95	92	95	94

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115813-1	TB-S9-181018-01	93	103	92	104
LCS 280-435843/4	Lab Control Sample	99	110	100	115
LCSD 280-435843/5	Lab Control Sample Dup	92	101	92	105
MB 280-435843/1010	Method Blank	95	102	97	107

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID				
MB 280-435843/6	Method Blank				

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115813-2	P-S9-171018-470	90

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (77-123)
280-115813-4	P-S9-171018-475	194 Q
LCS 280-435575/1-A	Lab Control Sample	91
MB 280-435575/2-A	Method Blank	88

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-115813-1	TB-S9-181018-01	109
LCS 280-435717/3	Lab Control Sample	86
MB 280-435717/5	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-115813-3	V-S9-171018-470	110 M
LCS 280-435369/2-A	Lab Control Sample	110
LCSD 280-435369/3-A	Lab Control Sample Dup	109
MB 280-435369/4-A	Method Blank	106

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP2 (55-130)
280-115813-5	V-S9-171018-475	108

Surrogate Legend

12DBP = 1,2-Dibromopropane

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-115813-2	P-S9-171018-470	81	71								
280-115813-4	P-S9-171018-475	80	69								
LCS 280-434808/2-A	Lab Control Sample	80	70								
LCS 280-434808/3-A	Lab Control Sample	87	84								
MB 280-434808/1-A	Method Blank	83	73								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-435215/1-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435215

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		10/30/18 12:43	1
Benzene	160	U M	250	160	45	ug/Kg		10/30/18 12:43	1
Bromobenzene	40	U	250	40	19	ug/Kg		10/30/18 12:43	1
Bromochloromethane	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		10/30/18 12:43	1
Bromoform	160	U	250	160	160	ug/Kg		10/30/18 12:43	1
Bromomethane	160	U	500	160	44	ug/Kg		10/30/18 12:43	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		10/30/18 12:43	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		10/30/18 12:43	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		10/30/18 12:43	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		10/30/18 12:43	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		10/30/18 12:43	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		10/30/18 12:43	1
Chlorobenzene	80	U	250	80	30	ug/Kg		10/30/18 12:43	1
Chloroethane	160	U	500	160	44	ug/Kg		10/30/18 12:43	1
Chloroform	160	U	250	160	46	ug/Kg		10/30/18 12:43	1
Chloromethane	160	U	500	160	50	ug/Kg		10/30/18 12:43	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		10/30/18 12:43	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		10/30/18 12:43	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		10/30/18 12:43	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		10/30/18 12:43	1
Dibromomethane	80	U	250	80	30	ug/Kg		10/30/18 12:43	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		10/30/18 12:43	1
1,3-Dichlorobenzene	160	U M	250	160	41	ug/Kg		10/30/18 12:43	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		10/30/18 12:43	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		10/30/18 12:43	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		10/30/18 12:43	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		10/30/18 12:43	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		10/30/18 12:43	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		10/30/18 12:43	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		10/30/18 12:43	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		10/30/18 12:43	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		10/30/18 12:43	1
Ethylbenzene	80	U M	250	80	34	ug/Kg		10/30/18 12:43	1
2-Hexanone	640	U	1000	640	220	ug/Kg		10/30/18 12:43	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		10/30/18 12:43	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		10/30/18 12:43	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		10/30/18 12:43	1
Methylene Chloride	160	U M	250	160	69	ug/Kg		10/30/18 12:43	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		10/30/18 12:43	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		10/30/18 12:43	1
Naphthalene	40.4	J	500	80	38	ug/Kg		10/30/18 12:43	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		10/30/18 12:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435215/1-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435215

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U M	250	80	26	ug/Kg		10/30/18 12:43	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		10/30/18 12:43	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		10/30/18 12:43	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
Toluene	80	U	250	80	39	ug/Kg		10/30/18 12:43	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		10/30/18 12:43	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		10/30/18 12:43	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
Trichloroethene	80	U	250	80	23	ug/Kg		10/30/18 12:43	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		10/30/18 12:43	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		10/30/18 12:43	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		10/30/18 12:43	1
Vinyl chloride	80	U	500	80	27	ug/Kg		10/30/18 12:43	1
o-Xylene	80	U	130	80	35	ug/Kg		10/30/18 12:43	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		10/30/18 12:43	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		10/30/18 12:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*85 - 116*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*10/27/18 07:00*	*10/30/18 12:43*	*1*

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	6340		ug/Kg		79	36 - 164
Benzene	2000	1880		ug/Kg		94	77 - 121
Bromobenzene	2000	1990		ug/Kg		99	78 - 121
Bromochloromethane	2000	1970		ug/Kg		99	78 - 125
Bromodichloromethane	2000	2030		ug/Kg		102	75 - 127
Bromoform	2000	1830		ug/Kg		92	67 - 132
Bromomethane	2000	1550		ug/Kg		77	53 - 143
2-Butanone (MEK)	8000	6840		ug/Kg		86	51 - 148
n-Butylbenzene	2000	2000		ug/Kg		100	70 - 128
sec-Butylbenzene	2000	1980		ug/Kg		99	73 - 126
tert-Butylbenzene	2000	1990		ug/Kg		99	73 - 125
Carbon disulfide	2000	1880		ug/Kg		94	63 - 132
Carbon tetrachloride	2000	2010		ug/Kg		101	70 - 135
Chlorobenzene	2000	1900		ug/Kg		95	79 - 120
Chloroethane	2000	1620		ug/Kg		81	59 - 139
Chloroform	2000	1930		ug/Kg		96	78 - 123
Chloromethane	2000	1600		ug/Kg		80	50 - 136
4-Chlorotoluene	2000	1940		ug/Kg		97	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2070		ug/Kg		103	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1900		ug/Kg		95	61 - 132
Dichlorodifluoromethane	2000	1390		ug/Kg		69	29 - 149
Dibromomethane	2000	1930		ug/Kg		96	78 - 125
Ethylene Dibromide	2000	2000		ug/Kg		100	78 - 122
1,2-Dichlorobenzene	2000	1960		ug/Kg		98	78 - 121
1,3-Dichlorobenzene	2000	1960		ug/Kg		98	77 - 121
1,4-Dichlorobenzene	2000	1950		ug/Kg		97	75 - 120
1,1-Dichloroethane	2000	1870		ug/Kg		94	76 - 125
1,2-Dichloroethane	2000	1830		ug/Kg		91	73 - 128
1,1-Dichloroethene	2000	1920		ug/Kg		96	70 - 131
cis-1,2-Dichloroethene	2000	1950		ug/Kg		97	77 - 123
trans-1,2-Dichloroethene	2000	1960		ug/Kg		98	74 - 125
1,2-Dichloropropane	2000	1880		ug/Kg		94	76 - 123
1,3-Dichloropropane	2000	1860		ug/Kg		93	77 - 121
2,2-Dichloropropane	2000	2020		ug/Kg		101	67 - 133
1,1-Dichloropropene	2000	1870		ug/Kg		93	76 - 125
cis-1,3-Dichloropropene	2000	2140		ug/Kg		107	74 - 126
trans-1,3-Dichloropropene	2000	2150		ug/Kg		107	71 - 130
Ethylbenzene	2000	1930		ug/Kg		97	76 - 122
2-Hexanone	8000	7540		ug/Kg		94	53 - 145
Hexachlorobutadiene	2000	2150		ug/Kg		107	61 - 135
Isopropylbenzene	2000	1970		ug/Kg		98	68 - 134
4-Isopropyltoluene	2000	2050		ug/Kg		103	73 - 127
Methylene Chloride	2000	1980		ug/Kg		99	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	7460		ug/Kg		93	65 - 135
Methyl tert-butyl ether	2000	1850		ug/Kg		92	73 - 125
Naphthalene	2000	2010		ug/Kg		100	62 - 129
N-Propylbenzene	2000	2020		ug/Kg		101	73 - 125
Styrene	2000	2030		ug/Kg		101	76 - 124
1,1,1,2-Tetrachloroethane	2000	2040		ug/Kg		102	78 - 125
1,1,2,2-Tetrachloroethane	2000	1860		ug/Kg		93	70 - 124
Tetrachloroethene	2000	1930		ug/Kg		96	73 - 128
Toluene	2000	1940		ug/Kg		97	77 - 121
1,2,3-Trichlorobenzene	2000	2040		ug/Kg		102	66 - 130
1,1,1-Trichloroethane	2000	2020		ug/Kg		101	73 - 130
1,1,2-Trichloroethane	2000	2000		ug/Kg		100	78 - 121
Trichloroethene	2000	1900		ug/Kg		95	77 - 123
Trichlorofluoromethane	2000	1790		ug/Kg		89	62 - 140
1,2,4-Trichlorobenzene	2000	2030		ug/Kg		101	67 - 129
1,2,3-Trichloropropane	2000	1950		ug/Kg		97	73 - 125
1,2,4-Trimethylbenzene	2000	1960		ug/Kg		98	75 - 123
1,3,5-Trimethylbenzene	2000	2000		ug/Kg		100	73 - 124
Vinyl chloride	2000	1680		ug/Kg		84	56 - 135
o-Xylene	2000	1970		ug/Kg		99	77 - 123
m-Xylene & p-Xylene	2000	1920		ug/Kg		96	77 - 124
2-Chlorotoluene	2000	1930		ug/Kg		97	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-435215/3-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	6460		ug/Kg		81	36 - 164	2	20
Benzene	2000	1860		ug/Kg		93	77 - 121	1	20
Bromobenzene	2000	1980		ug/Kg		99	78 - 121	0	20
Bromochloromethane	2000	1980		ug/Kg		99	78 - 125	0	20
Bromodichloromethane	2000	2050		ug/Kg		103	75 - 127	1	20
Bromoform	2000	1870		ug/Kg		94	67 - 132	2	20
Bromomethane	2000	1520		ug/Kg		76	53 - 143	2	20
2-Butanone (MEK)	8000	6380		ug/Kg		80	51 - 148	7	20
n-Butylbenzene	2000	2070		ug/Kg		103	70 - 128	3	20
sec-Butylbenzene	2000	2010		ug/Kg		101	73 - 126	2	20
tert-Butylbenzene	2000	2050		ug/Kg		102	73 - 125	3	20
Carbon disulfide	2000	1860		ug/Kg		93	63 - 132	1	20
Carbon tetrachloride	2000	2060		ug/Kg		103	70 - 135	2	20
Chlorobenzene	2000	1910		ug/Kg		96	79 - 120	1	20
Chloroethane	2000	1640		ug/Kg		82	59 - 139	1	20
Chloroform	2000	1940		ug/Kg		97	78 - 123	1	20
Chloromethane	2000	1610		ug/Kg		80	50 - 136	1	20
4-Chlorotoluene	2000	1960		ug/Kg		98	72 - 124	1	20
Dibromochloromethane	2000	2140		ug/Kg		107	74 - 126	3	20
1,2-Dibromo-3-Chloropropane	2000	2260		ug/Kg		113	61 - 132	17	20
Dichlorodifluoromethane	2000	1320		ug/Kg		66	29 - 149	5	20
Dibromomethane	2000	1930		ug/Kg		96	78 - 125	0	20
Ethylene Dibromide	2000	2010		ug/Kg		101	78 - 122	1	20
1,2-Dichlorobenzene	2000	2030		ug/Kg		102	78 - 121	4	20
1,3-Dichlorobenzene	2000	2000		ug/Kg		100	77 - 121	2	20
1,4-Dichlorobenzene	2000	1990		ug/Kg		100	75 - 120	2	20
1,1-Dichloroethane	2000	1850		ug/Kg		92	76 - 125	1	20
1,2-Dichloroethane	2000	1810		ug/Kg		90	73 - 128	1	20
1,1-Dichloroethene	2000	1900		ug/Kg		95	70 - 131	1	20
cis-1,2-Dichloroethene	2000	1940		ug/Kg		97	77 - 123	0	20
trans-1,2-Dichloroethene	2000	1960		ug/Kg		98	74 - 125	0	20
1,2-Dichloropropane	2000	1910		ug/Kg		95	76 - 123	1	20
1,3-Dichloropropane	2000	1830		ug/Kg		91	77 - 121	2	20
2,2-Dichloropropane	2000	2010		ug/Kg		100	67 - 133	1	20
1,1-Dichloropropene	2000	1870		ug/Kg		93	76 - 125	0	20
cis-1,3-Dichloropropene	2000	2110		ug/Kg		105	74 - 126	1	20
trans-1,3-Dichloropropene	2000	2190		ug/Kg		109	71 - 130	2	20
Ethylbenzene	2000	1920		ug/Kg		96	76 - 122	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435215/3-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	7410		ug/Kg		93	53 - 145	2	20
Hexachlorobutadiene	2000	2140		ug/Kg		107	61 - 135	0	20
Isopropylbenzene	2000	1980		ug/Kg		99	68 - 134	1	20
4-Isopropyltoluene	2000	2070		ug/Kg		104	73 - 127	1	20
Methylene Chloride	2000	1910		ug/Kg		96	70 - 128	4	20
4-Methyl-2-pentanone (MIBK)	8000	7550		ug/Kg		94	65 - 135	1	20
Methyl tert-butyl ether	2000	1880		ug/Kg		94	73 - 125	1	20
Naphthalene	2000	2140		ug/Kg		107	62 - 129	6	20
N-Propylbenzene	2000	2050		ug/Kg		103	73 - 125	1	20
Styrene	2000	2040		ug/Kg		102	76 - 124	1	20
1,1,1,2-Tetrachloroethane	2000	2080		ug/Kg		104	78 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	1910		ug/Kg		96	70 - 124	3	20
Tetrachloroethene	2000	1940		ug/Kg		97	73 - 128	1	20
Toluene	2000	1960		ug/Kg		98	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2110		ug/Kg		105	66 - 130	3	20
1,1,1-Trichloroethane	2000	2050		ug/Kg		102	73 - 130	2	20
1,1,2-Trichloroethane	2000	2040		ug/Kg		102	78 - 121	2	20
Trichloroethene	2000	1920		ug/Kg		96	77 - 123	1	20
Trichlorofluoromethane	2000	1760		ug/Kg		88	62 - 140	2	20
1,2,4-Trichlorobenzene	2000	2090		ug/Kg		105	67 - 129	3	20
1,2,3-Trichloropropane	2000	2060		ug/Kg		103	73 - 125	6	20
1,2,4-Trimethylbenzene	2000	1990		ug/Kg		100	75 - 123	2	20
1,3,5-Trimethylbenzene	2000	2030		ug/Kg		102	73 - 124	2	20
Vinyl chloride	2000	1670		ug/Kg		83	56 - 135	1	20
o-Xylene	2000	1960		ug/Kg		98	77 - 123	1	20
m-Xylene & p-Xylene	2000	1900		ug/Kg		95	77 - 124	1	20
2-Chlorotoluene	2000	1990		ug/Kg		99	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: MB 280-435843/1010
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/01/18 11:24	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/01/18 11:24	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 11:24	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/01/18 11:24	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/01/18 11:24	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/01/18 11:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435843/1010
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/01/18 11:24	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/01/18 11:24	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/01/18 11:24	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/01/18 11:24	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 11:24	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/01/18 11:24	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/01/18 11:24	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 11:24	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 11:24	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 11:24	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 11:24	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 11:24	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/01/18 11:24	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/01/18 11:24	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 11:24	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 11:24	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 11:24	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 11:24	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 11:24	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 11:24	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 11:24	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/01/18 11:24	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/01/18 11:24	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 11:24	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 11:24	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/01/18 11:24	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/01/18 11:24	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/01/18 11:24	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 11:24	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 11:24	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 11:24	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 11:24	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 11:24	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/01/18 11:24	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435843/1010
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/01/18 11:24	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 11:24	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/01/18 11:24	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 11:24	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 11:24	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/01/18 11:24	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 11:24	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/01/18 11:24	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 11:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*11/01/18 11:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*11/01/18 11:24*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*11/01/18 11:24*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 119*		*11/01/18 11:24*	*1*

Lab Sample ID: MB 280-435843/6
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/01/18 10:28	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/01/18 10:28	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 10:28	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/01/18 10:28	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/01/18 10:28	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/01/18 10:28	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/01/18 10:28	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/01/18 10:28	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/01/18 10:28	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/01/18 10:28	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 10:28	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/01/18 10:28	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/01/18 10:28	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 10:28	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 10:28	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 10:28	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 10:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435843/6
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/01/18 10:28	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/01/18 10:28	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/01/18 10:28	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 10:28	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 10:28	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 10:28	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 10:28	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/01/18 10:28	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 10:28	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 10:28	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/01/18 10:28	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/01/18 10:28	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 10:28	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 10:28	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/01/18 10:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/01/18 10:28	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/01/18 10:28	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/01/18 10:28	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 10:28	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 10:28	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/01/18 10:28	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 10:28	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/01/18 10:28	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/01/18 10:28	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/01/18 10:28	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/01/18 10:28	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/01/18 10:28	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/01/18 10:28	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/01/18 10:28	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/01/18 10:28	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/01/18 10:28	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/01/18 10:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)					*11/01/18 10:28*	*1*
1,2-Dichloroethane-d4 (Surr)					*11/01/18 10:28*	*1*
4-Bromofluorobenzene (Surr)					*11/01/18 10:28*	*1*
Dibromofluoromethane (Surr)					*11/01/18 10:28*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435843/4
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	19.9		ug/L		99	39 - 160
Benzene	5.00	5.36		ug/L		107	79 - 120
Bromobenzene	5.00	5.46		ug/L		109	80 - 120
Bromochloromethane	5.00	5.63		ug/L		113	78 - 123
Bromodichloromethane	5.00	5.45		ug/L		109	79 - 125
Bromoform	5.00	4.70		ug/L		94	66 - 130
Bromomethane	5.00	5.09		ug/L		102	53 - 141
2-Butanone (MEK)	20.0	17.1		ug/L		85	56 - 143
n-Butylbenzene	5.00	4.83		ug/L		97	75 - 128
sec-Butylbenzene	5.00	5.25		ug/L		105	77 - 126
tert-Butylbenzene	5.00	5.04		ug/L		101	78 - 124
Carbon disulfide	5.00	5.11		ug/L		102	64 - 133
Carbon tetrachloride	5.00	4.86		ug/L		97	72 - 136
Chlorobenzene	5.00	5.27		ug/L		105	82 - 118
Chloroethane	5.00	5.04		ug/L		101	60 - 138
Chloroform	5.00	5.45		ug/L		109	79 - 124
Chloromethane	5.00	4.08		ug/L		82	50 - 139
4-Chlorotoluene	5.00	5.26		ug/L		105	78 - 122
Dibromochloromethane	5.00	4.89		ug/L		98	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.83		ug/L		117	62 - 128
Dichlorodifluoromethane	5.00	3.95		ug/L		79	32 - 152
Dibromomethane	5.00	5.57		ug/L		111	79 - 123
Ethylene Dibromide	5.00	5.51		ug/L		110	77 - 121
1,2-Dichlorobenzene	5.00	5.37		ug/L		107	80 - 119
1,3-Dichlorobenzene	5.00	5.20		ug/L		104	80 - 119
1,4-Dichlorobenzene	5.00	5.16		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.40		ug/L		108	77 - 125
1,2-Dichloroethane	5.00	5.33		ug/L		107	73 - 128
1,1-Dichloroethene	5.00	5.41		ug/L		108	71 - 131
cis-1,2-Dichloroethene	5.00	5.49		ug/L		110	78 - 123
trans-1,2-Dichloroethene	5.00	5.51		ug/L		110	75 - 124
1,2-Dichloropropane	5.00	5.56		ug/L		111	78 - 122
1,3-Dichloropropane	5.00	5.38		ug/L		108	80 - 119
2,2-Dichloropropane	5.00	5.03		ug/L		101	60 - 139
1,1-Dichloropropene	5.00	5.16		ug/L		103	79 - 125
cis-1,3-Dichloropropene	5.00	5.14		ug/L		103	75 - 124
trans-1,3-Dichloropropene	5.00	5.04		ug/L		101	73 - 127
Ethylbenzene	5.00	5.07		ug/L		101	79 - 121
2-Hexanone	20.0	19.0		ug/L		95	57 - 139
Hexachlorobutadiene	5.00	4.96		ug/L		99	66 - 134
Isopropylbenzene	5.00	5.03		ug/L		101	72 - 131
4-Isopropyltoluene	5.00	4.99		ug/L		100	77 - 127
Methylene Chloride	5.00	5.38		ug/L		108	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	22.1		ug/L		110	67 - 130
Methyl tert-butyl ether	5.00	5.43		ug/L		109	71 - 124
Naphthalene	5.00	5.36		ug/L		107	61 - 128
N-Propylbenzene	5.00	5.10		ug/L		102	76 - 126
Styrene	5.00	5.24		ug/L		105	78 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435843/4
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	5.23		ug/L		105	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.35		ug/L		107	71 - 121
Tetrachloroethene	5.00	5.18		ug/L		104	74 - 129
Toluene	5.00	5.51		ug/L		110	80 - 121
1,2,3-Trichlorobenzene	5.00	5.70		ug/L		114	69 - 129
1,1,1-Trichloroethane	5.00	5.22		ug/L		104	74 - 131
1,1,2-Trichloroethane	5.00	6.15	Q	ug/L		123	80 - 119
Trichloroethene	5.00	5.26		ug/L		105	79 - 123
Trichlorofluoromethane	5.00	4.78		ug/L		96	65 - 141
1,2,4-Trichlorobenzene	5.00	5.66		ug/L		113	69 - 130
1,2,3-Trichloropropane	5.00	5.18		ug/L		104	73 - 122
1,2,4-Trimethylbenzene	5.00	4.92		ug/L		98	76 - 124
1,3,5-Trimethylbenzene	5.00	4.89		ug/L		98	75 - 124
Vinyl chloride	5.00	4.14		ug/L		83	58 - 137
o-Xylene	5.00	5.31		ug/L		106	78 - 122
m-Xylene & p-Xylene	5.00	5.14		ug/L		103	80 - 121
2-Chlorotoluene	5.00	5.16		ug/L		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*110*		*81 - 118*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*
Dibromofluoromethane (Surr)	*115*		*80 - 119*

Lab Sample ID: LCSD 280-435843/5
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	19.0		ug/L		95	39 - 160	4	20
Benzene	5.00	5.31		ug/L		106	79 - 120	1	20
Bromobenzene	5.00	5.19		ug/L		104	80 - 120	5	20
Bromochloromethane	5.00	5.80		ug/L		116	78 - 123	3	20
Bromodichloromethane	5.00	5.31		ug/L		106	79 - 125	3	20
Bromoform	5.00	4.81		ug/L		96	66 - 130	2	20
Bromomethane	5.00	4.98		ug/L		100	53 - 141	2	20
2-Butanone (MEK)	20.0	17.6		ug/L		88	56 - 143	3	20
n-Butylbenzene	5.00	4.77		ug/L		95	75 - 128	1	20
sec-Butylbenzene	5.00	5.19		ug/L		104	77 - 126	1	20
tert-Butylbenzene	5.00	4.91		ug/L		98	78 - 124	3	20
Carbon disulfide	5.00	4.96		ug/L		99	64 - 133	3	20
Carbon tetrachloride	5.00	5.04		ug/L		101	72 - 136	4	20
Chlorobenzene	5.00	5.08		ug/L		102	82 - 118	4	20
Chloroethane	5.00	5.03		ug/L		101	60 - 138	0	20
Chloroform	5.00	5.25		ug/L		105	79 - 124	4	20
Chloromethane	5.00	4.10		ug/L		82	50 - 139	0	20
4-Chlorotoluene	5.00	5.04		ug/L		101	78 - 122	4	20
Dibromochloromethane	5.00	4.73		ug/L		95	74 - 126	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435843/5
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.05		ug/L		101	62 - 128	14	20
Dichlorodifluoromethane	5.00	4.14		ug/L		83	32 - 152	5	20
Dibromomethane	5.00	5.40		ug/L		108	79 - 123	3	20
Ethylene Dibromide	5.00	5.67		ug/L		113	77 - 121	3	20
1,2-Dichlorobenzene	5.00	5.04		ug/L		101	80 - 119	6	20
1,3-Dichlorobenzene	5.00	4.99		ug/L		100	80 - 119	4	20
1,4-Dichlorobenzene	5.00	5.03		ug/L		101	79 - 118	2	20
1,1-Dichloroethane	5.00	5.29		ug/L		106	77 - 125	2	20
1,2-Dichloroethane	5.00	5.24		ug/L		105	73 - 128	2	20
1,1-Dichloroethene	5.00	5.30		ug/L		106	71 - 131	2	20
cis-1,2-Dichloroethene	5.00	5.42		ug/L		108	78 - 123	1	20
trans-1,2-Dichloroethene	5.00	5.38		ug/L		108	75 - 124	2	20
1,2-Dichloropropane	5.00	5.39		ug/L		108	78 - 122	3	20
1,3-Dichloropropane	5.00	4.95		ug/L		99	80 - 119	8	20
2,2-Dichloropropane	5.00	5.04		ug/L		101	60 - 139	0	20
1,1-Dichloropropene	5.00	5.13		ug/L		103	79 - 125	1	20
cis-1,3-Dichloropropene	5.00	4.95		ug/L		99	75 - 124	4	20
trans-1,3-Dichloropropene	5.00	4.89		ug/L		98	73 - 127	3	20
Ethylbenzene	5.00	4.90		ug/L		98	79 - 121	3	20
2-Hexanone	20.0	19.7		ug/L		99	57 - 139	4	20
Hexachlorobutadiene	5.00	4.81		ug/L		96	66 - 134	3	20
Isopropylbenzene	5.00	4.95		ug/L		99	72 - 131	1	20
4-Isopropyltoluene	5.00	4.92		ug/L		98	77 - 127	1	20
Methylene Chloride	5.00	5.08		ug/L		102	74 - 124	6	20
4-Methyl-2-pentanone (MIBK)	20.0	21.9		ug/L		110	67 - 130	1	20
Methyl tert-butyl ether	5.00	5.35		ug/L		107	71 - 124	1	20
Naphthalene	5.00	4.92		ug/L		98	61 - 128	8	20
N-Propylbenzene	5.00	4.96		ug/L		99	76 - 126	3	20
Styrene	5.00	5.24		ug/L		105	78 - 123	0	20
1,1,1,2-Tetrachloroethane	5.00	5.05		ug/L		101	78 - 124	4	20
1,1,2,2-Tetrachloroethane	5.00	5.35		ug/L		107	71 - 121	0	20
Tetrachloroethene	5.00	5.20		ug/L		104	74 - 129	0	20
Toluene	5.00	5.40		ug/L		108	80 - 121	2	20
1,2,3-Trichlorobenzene	5.00	5.29		ug/L		106	69 - 129	7	20
1,1,1-Trichloroethane	5.00	5.23		ug/L		105	74 - 131	0	20
1,1,2-Trichloroethane	5.00	5.98	Q	ug/L		120	80 - 119	3	20
Trichloroethene	5.00	5.13		ug/L		103	79 - 123	2	20
Trichlorofluoromethane	5.00	4.82		ug/L		96	65 - 141	1	20
1,2,4-Trichlorobenzene	5.00	5.08		ug/L		102	69 - 130	11	20
1,2,3-Trichloropropane	5.00	5.19		ug/L		104	73 - 122	0	20
1,2,4-Trimethylbenzene	5.00	4.78		ug/L		96	76 - 124	3	20
1,3,5-Trimethylbenzene	5.00	4.78		ug/L		96	75 - 124	2	20
Vinyl chloride	5.00	4.26		ug/L		85	58 - 137	3	20
o-Xylene	5.00	5.11		ug/L		102	78 - 122	4	20
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	80 - 121	1	20
2-Chlorotoluene	5.00	4.92		ug/L		98	79 - 122	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435843/5
Matrix: Water
Analysis Batch: 435843

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*
Dibromofluoromethane (Surr)	*105*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435575/2-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435575

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.606	J	1.2	1.1	0.33	mg/Kg		10/30/18 14:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*10/30/18 01:00*	*10/30/18 14:49*	*1*

Lab Sample ID: LCS 280-435575/1-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.89	M	mg/Kg		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-435717/5
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/31/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/31/18 12:07*	*1*

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	94.4	M	ug/L		94	78 - 122

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*86*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/01/18 21:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*55 - 130*	*10/29/18 14:26*	*11/01/18 21:10*	*1*

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.874		ug/Kg		100	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Lab Sample ID: LCSD 280-435369/3-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435369

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.855		ug/Kg		98	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.37	J	7.4	3.7	1.3	mg/Kg		10/26/18 16:08	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg		10/26/18 16:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*83*		*45 - 130*	*10/24/18 20:26*	*10/26/18 16:08*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	73		25 - 162	10/24/18 20:26	10/26/18 16:08	1

Lab Sample ID: LCS 280-434808/2-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			123	90.1		mg/Kg		73	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	80		45 - 130
n-Octacosane	70		25 - 162

Lab Sample ID: LCS 280-434808/3-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			313	268		mg/Kg		85	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130
n-Octacosane	84		25 - 162

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115813-4 DU
Matrix: Solid
Analysis Batch: 434565

Client Sample ID: P-S9-171018-475
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	16.5			17.1		%				4	20

GC/MS VOA

Prep Batch: 435215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-3	V-S9-171018-470	Total/NA	Solid	5035	
280-115813-5	V-S9-171018-475	Total/NA	Solid	5035	
MB 280-435215/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435215/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-435215/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 435463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-3	V-S9-171018-470	Total/NA	Solid	8260B	435215
280-115813-5	V-S9-171018-475	Total/NA	Solid	8260B	435215
MB 280-435215/1-A	Method Blank	Total/NA	Solid	8260B	435215
LCS 280-435215/2-A	Lab Control Sample	Total/NA	Solid	8260B	435215
LCSD 280-435215/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	435215

Analysis Batch: 435843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-1	TB-S9-181018-01	Total/NA	Water	8260B	
MB 280-435843/1010	Method Blank	Total/NA	Water	8260B	
MB 280-435843/6	Method Blank	Total/NA	Water	8260B	
LCS 280-435843/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-435843/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-2	P-S9-171018-470	Total/NA	Solid	8015D GRO	435575
280-115813-4	P-S9-171018-475	Total/NA	Solid	8015D GRO	435575
MB 280-435575/2-A	Method Blank	Total/NA	Solid	8015D GRO	435575
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	435575

Prep Batch: 435575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-2	P-S9-171018-470	Total/NA	Solid	5035	
280-115813-4	P-S9-171018-475	Total/NA	Solid	5035	
MB 280-435575/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 435717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-1	TB-S9-181018-01	Total/NA	Water	8015D GRO	
MB 280-435717/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435717/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 434808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-2	P-S9-171018-470	Total/NA	Solid	3546	
280-115813-4	P-S9-171018-475	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 434808 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-434808/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 435068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-2	P-S9-171018-470	Total/NA	Solid	8015D DRO	434808
280-115813-4	P-S9-171018-475	Total/NA	Solid	8015D DRO	434808
MB 280-434808/1-A	Method Blank	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808

Prep Batch: 435369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-3	V-S9-171018-470	Total/NA	Solid	8011	
280-115813-5	V-S9-171018-475	Total/NA	Solid	8011	
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 435949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-3	V-S9-171018-470	Total/NA	Solid	8011	435369
280-115813-5	V-S9-171018-475	Total/NA	Solid	8011	435369
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369

General Chemistry

Analysis Batch: 434565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115813-2	P-S9-171018-470	Total/NA	Solid	Moisture	
280-115813-3	V-S9-171018-470	Total/NA	Solid	Moisture	
280-115813-4	P-S9-171018-475	Total/NA	Solid	Moisture	
280-115813-5	V-S9-171018-475	Total/NA	Solid	Moisture	
280-115813-4 DU	P-S9-171018-475	Total/NA	Solid	Moisture	

Client Sample ID: TB-S9-181018-01

Lab Sample ID: 280-115813-1
Date Collected: 10/18/18 15:30
Matrix: Water
Date Received: 10/19/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	435843	11/01/18 15:33	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 23:06	GPM	TAL DEN

Client Sample ID: P-S9-171018-470

Lab Sample ID: 280-115813-2
Date Collected: 10/17/18 17:20
Matrix: Solid
Date Received: 10/19/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: P-S9-171018-470

Lab Sample ID: 280-115813-2
Date Collected: 10/17/18 17:20
Matrix: Solid
Date Received: 10/19/18 09:20
Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.671 g	5 mL	435575	10/17/18 17:20	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 17:19	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 17:13	CSM	TAL DEN

Client Sample ID: V-S9-171018-470

Lab Sample ID: 280-115813-3
Date Collected: 10/17/18 17:20
Matrix: Solid
Date Received: 10/19/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: V-S9-171018-470

Lab Sample ID: 280-115813-3
Date Collected: 10/17/18 17:20
Matrix: Solid
Date Received: 10/19/18 09:20
Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.609 g	1000 mL	435215	10/17/18 17:20	JLS	TAL DEN
Total/NA	Analysis	8260B		1	20 mL	20 mL	435463	10/30/18 17:07	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/01/18 21:49	MJS	TAL DEN

Client Sample ID: P-S9-171018-475 — **Lab Sample ID: 280-115813-4**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: P-S9-171018-475 — **Lab Sample ID: 280-115813-4**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.144 g	5 mL	435575	10/17/18 17:30	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		10	0.1 mL	5 mL	435565	10/30/18 20:32	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 17:35	CSM	TAL DEN

Client Sample ID: V-S9-171018-475 — **Lab Sample ID: 280-115813-5**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434565	10/23/18 12:29	CCJ	TAL DEN

Client Sample ID: V-S9-171018-475 — **Lab Sample ID: 280-115813-5**
Date Collected: 10/17/18 17:30 — **Matrix: Solid**
Date Received: 10/19/18 09:20 — **Percent Solids: 81.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.47 g	1000 mL	435215	10/17/18 17:30	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	435463	10/30/18 17:25	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/01/18 22:08	MJS	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115813-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andess	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 433 3392 7759	COC No: CCC1-~~59~~-TA-20181018
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#: —	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-59-181018-01	10/18/18	1530	G	W	N	N	—	—	—	—	—	X	—	—	X	—	
P-59-171018-470	10/17/18	1720	G	S	N	N	—	—	—	X	X	—	—	—	—	—	
V-59-171018-470	10/17/18	1720	G	S	N	N	X	X	X	—	—	—	—	—	—	—	
P-59-171018-475	10/17/18	1730	G	S	N	N	—	—	—	X	X	—	—	—	—	—	
V-59-171018-475	10/17/18	1730	G	S	N	N	X	X	X	—	—	—	—	—	—	—	

280-115813 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Lane Andess	Date/Time: 18OCT18 1800	Company: EA	Received by: FedEx	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/19/18 0920	Company: TA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.5°C IR #9 cf to 7

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115813-1

Login Number: 115813
List Number: 1
Creator: Turner, Shelby R

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115886-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/9/2018 1:54:18 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115886-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115886-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/20/2018 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

VOLATILE PETROLEUM HYDROCARBONS (GC)
Samples P-S3-191018-020 (280-115886-1) and P-S3-191018-160 (280-115886-2) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 10/19/2018 and analyzed on 10/30/2018.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blank MB 280-435575/2-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)
Sample TB-S3-191018-01 (280-115886-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/31/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S3-191018-020 (280-115886-1) and P-S3-191018-160 (280-115886-2) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/24/2018 and analyzed on 10/26/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434808/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples P-S3-191018-020 (280-115886-1) and P-S3-191018-160 (280-115886-2) were analyzed for percent solids in accordance with

Job ID: 280-115886-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

ASTM D2216-90. The samples were analyzed on 10/25/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Client Sample ID: P-S3-191018-020 — Lab Sample ID: 280-115886-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.63	J B	1.2	1.1	0.33	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.7	J	8.6	4.3	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S3-191018-160 — Lab Sample ID: 280-115886-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	0.52	J B	1.4	1.3	0.38	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.8	J	8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: TB-S3-191018-01 — Lab Sample ID: 280-115886-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	19	J	25	25	10	ug/L	1		8015D GRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115886-1	P-S3-191018-020	Solid	10/19/18 17:00	10/20/18 08:50
280-115886-2	P-S3-191018-160	Solid	10/19/18 17:10	10/20/18 08:50
280-115886-3	TB-S3-191018-01	Water	10/19/18 16:50	10/20/18 08:50

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S3-191018-020 — **Lab Sample ID: 280-115886-1**
Date Collected: 10/19/18 17:00 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 91.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.63	J B	1.2	1.1	0.33	mg/Kg	☼	10/30/18 18:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*	*10/19/18 17:00*	*10/30/18 18:07*	*1*

Client Sample ID: P-S3-191018-160 — **Lab Sample ID: 280-115886-2**
Date Collected: 10/19/18 17:10 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 96.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.52	J B	1.4	1.3	0.38	mg/Kg	☼	10/30/18 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*	*10/19/18 17:10*	*10/30/18 18:31*	*1*

Client Sample ID: TB-S3-191018-01 — **Lab Sample ID: 280-115886-3**
Date Collected: 10/19/18 16:50 — **Matrix: Water**
Date Received: 10/20/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	19	J	25	25	10	ug/L		10/31/18 23:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*82 - 110*		*10/31/18 23:31*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-191018-020 — **Lab Sample ID: 280-115886-1**
Date Collected: 10/19/18 17:00 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 91.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.7	J	8.6	4.3	1.5	mg/Kg	☼	10/26/18 20:50	1
Motor Oil (C20-C38)	25	U	26	25	8.4	mg/Kg	☼	10/26/18 20:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*45 - 130*	*10/24/18 20:26*	*10/26/18 20:50*	*1*
n-Octacosane	*66*		*25 - 162*	*10/24/18 20:26*	*10/26/18 20:50*	*1*

Client Sample ID: P-S3-191018-160 — **Lab Sample ID: 280-115886-2**
Date Collected: 10/19/18 17:10 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 96.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.8	J	8.0	4.0	1.4	mg/Kg	☼	10/26/18 21:11	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	10/26/18 21:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*80*		*45 - 130*	*10/24/18 20:26*	*10/26/18 21:11*	*1*
n-Octacosane	*70*		*25 - 162*	*10/24/18 20:26*	*10/26/18 21:11*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

General Chemistry

Client Sample ID: P-S3-191018-020
Date Collected: 10/19/18 17:00
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-1
Matrix: Solid
Percent Solids: 91.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.5		0.1	0.05	0.1	%		10/25/18 13:18	1

Client Sample ID: P-S3-191018-160
Date Collected: 10/19/18 17:10
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-2
Matrix: Solid
Percent Solids: 96.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.0		0.1	0.05	0.1	%		10/25/18 13:18	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115886-1	P-S3-191018-020	97
280-115886-2	P-S3-191018-160	99
LCS 280-435575/1-A	Lab Control Sample	91
MB 280-435575/2-A	Method Blank	88

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115886-3	TB-S3-191018-01	103
LCS 280-435717/3	Lab Control Sample	86
MB 280-435717/5	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-115886-1	P-S3-191018-020	72	66
280-115886-2	P-S3-191018-160	80	70
LCS 280-434808/2-A	Lab Control Sample	80	70
LCS 280-434808/3-A	Lab Control Sample	87	84
MB 280-434808/1-A	Method Blank	83	73

Surrogate Legend

OTPH = o-Terphenyl (Surr)

OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435575/2-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435575

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.606	J	1.2	1.1	0.33	mg/Kg		10/30/18 14:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*10/30/18 01:00*	*10/30/18 14:49*	*1*

Lab Sample ID: LCS 280-435575/1-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	5.50	5.89	M	mg/Kg		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-435717/5
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/31/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/31/18 12:07*	*1*

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	94.4	M	ug/L		94	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*86*		*82 - 110*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.37	J	7.4	3.7	1.3	mg/Kg		10/26/18 16:08	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg		10/26/18 16:08	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	83		45 - 130	10/24/18 20:26	10/26/18 16:08	1
n-Octacosane	73		25 - 162	10/24/18 20:26	10/26/18 16:08	1

Lab Sample ID: LCS 280-434808/2-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	123	90.1		mg/Kg		73	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	80		45 - 130
n-Octacosane	70		25 - 162

Lab Sample ID: LCS 280-434808/3-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	268		mg/Kg		85	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130
n-Octacosane	84		25 - 162

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

GC VOA

Analysis Batch: 435565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-1	P-S3-191018-020	Total/NA	Solid	8015D GRO	435575
280-115886-2	P-S3-191018-160	Total/NA	Solid	8015D GRO	435575
MB 280-435575/2-A	Method Blank	Total/NA	Solid	8015D GRO	435575
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	435575

Prep Batch: 435575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-1	P-S3-191018-020	Total/NA	Solid	5035	
280-115886-2	P-S3-191018-160	Total/NA	Solid	5035	
MB 280-435575/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 435717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-3	TB-S3-191018-01	Total/NA	Water	8015D GRO	
MB 280-435717/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435717/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 434808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-1	P-S3-191018-020	Total/NA	Solid	3546	
280-115886-2	P-S3-191018-160	Total/NA	Solid	3546	
MB 280-434808/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 435068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-1	P-S3-191018-020	Total/NA	Solid	8015D DRO	434808
280-115886-2	P-S3-191018-160	Total/NA	Solid	8015D DRO	434808
MB 280-434808/1-A	Method Blank	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808

General Chemistry

Analysis Batch: 434956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115886-1	P-S3-191018-020	Total/NA	Solid	Moisture	
280-115886-2	P-S3-191018-160	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Client Sample ID: P-S3-191018-020
Date Collected: 10/19/18 17:00
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: P-S3-191018-020
Date Collected: 10/19/18 17:00
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-1
Matrix: Solid
Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.892 g	5 mL	435575	10/19/18 17:00	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 18:07	GPM	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 20:50	CSM	TAL DEN

Client Sample ID: P-S3-191018-160
Date Collected: 10/19/18 17:10
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: P-S3-191018-160
Date Collected: 10/19/18 17:10
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-2
Matrix: Solid
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.628 g	5 mL	435575	10/19/18 17:10	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	435565	10/30/18 18:31	GPM	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 21:11	CSM	TAL DEN

Client Sample ID: TB-S3-191018-01
Date Collected: 10/19/18 16:50
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115886-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 23:31	GPM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115886-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Messenger	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7737	COC No: COC1-S3-TA-20181019
Client Contact: Pamela Moss	Phone: (508) 789-0624	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1of1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#: —	

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
P-S3-191018-020	19OCT18	1700	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—
P-S3-191018-160	19OCT18	1710	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—
TB-S3-191018-01	19OCT18	1650	G	W	N	N	—	—	—	—	—	—	—	—	X	1	—

280-115886 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Joshua Messenger	19OCT18 1745	EA			
2						
3					10/20/18 0850	TA Den

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3 +0.1 IR #9 by JD

11/9/2018

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115886-1

Login Number: 115886
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115896-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/10/2018 12:37:14 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
D	The reported value is from a dilution.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
H	Sample was prepped or analyzed beyond the specified holding time
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115896-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115896-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/20/2018 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Soil

Samples V-S9-191018-490 (280-115896-2) and V-S9-191058-490 (280-115896-3) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/19/2018 and analyzed on 10/30/2018.

Samples V-S9-191018-490 (280-115896-2)[50X] and V-S9-191058-490 (280-115896-3)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information. Associated results have been flagged "Q". The data have been qualified and reported.

Naphthalene was detected in method blank MB 280-435215/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection in the method blank was less than one-half the LOQ.

Several analytes and surrogates failed the recovery criteria for the MS/MSD of sample V-S9-191018-490 (280-115896-2) in batch 280-435463. Also, Several analytes exceeded the RPD limit. Associated results have been flagged "J1" or "Q". Refer to the QC report for details. The recoveries are not considered reliable because the extract was diluted beyond the ability to reliably quantitate recoveries. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, the data have been reported.

Job ID: 280-115896-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The MS and MSD % recoveries for the following analytes are not calculable (NC) in our LIMS because the detections were below the MDL: 1,2-Dichloropropane; 1,2,3-Trichloropropane; Acetone; Bromodichloromethane; 4-Methyl-2-Pentanone (MIBK); and 2-Hexanone. Due to a limitation of the LIMS, these are not able to be reported as 0%. These analytes are not reported in the MS/MSD, as this was causing errors in the EDD that prevented validation. Other analytes reported as NC did not cause errors, and are reported.

Internal standard responses were outside of acceptance limits for the following MSD of sample V-S9-191018-490 (280-115896-2). The sample shows evidence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S9-191018-01 (280-115896-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/02/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples V-S9-191018-490 (280-115896-2) and V-S9-191058-490 (280-115896-3) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/29/2018 and 11/09/2018 and analyzed on 11/01/2018 and 11/16/2018.

The following sample was prepared outside of preparation holding time due to analyst oversight: V-S9-191058-490 (280-115896-3). As instructed by the client, the data have been qualified and reported.

Samples V-S9-191018-490 (280-115896-2)[200X] and V-S9-191058-490 (280-115896-3)[200X] required dilution prior to analysis due to abundance of target analytes. The reporting limits have been adjusted accordingly. As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided. Associated results have been flagged "Q". The data have been qualified and reported.

Ethylene Dibromide failed the recovery criteria low and exceeded the RPD limit for the MS/MSD of sample V-S9-191018-490 (280-115896-2) in batch 280-435949. Associated results have been flagged "J1". Also, 1,2-Dibromopropane failed the surrogate recovery criteria low for the MS/MSD of V-S9-191018-490MS (280-115896-2). Associated results have been flagged "Q". The recoveries are not considered reliable because the extract was diluted beyond the ability to reliably quantitate recoveries. In addition, the presence of the "4" qualifier indicates analytes where the concentration in the original sample is greater than four times the matrix spike concentration; therefore, control limits are not applicable. Refer to the QC report for details. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S9-191018-490 (280-115896-4) and P-S9-191058-490 (280-115896-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 10/19/2018 and analyzed on 11/02/2018.

Samples P-S9-191018-490 (280-115896-4)[200X] and P-S9-191058-490 (280-115896-5)[100X] required dilution prior to analysis. Associated results have been flagged "D". The reporting limits have been adjusted accordingly. The surrogate was effectively diluted out and any compound eluting out at the surrogate peak can be considered analyte. Associated results have been flagged "Q". The data have been qualified and reported.

Gasoline Range Organics (GRO)-C6-C10 was detected in method blanks MB 280-435575/2-A and MB 280-436088/1-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. The detections in the method blanks were greater than one-half the LOQ; however, associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria high for the MS/MSD of sample P-S9-191018-490 (280-115896-4) in batch 280-436055. Associated results have been flagged "J1". Also, a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria

Job ID: 280-115896-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

low. Associated results have been flagged "Q". Refer to the QC report for details. The recoveries are not considered reliable because the extract was diluted beyond the ability to reliably quantitate recoveries. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S9-191018-01 (280-115896-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/31/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S9-191018-490 (280-115896-4) and P-S9-191058-490 (280-115896-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/24/2018 and analyzed on 10/26/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434808/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection in the method blank was less than one-half the LOQ.

Diesel Range Organics [C10-C28] failed the recovery criteria low for the MS/MSD of sample P-S9-191018-490 (280-115896-4) in batch 280-435068. Associated results have been flagged "J1". Refer to the QC report for details. The presence of the "4" qualifier indicates analytes where the concentration in the original sample is greater than four times the matrix spike concentration; therefore, control limits are not applicable. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S9-191018-490 (280-115896-2), V-S9-191058-490 (280-115896-3), P-S9-191018-490 (280-115896-4) and P-S9-191058-490 (280-115896-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/25/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Client Sample ID: TB-S9-191018-01 — Lab Sample ID: 280-115896-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.8	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.77	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	16	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S9-191018-490 — Lab Sample ID: 280-115896-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	57000	D Q J1	13000	8600	2400	ug/Kg	50	☼	8260B	Total/NA
n-Butylbenzene	7900	J D Q J1	13000	4300	1700	ug/Kg	50	☼	8260B	Total/NA
sec-Butylbenzene	10000	J D Q J1	13000	4300	2000	ug/Kg	50	☼	8260B	Total/NA
Ethylbenzene	79000	D Q J1	13000	4300	1800	ug/Kg	50	☼	8260B	Total/NA
Isopropylbenzene	15000	D Q J1	13000	4300	1600	ug/Kg	50	☼	8260B	Total/NA
4-Isopropyltoluene	5400	J D Q J1	13000	4300	1700	ug/Kg	50	☼	8260B	Total/NA
Naphthalene	11000	J D Q J1	27000	4300	2000	ug/Kg	50	☼	8260B	Total/NA
N-Propylbenzene	25000	D Q J1	13000	8600	2200	ug/Kg	50	☼	8260B	Total/NA
Toluene	310000	D Q J1	13000	4300	2100	ug/Kg	50	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	68000	D Q J1	13000	4300	1700	ug/Kg	50	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	31000	D Q J1	13000	4300	2100	ug/Kg	50	☼	8260B	Total/NA
o-Xylene	71000	D Q J1	6700	4300	1900	ug/Kg	50	☼	8260B	Total/NA
m-Xylene & p-Xylene	200000	D Q J1	13000	8600	4200	ug/Kg	50	☼	8260B	Total/NA
Ethylene Dibromide	290	D J1	22	8.4	3.3	ug/Kg	200	☼	8011	Total/NA

Client Sample ID: V-S9-191058-490 — Lab Sample ID: 280-115896-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	50000	D	25000	22000	6700	ug/Kg	20	☼	8260B	Total/NA
Benzene	27000	D Q	4200	2700	760	ug/Kg	20	☼	8260B	Total/NA
n-Butylbenzene	4900	D Q	4200	1300	540	ug/Kg	20	☼	8260B	Total/NA
sec-Butylbenzene	8000	D Q	4200	1300	640	ug/Kg	20	☼	8260B	Total/NA
Ethylbenzene	44000	D Q	4200	1300	570	ug/Kg	20	☼	8260B	Total/NA
Isopropylbenzene	9200	D Q	4200	1300	490	ug/Kg	20	☼	8260B	Total/NA
4-Isopropyltoluene	3400	J D Q	4200	1300	540	ug/Kg	20	☼	8260B	Total/NA
Naphthalene	7700	J D Q	8400	1300	640	ug/Kg	20	☼	8260B	Total/NA
N-Propylbenzene	14000	D Q	4200	2700	690	ug/Kg	20	☼	8260B	Total/NA
Toluene	160000	D Q	4200	1300	660	ug/Kg	20	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	42000	D Q	4200	1300	520	ug/Kg	20	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	17000	D Q	4200	1300	660	ug/Kg	20	☼	8260B	Total/NA
o-Xylene	41000	D Q	2100	1300	590	ug/Kg	20	☼	8260B	Total/NA
m-Xylene & p-Xylene	110000	D Q	4200	2700	1300	ug/Kg	20	☼	8260B	Total/NA
Ethylene Dibromide	130	H D	22	8.5	3.3	ug/Kg	200	☼	8011	Total/NA

Client Sample ID: P-S9-191018-490 — Lab Sample ID: 280-115896-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2300	Q J1 B D M	230	210	61	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	1900	J1	8.1	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	12	J	24	24	7.9	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Client Sample ID: P-S9-191058-490

Lab Sample ID: 280-115896-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1400	Q B D M	130	120	35	mg/Kg	100	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	1900		8.6	4.3	1.5	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	12	J	26	25	8.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115896-1	TB-S9-191018-01	Water	10/19/18 16:50	10/20/18 08:50
280-115896-2	V-S9-191018-490	Solid	10/19/18 14:29	10/20/18 08:50
280-115896-3	V-S9-191058-490	Solid	10/19/18 14:29	10/20/18 08:50
280-115896-4	P-S9-191018-490	Solid	10/19/18 14:29	10/20/18 08:50
280-115896-5	P-S9-191058-490	Solid	10/19/18 14:29	10/20/18 08:50

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-191018-01
Date Collected: 10/19/18 16:50
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.8**	**J**	10	6.4	1.9	ug/L		11/02/18 10:41	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/02/18 10:41	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 10:41	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/02/18 10:41	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/02/18 10:41	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/02/18 10:41	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/02/18 10:41	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/02/18 10:41	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/02/18 10:41	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/02/18 10:41	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 10:41	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/02/18 10:41	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/02/18 10:41	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 10:41	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 10:41	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/02/18 10:41	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 10:41	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/02/18 10:41	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/02/18 10:41	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/02/18 10:41	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 10:41	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 10:41	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 10:41	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 10:41	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 10:41	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 10:41	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 10:41	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/02/18 10:41	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/02/18 10:41	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 10:41	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/02/18 10:41	1
Methylene Chloride	**0.77**	**J**	5.0	0.80	0.32	ug/L		11/02/18 10:41	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/02/18 10:41	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/02/18 10:41	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 10:41	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-191018-01
Date Collected: 10/19/18 16:50
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 10:41	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 10:41	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/02/18 10:41	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 10:41	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/02/18 10:41	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/02/18 10:41	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 10:41	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/02/18 10:41	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 10:41	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 10:41	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/02/18 10:41	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 10:41	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/02/18 10:41	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 10:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*89 - 112*		*11/02/18 10:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*11/02/18 10:41*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/02/18 10:41*	*1*
Dibromofluoromethane (Surr)	*113*		*80 - 119*		*11/02/18 10:41*	*1*

Client Sample ID: V-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-2
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	69000	U M	81000	69000	22000	ug/Kg	☼	10/30/18 15:53	50
Benzene	**57000**	**D Q J1**	13000	8600	2400	ug/Kg	☼	10/30/18 15:53	50
Bromobenzene	2200	U Q J1	13000	2200	1000	ug/Kg	☼	10/30/18 15:53	50
Bromochloromethane	8600	U	13000	8600	2500	ug/Kg	☼	10/30/18 15:53	50
Bromodichloromethane	4300	U M Q J1	13000	4300	2100	ug/Kg	☼	10/30/18 15:53	50
Bromoform	8600	U Q	13000	8600	8600	ug/Kg	☼	10/30/18 15:53	50
Bromomethane	8600	U	27000	8600	2400	ug/Kg	☼	10/30/18 15:53	50
2-Butanone (MEK)	34000	U	54000	34000	16000	ug/Kg	☼	10/30/18 15:53	50
n-Butylbenzene	**7900**	**J D Q J1**	13000	4300	1700	ug/Kg	☼	10/30/18 15:53	50
sec-Butylbenzene	**10000**	**J D Q J1**	13000	4300	2000	ug/Kg	☼	10/30/18 15:53	50
tert-Butylbenzene	4300	U M Q J1	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
Carbon disulfide	8600	U M	13000	8600	3400	ug/Kg	☼	10/30/18 15:53	50
Carbon tetrachloride	2200	U Q J1	13000	2200	910	ug/Kg	☼	10/30/18 15:53	50
Chlorobenzene	4300	U M Q J1	13000	4300	1600	ug/Kg	☼	10/30/18 15:53	50
Chloroethane	8600	U	27000	8600	2400	ug/Kg	☼	10/30/18 15:53	50
Chloroform	8600	U	13000	8600	2500	ug/Kg	☼	10/30/18 15:53	50
Chloromethane	8600	U	27000	8600	2700	ug/Kg	☼	10/30/18 15:53	50
4-Chlorotoluene	4300	U M Q J1	13000	4300	1200	ug/Kg	☼	10/30/18 15:53	50
Dibromochloromethane	4300	U Q J1	13000	4300	1800	ug/Kg	☼	10/30/18 15:53	50
1,2-Dibromo-3-Chloropropane	17000	U Q	27000	17000	4600	ug/Kg	☼	10/30/18 15:53	50
Dichlorodifluoromethane	4300	U J1	27000	4300	1200	ug/Kg	☼	10/30/18 15:53	50
Dibromomethane	4300	U Q J1	13000	4300	1600	ug/Kg	☼	10/30/18 15:53	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-2
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	4300	U M Q J1	13000	4300	1300	ug/Kg	☼	10/30/18 15:53	50
1,2-Dichlorobenzene	17000	U Q	27000	17000	5000	ug/Kg	☼	10/30/18 15:53	50
1,3-Dichlorobenzene	8600	U Q	13000	8600	2200	ug/Kg	☼	10/30/18 15:53	50
1,4-Dichlorobenzene	4300	U Q J1	13000	4300	1300	ug/Kg	☼	10/30/18 15:53	50
1,1-Dichloroethane	8600	U	13000	8600	2700	ug/Kg	☼	10/30/18 15:53	50
1,2-Dichloroethane	4300	U M Q J1	13000	4300	1300	ug/Kg	☼	10/30/18 15:53	50
1,1-Dichloroethene	8600	U	13000	8600	2700	ug/Kg	☼	10/30/18 15:53	50
1,2-Dichloroethene, Total	4300	U J1	6700	4300	1200	ug/Kg	☼	10/30/18 15:53	50
cis-1,2-Dichloroethene	4300	U J1	6700	4300	1200	ug/Kg	☼	10/30/18 15:53	50
trans-1,2-Dichloroethene	8600	U	13000	8600	2400	ug/Kg	☼	10/30/18 15:53	50
1,2-Dichloropropane	8600	U M Q	13000	8600	2500	ug/Kg	☼	10/30/18 15:53	50
1,3-Dichloropropane	4300	U Q	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
2,2-Dichloropropane	4300	U J1	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
1,1-Dichloropropene	8600	U Q	13000	8600	2600	ug/Kg	☼	10/30/18 15:53	50
cis-1,3-Dichloropropene	4300	U Q J1	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
trans-1,3-Dichloropropene	8600	U Q	13000	8600	2200	ug/Kg	☼	10/30/18 15:53	50
Ethylbenzene	**79000**	**D Q J1**	13000	4300	1800	ug/Kg	☼	10/30/18 15:53	50
2-Hexanone	34000	U M Q J1	54000	34000	12000	ug/Kg	☼	10/30/18 15:53	50
Hexachlorobutadiene	8600	U Q	13000	8600	2600	ug/Kg	☼	10/30/18 15:53	50
Isopropylbenzene	**15000**	**D Q J1**	13000	4300	1600	ug/Kg	☼	10/30/18 15:53	50
4-Isopropyltoluene	**5400**	**J D Q J1**	13000	4300	1700	ug/Kg	☼	10/30/18 15:53	50
Methylene Chloride	8600	U M	13000	8600	3700	ug/Kg	☼	10/30/18 15:53	50
4-Methyl-2-pentanone (MIBK)	34000	U M Q J1	54000	34000	12000	ug/Kg	☼	10/30/18 15:53	50
Methyl tert-butyl ether	8600	U	13000	8600	2700	ug/Kg	☼	10/30/18 15:53	50
Naphthalene	**11000**	**J D Q J1**	27000	4300	2000	ug/Kg	☼	10/30/18 15:53	50
N-Propylbenzene	**25000**	**D Q J1**	13000	8600	2200	ug/Kg	☼	10/30/18 15:53	50
Styrene	4300	U M Q J1	13000	4300	1400	ug/Kg	☼	10/30/18 15:53	50
1,1,1,2-Tetrachloroethane	4300	U Q J1	13000	4300	1100	ug/Kg	☼	10/30/18 15:53	50
1,1,2,2-Tetrachloroethane	4300	U M Q J1	13000	4300	1600	ug/Kg	☼	10/30/18 15:53	50
Tetrachloroethene	4300	U Q J1	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
Toluene	**310000**	**D Q J1**	13000	4300	2100	ug/Kg	☼	10/30/18 15:53	50
1,2,3-Trichlorobenzene	4300	U M Q J1	13000	4300	1900	ug/Kg	☼	10/30/18 15:53	50
1,1,1-Trichloroethane	2200	U J1	13000	2200	1100	ug/Kg	☼	10/30/18 15:53	50
1,1,2-Trichloroethane	4300	U M Q J1	13000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
Trichloroethene	4300	U Q J1	13000	4300	1200	ug/Kg	☼	10/30/18 15:53	50
Trichlorofluoromethane	8600	U	27000	8600	2700	ug/Kg	☼	10/30/18 15:53	50
1,2,4-Trichlorobenzene	8600	U Q	13000	8600	2500	ug/Kg	☼	10/30/18 15:53	50
1,2,3-Trichloropropane	8600	U M Q J1	13000	8600	2500	ug/Kg	☼	10/30/18 15:53	50
1,2,4-Trimethylbenzene	**68000**	**D Q J1**	13000	4300	1700	ug/Kg	☼	10/30/18 15:53	50
1,3,5-Trimethylbenzene	**31000**	**D Q J1**	13000	4300	2100	ug/Kg	☼	10/30/18 15:53	50
Vinyl chloride	4300	U J1	27000	4300	1500	ug/Kg	☼	10/30/18 15:53	50
o-Xylene	**71000**	**D Q J1**	6700	4300	1900	ug/Kg	☼	10/30/18 15:53	50
m-Xylene & p-Xylene	**200000**	**D Q J1**	13000	8600	4200	ug/Kg	☼	10/30/18 15:53	50
2-Chlorotoluene	4300	U M Q J1	13000	4300	1400	ug/Kg	☼	10/30/18 15:53	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*710*	*D Q*	*85 - 116*	*10/19/18 14:29*	*10/30/18 15:53*	*50*
1,2-Dichloroethane-d4 (Surr)	*0*	*D Q*	*71 - 136*	*10/19/18 14:29*	*10/30/18 15:53*	*50*
4-Bromofluorobenzene (Surr)	*256*	*D Q*	*79 - 119*	*10/19/18 14:29*	*10/30/18 15:53*	*50*
Dibromofluoromethane (Surr)	*90*	*D*	*78 - 119*	*10/19/18 14:29*	*10/30/18 15:53*	*50*

Client Sample ID: V-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-3
Matrix: Solid
Percent Solids: 89.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**50000**	**D**	25000	22000	6700	ug/Kg	☼	10/30/18 16:48	20
Benzene	**27000**	**D Q**	4200	2700	760	ug/Kg	☼	10/30/18 16:48	20
Bromobenzene	670	U Q	4200	670	320	ug/Kg	☼	10/30/18 16:48	20
Bromochloromethane	2700	U	4200	2700	790	ug/Kg	☼	10/30/18 16:48	20
Bromodichloromethane	1300	U M Q	4200	1300	670	ug/Kg	☼	10/30/18 16:48	20
Bromoform	2700	U Q	4200	2700	2700	ug/Kg	☼	10/30/18 16:48	20
Bromomethane	2700	U	8400	2700	740	ug/Kg	☼	10/30/18 16:48	20
2-Butanone (MEK)	11000	U	17000	11000	5000	ug/Kg	☼	10/30/18 16:48	20
n-Butylbenzene	**4900**	**D Q**	4200	1300	540	ug/Kg	☼	10/30/18 16:48	20
sec-Butylbenzene	**8000**	**D Q**	4200	1300	640	ug/Kg	☼	10/30/18 16:48	20
tert-Butylbenzene	1300	U M Q	4200	1300	470	ug/Kg	☼	10/30/18 16:48	20
Carbon disulfide	2700	U	4200	2700	1100	ug/Kg	☼	10/30/18 16:48	20
Carbon tetrachloride	670	U Q	4200	670	290	ug/Kg	☼	10/30/18 16:48	20
Chlorobenzene	1300	U M Q	4200	1300	510	ug/Kg	☼	10/30/18 16:48	20
Chloroethane	2700	U	8400	2700	740	ug/Kg	☼	10/30/18 16:48	20
Chloroform	2700	U	4200	2700	780	ug/Kg	☼	10/30/18 16:48	20
Chloromethane	2700	U	8400	2700	840	ug/Kg	☼	10/30/18 16:48	20
4-Chlorotoluene	1300	U M Q	4200	1300	390	ug/Kg	☼	10/30/18 16:48	20
Dibromochloromethane	1300	U M Q	4200	1300	560	ug/Kg	☼	10/30/18 16:48	20
1,2-Dibromo-3-Chloropropane	5400	U Q	8400	5400	1400	ug/Kg	☼	10/30/18 16:48	20
Dichlorodifluoromethane	1300	U	8400	1300	370	ug/Kg	☼	10/30/18 16:48	20
Dibromomethane	1300	U Q	4200	1300	510	ug/Kg	☼	10/30/18 16:48	20
Ethylene Dibromide	1300	U M Q	4200	1300	420	ug/Kg	☼	10/30/18 16:48	20
1,2-Dichlorobenzene	5400	U Q	8400	5400	1600	ug/Kg	☼	10/30/18 16:48	20
1,3-Dichlorobenzene	2700	U Q	4200	2700	690	ug/Kg	☼	10/30/18 16:48	20
1,4-Dichlorobenzene	1300	U Q	4200	1300	420	ug/Kg	☼	10/30/18 16:48	20
1,1-Dichloroethane	2700	U	4200	2700	850	ug/Kg	☼	10/30/18 16:48	20
1,2-Dichloroethane	1300	U M Q	4200	1300	420	ug/Kg	☼	10/30/18 16:48	20
1,1-Dichloroethene	2700	U	4200	2700	850	ug/Kg	☼	10/30/18 16:48	20
1,2-Dichloroethene, Total	1300	U	2100	1300	370	ug/Kg	☼	10/30/18 16:48	20
cis-1,2-Dichloroethene	1300	U	2100	1300	370	ug/Kg	☼	10/30/18 16:48	20
trans-1,2-Dichloroethene	2700	U	4200	2700	750	ug/Kg	☼	10/30/18 16:48	20
1,2-Dichloropropane	2700	U M Q	4200	2700	780	ug/Kg	☼	10/30/18 16:48	20
1,3-Dichloropropane	1300	U Q	4200	1300	470	ug/Kg	☼	10/30/18 16:48	20
2,2-Dichloropropane	1300	U	4200	1300	450	ug/Kg	☼	10/30/18 16:48	20
1,1-Dichloropropene	2700	U Q	4200	2700	810	ug/Kg	☼	10/30/18 16:48	20
cis-1,3-Dichloropropene	1300	U Q	4200	1300	450	ug/Kg	☼	10/30/18 16:48	20
trans-1,3-Dichloropropene	2700	U Q	4200	2700	700	ug/Kg	☼	10/30/18 16:48	20
Ethylbenzene	**44000**	**D Q**	4200	1300	570	ug/Kg	☼	10/30/18 16:48	20
2-Hexanone	11000	U M Q	17000	11000	3700	ug/Kg	☼	10/30/18 16:48	20
Hexachlorobutadiene	2700	U Q	4200	2700	830	ug/Kg	☼	10/30/18 16:48	20
Isopropylbenzene	**9200**	**D Q**	4200	1300	490	ug/Kg	☼	10/30/18 16:48	20
4-Isopropyltoluene	**3400**	**J D Q**	4200	1300	540	ug/Kg	☼	10/30/18 16:48	20
Methylene Chloride	2700	U M	4200	2700	1200	ug/Kg	☼	10/30/18 16:48	20
4-Methyl-2-pentanone (MIBK)	11000	U M Q	17000	11000	3800	ug/Kg	☼	10/30/18 16:48	20
Methyl tert-butyl ether	2700	U	4200	2700	840	ug/Kg	☼	10/30/18 16:48	20
Naphthalene	**7700**	**J D Q**	8400	1300	640	ug/Kg	☼	10/30/18 16:48	20
N-Propylbenzene	**14000**	**D Q**	4200	2700	690	ug/Kg	☼	10/30/18 16:48	20
Styrene	1300	U M Q	4200	1300	440	ug/Kg	☼	10/30/18 16:48	20
1,1,1,2-Tetrachloroethane	1300	U Q	4200	1300	350	ug/Kg	☼	10/30/18 16:48	20
1,1,2,2-Tetrachloroethane	1300	U M Q	4200	1300	490	ug/Kg	☼	10/30/18 16:48	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-3
Matrix: Solid
Percent Solids: 89.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Tetrachloroethene	1300	U Q	4200	1300	450	ug/Kg	☼	10/30/18 16:48	20
Toluene	**160000**	**D Q**	4200	1300	660	ug/Kg	☼	10/30/18 16:48	20
1,2,3-Trichlorobenzene	1300	U M Q	4200	1300	590	ug/Kg	☼	10/30/18 16:48	20
1,1,1-Trichloroethane	670	U	4200	670	340	ug/Kg	☼	10/30/18 16:48	20
1,1,2-Trichloroethane	1300	U M Q	4200	1300	450	ug/Kg	☼	10/30/18 16:48	20
Trichloroethene	1300	U Q	4200	1300	390	ug/Kg	☼	10/30/18 16:48	20
Trichlorofluoromethane	2700	U	8400	2700	840	ug/Kg	☼	10/30/18 16:48	20
1,2,4-Trichlorobenzene	2700	U Q	4200	2700	790	ug/Kg	☼	10/30/18 16:48	20
1,2,3-Trichloropropane	2700	U M Q	4200	2700	790	ug/Kg	☼	10/30/18 16:48	20
1,2,4-Trimethylbenzene	**42000**	**D Q**	4200	1300	520	ug/Kg	☼	10/30/18 16:48	20
1,3,5-Trimethylbenzene	**17000**	**D Q**	4200	1300	660	ug/Kg	☼	10/30/18 16:48	20
Vinyl chloride	1300	U	8400	1300	450	ug/Kg	☼	10/30/18 16:48	20
o-Xylene	**41000**	**D Q**	2100	1300	590	ug/Kg	☼	10/30/18 16:48	20
m-Xylene & p-Xylene	**110000**	**D Q**	4200	2700	1300	ug/Kg	☼	10/30/18 16:48	20
2-Chlorotoluene	1300	U M Q	4200	1300	440	ug/Kg	☼	10/30/18 16:48	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*466*	*D Q*	*85 - 116*	*10/19/18 14:29*	*10/30/18 16:48*	*20*
1,2-Dichloroethane-d4 (Surr)	*0*	*D Q*	*71 - 136*	*10/19/18 14:29*	*10/30/18 16:48*	*20*
4-Bromofluorobenzene (Surr)	*198*	*D Q*	*79 - 119*	*10/19/18 14:29*	*10/30/18 16:48*	*20*
Dibromofluoromethane (Surr)	*86*	*D*	*78 - 119*	*10/19/18 14:29*	*10/30/18 16:48*	*20*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-191018-01
Date Collected: 10/19/18 16:50
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**16**	**J**	25	25	10	ug/L		10/31/18 23:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*106*		*82 - 110*		*10/31/18 23:55*	*1*

Client Sample ID: P-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-4
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2300**	**Q J1 B D M**	230	210	61	mg/Kg	☼	11/02/18 16:59	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*0*	*Q*	*77 - 123*	*10/19/18 14:29*	*11/02/18 16:59*	*200*

Client Sample ID: P-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-5
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1400**	**Q B D M**	130	120	35	mg/Kg	☼	11/02/18 17:47	100

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	0	Q	77 - 123	10/19/18 14:29	11/02/18 17:47	100

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S9-191018-490 — **Lab Sample ID: 280-115896-2**
Date Collected: 10/19/18 14:29 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	290	D J1	22	8.4	3.3	ug/Kg	☼	11/01/18 22:28	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	0	Q D	55 - 130	10/29/18 14:26	11/01/18 22:28	200

Client Sample ID: V-S9-191058-490 — **Lab Sample ID: 280-115896-3**
Date Collected: 10/19/18 14:29 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 89.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	130	H D	22	8.5	3.3	ug/Kg	☼	11/16/18 12:31	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	0	Q D	55 - 130	11/09/18 14:56	11/16/18 12:31	200

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-191018-490 — **Lab Sample ID: 280-115896-4**
Date Collected: 10/19/18 14:29 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1900	J1	8.1	4.1	1.4	mg/Kg	☼	10/26/18 17:56	1
Motor Oil (C20-C38)	12	J	24	24	7.9	mg/Kg	☼	10/26/18 17:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	86		45 - 130	10/24/18 20:26	10/26/18 17:56	1
n-Octacosane	69		25 - 162	10/24/18 20:26	10/26/18 17:56	1

Client Sample ID: P-S9-191058-490 — **Lab Sample ID: 280-115896-5**
Date Collected: 10/19/18 14:29 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 90.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1900		8.6	4.3	1.5	mg/Kg	☼	10/26/18 20:28	1
Motor Oil (C20-C38)	12	J	26	25	8.4	mg/Kg	☼	10/26/18 20:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	86		45 - 130	10/24/18 20:26	10/26/18 20:28	1
n-Octacosane	74		25 - 162	10/24/18 20:26	10/26/18 20:28	1

General Chemistry

Client Sample ID: V-S9-191018-490 — **Lab Sample ID: 280-115896-2**
Date Collected: 10/19/18 14:29 — **Matrix: Solid**
Date Received: 10/20/18 08:50 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.9		0.1	0.05	0.1	%		10/25/18 13:18	1

General Chemistry

Client Sample ID: V-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-3
Matrix: Solid
Percent Solids: 89.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.4		0.1	0.05	0.1	%		10/25/18 13:18	1

Client Sample ID: P-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-4
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.9		0.1	0.05	0.1	%		10/25/18 13:18	1

Client Sample ID: P-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50
Lab Sample ID: 280-115896-5
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.6		0.1	0.05	0.1	%		10/25/18 13:18	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115896-2	V-S9-191018-490	710 D Q	0 D Q	256 D Q	90 D
280-115896-2 MS	V-S9-191018-490	551 D Q	133 D	263 D Q	93 D
280-115896-2 MSD	V-S9-191018-490	558 D Q	34 D Q	212 D Q	85 D
280-115896-3	V-S9-191058-490	466 D Q	0 D Q	198 D Q	86 D
LCS 280-435215/2-A	Lab Control Sample	99	96	98	99
LCSD 280-435215/3-A	Lab Control Sample Dup	97	92	100	99
MB 280-435215/1-A	Method Blank	95	92	95	94

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115896-1	TB-S9-191018-01	104	107	101	113
LCS 280-436013/4	Lab Control Sample	102	106	96	111
MB 280-436013/6	Method Blank	102	107	102	112

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115896-4	P-S9-191018-490	0 Q
280-115896-4 MS	P-S9-191018-490	0 Q
280-115896-4 MSD	P-S9-191018-490	0 Q
280-115896-5	P-S9-191058-490	0 Q
LCS 280-435575/1-A	Lab Control Sample	91
LCS 280-436088/2-A	Lab Control Sample	97
LCSD 280-436088/3-A	Lab Control Sample Dup	80
MB 280-435575/2-A	Method Blank	88
MB 280-436088/1-A	Method Blank	105

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-115896-1	TB-S9-191018-01	106
LCS 280-435717/3	Lab Control Sample	86
MB 280-435717/5	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-115896-2	V-S9-191018-490	0 Q D
280-115896-2 MS	V-S9-191018-490	0 Q M D
280-115896-2 MSD	V-S9-191018-490	0 Q M D
280-115896-3	V-S9-191058-490	0 Q D
LCS 280-435369/2-A	Lab Control Sample	110
LCS 280-437059/2-A	Lab Control Sample	108
LCSD 280-435369/3-A	Lab Control Sample Dup	109
LCSD 280-437059/3-A	Lab Control Sample Dup	109
MB 280-435369/4-A	Method Blank	106
MB 280-437059/4-A	Method Blank	97 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-115896-4	P-S9-191018-490	86	69
280-115896-4 MS	P-S9-191018-490	83	67
280-115896-4 MS	P-S9-191018-490	107	78
280-115896-4 MSD	P-S9-191018-490	87	70
280-115896-4 MSD	P-S9-191018-490	111	84
280-115896-5	P-S9-191058-490	86	74
LCS 280-434808/2-A	Lab Control Sample	80	70
LCS 280-434808/3-A	Lab Control Sample	87	84
MB 280-434808/1-A	Method Blank	83	73

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-435215/1-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435215

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		10/30/18 12:43	1
Benzene	160	U M	250	160	45	ug/Kg		10/30/18 12:43	1
Bromobenzene	40	U	250	40	19	ug/Kg		10/30/18 12:43	1
Bromochloromethane	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		10/30/18 12:43	1
Bromoform	160	U	250	160	160	ug/Kg		10/30/18 12:43	1
Bromomethane	160	U	500	160	44	ug/Kg		10/30/18 12:43	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		10/30/18 12:43	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		10/30/18 12:43	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		10/30/18 12:43	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		10/30/18 12:43	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		10/30/18 12:43	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		10/30/18 12:43	1
Chlorobenzene	80	U	250	80	30	ug/Kg		10/30/18 12:43	1
Chloroethane	160	U	500	160	44	ug/Kg		10/30/18 12:43	1
Chloroform	160	U	250	160	46	ug/Kg		10/30/18 12:43	1
Chloromethane	160	U	500	160	50	ug/Kg		10/30/18 12:43	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		10/30/18 12:43	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		10/30/18 12:43	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		10/30/18 12:43	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		10/30/18 12:43	1
Dibromomethane	80	U	250	80	30	ug/Kg		10/30/18 12:43	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		10/30/18 12:43	1
1,3-Dichlorobenzene	160	U M	250	160	41	ug/Kg		10/30/18 12:43	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		10/30/18 12:43	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		10/30/18 12:43	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		10/30/18 12:43	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		10/30/18 12:43	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		10/30/18 12:43	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		10/30/18 12:43	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		10/30/18 12:43	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		10/30/18 12:43	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		10/30/18 12:43	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		10/30/18 12:43	1
Ethylbenzene	80	U M	250	80	34	ug/Kg		10/30/18 12:43	1
2-Hexanone	640	U	1000	640	220	ug/Kg		10/30/18 12:43	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		10/30/18 12:43	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		10/30/18 12:43	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		10/30/18 12:43	1
Methylene Chloride	160	U M	250	160	69	ug/Kg		10/30/18 12:43	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		10/30/18 12:43	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		10/30/18 12:43	1
Naphthalene	40.4	J	500	80	38	ug/Kg		10/30/18 12:43	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		10/30/18 12:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-435215/1-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435215

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U M	250	80	26	ug/Kg		10/30/18 12:43	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		10/30/18 12:43	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		10/30/18 12:43	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
Toluene	80	U	250	80	39	ug/Kg		10/30/18 12:43	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		10/30/18 12:43	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		10/30/18 12:43	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		10/30/18 12:43	1
Trichloroethene	80	U	250	80	23	ug/Kg		10/30/18 12:43	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		10/30/18 12:43	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		10/30/18 12:43	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		10/30/18 12:43	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		10/30/18 12:43	1
Vinyl chloride	80	U	500	80	27	ug/Kg		10/30/18 12:43	1
o-Xylene	80	U	130	80	35	ug/Kg		10/30/18 12:43	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		10/30/18 12:43	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		10/30/18 12:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*85 - 116*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*10/27/18 07:00*	*10/30/18 12:43*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*10/27/18 07:00*	*10/30/18 12:43*	*1*

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	6340		ug/Kg		79	36 - 164
Benzene	2000	1880		ug/Kg		94	77 - 121
Bromobenzene	2000	1990		ug/Kg		99	78 - 121
Bromochloromethane	2000	1970		ug/Kg		99	78 - 125
Bromodichloromethane	2000	2030		ug/Kg		102	75 - 127
Bromoform	2000	1830		ug/Kg		92	67 - 132
Bromomethane	2000	1550		ug/Kg		77	53 - 143
2-Butanone (MEK)	8000	6840		ug/Kg		86	51 - 148
n-Butylbenzene	2000	2000		ug/Kg		100	70 - 128
sec-Butylbenzene	2000	1980		ug/Kg		99	73 - 126
tert-Butylbenzene	2000	1990		ug/Kg		99	73 - 125
Carbon disulfide	2000	1880		ug/Kg		94	63 - 132
Carbon tetrachloride	2000	2010		ug/Kg		101	70 - 135
Chlorobenzene	2000	1900		ug/Kg		95	79 - 120
Chloroethane	2000	1620		ug/Kg		81	59 - 139
Chloroform	2000	1930		ug/Kg		96	78 - 123
Chloromethane	2000	1600		ug/Kg		80	50 - 136
4-Chlorotoluene	2000	1940		ug/Kg		97	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2070		ug/Kg		103	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1900		ug/Kg		95	61 - 132
Dichlorodifluoromethane	2000	1390		ug/Kg		69	29 - 149
Dibromomethane	2000	1930		ug/Kg		96	78 - 125
Ethylene Dibromide	2000	2000		ug/Kg		100	78 - 122
1,2-Dichlorobenzene	2000	1960		ug/Kg		98	78 - 121
1,3-Dichlorobenzene	2000	1960		ug/Kg		98	77 - 121
1,4-Dichlorobenzene	2000	1950		ug/Kg		97	75 - 120
1,1-Dichloroethane	2000	1870		ug/Kg		94	76 - 125
1,2-Dichloroethane	2000	1830		ug/Kg		91	73 - 128
1,1-Dichloroethene	2000	1920		ug/Kg		96	70 - 131
1,2-Dichloroethene, Total	4000	3910		ug/Kg		98	78 - 122
cis-1,2-Dichloroethene	2000	1950		ug/Kg		97	77 - 123
trans-1,2-Dichloroethene	2000	1960		ug/Kg		98	74 - 125
1,2-Dichloropropane	2000	1880		ug/Kg		94	76 - 123
1,3-Dichloropropane	2000	1860		ug/Kg		93	77 - 121
2,2-Dichloropropane	2000	2020		ug/Kg		101	67 - 133
1,1-Dichloropropene	2000	1870		ug/Kg		93	76 - 125
cis-1,3-Dichloropropene	2000	2140		ug/Kg		107	74 - 126
trans-1,3-Dichloropropene	2000	2150		ug/Kg		107	71 - 130
Ethylbenzene	2000	1930		ug/Kg		97	76 - 122
2-Hexanone	8000	7540		ug/Kg		94	53 - 145
Hexachlorobutadiene	2000	2150		ug/Kg		107	61 - 135
Isopropylbenzene	2000	1970		ug/Kg		98	68 - 134
4-Isopropyltoluene	2000	2050		ug/Kg		103	73 - 127
Methylene Chloride	2000	1980		ug/Kg		99	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	7460		ug/Kg		93	65 - 135
Methyl tert-butyl ether	2000	1850		ug/Kg		92	73 - 125
Naphthalene	2000	2010		ug/Kg		100	62 - 129
N-Propylbenzene	2000	2020		ug/Kg		101	73 - 125
Styrene	2000	2030		ug/Kg		101	76 - 124
1,1,1,2-Tetrachloroethane	2000	2040		ug/Kg		102	78 - 125
1,1,2,2-Tetrachloroethane	2000	1860		ug/Kg		93	70 - 124
Tetrachloroethene	2000	1930		ug/Kg		96	73 - 128
Toluene	2000	1940		ug/Kg		97	77 - 121
1,2,3-Trichlorobenzene	2000	2040		ug/Kg		102	66 - 130
1,1,1-Trichloroethane	2000	2020		ug/Kg		101	73 - 130
1,1,2-Trichloroethane	2000	2000		ug/Kg		100	78 - 121
Trichloroethene	2000	1900		ug/Kg		95	77 - 123
Trichlorofluoromethane	2000	1790		ug/Kg		89	62 - 140
1,2,4-Trichlorobenzene	2000	2030		ug/Kg		101	67 - 129
1,2,3-Trichloropropane	2000	1950		ug/Kg		97	73 - 125
1,2,4-Trimethylbenzene	2000	1960		ug/Kg		98	75 - 123
1,3,5-Trimethylbenzene	2000	2000		ug/Kg		100	73 - 124
Vinyl chloride	2000	1680		ug/Kg		84	56 - 135
o-Xylene	2000	1970		ug/Kg		99	77 - 123
m-Xylene & p-Xylene	2000	1920		ug/Kg		96	77 - 124
2-Chlorotoluene	2000	1930		ug/Kg		97	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-435215/2-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435215

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-435215/3-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	6460		ug/Kg		81	36 - 164	2	20
Benzene	2000	1860		ug/Kg		93	77 - 121	1	20
Bromobenzene	2000	1980		ug/Kg		99	78 - 121	0	20
Bromochloromethane	2000	1980		ug/Kg		99	78 - 125	0	20
Bromodichloromethane	2000	2050		ug/Kg		103	75 - 127	1	20
Bromoform	2000	1870		ug/Kg		94	67 - 132	2	20
Bromomethane	2000	1520		ug/Kg		76	53 - 143	2	20
2-Butanone (MEK)	8000	6380		ug/Kg		80	51 - 148	7	20
n-Butylbenzene	2000	2070		ug/Kg		103	70 - 128	3	20
sec-Butylbenzene	2000	2010		ug/Kg		101	73 - 126	2	20
tert-Butylbenzene	2000	2050		ug/Kg		102	73 - 125	3	20
Carbon disulfide	2000	1860		ug/Kg		93	63 - 132	1	20
Carbon tetrachloride	2000	2060		ug/Kg		103	70 - 135	2	20
Chlorobenzene	2000	1910		ug/Kg		96	79 - 120	1	20
Chloroethane	2000	1640		ug/Kg		82	59 - 139	1	20
Chloroform	2000	1940		ug/Kg		97	78 - 123	1	20
Chloromethane	2000	1610		ug/Kg		80	50 - 136	1	20
4-Chlorotoluene	2000	1960		ug/Kg		98	72 - 124	1	20
Dibromochloromethane	2000	2140		ug/Kg		107	74 - 126	3	20
1,2-Dibromo-3-Chloropropane	2000	2260		ug/Kg		113	61 - 132	17	20
Dichlorodifluoromethane	2000	1320		ug/Kg		66	29 - 149	5	20
Dibromomethane	2000	1930		ug/Kg		96	78 - 125	0	20
Ethylene Dibromide	2000	2010		ug/Kg		101	78 - 122	1	20
1,2-Dichlorobenzene	2000	2030		ug/Kg		102	78 - 121	4	20
1,3-Dichlorobenzene	2000	2000		ug/Kg		100	77 - 121	2	20
1,4-Dichlorobenzene	2000	1990		ug/Kg		100	75 - 120	2	20
1,1-Dichloroethane	2000	1850		ug/Kg		92	76 - 125	1	20
1,2-Dichloroethane	2000	1810		ug/Kg		90	73 - 128	1	20
1,1-Dichloroethene	2000	1900		ug/Kg		95	70 - 131	1	20
1,2-Dichloroethene, Total	4000	3900		ug/Kg		98	78 - 122	0	20
cis-1,2-Dichloroethene	2000	1940		ug/Kg		97	77 - 123	0	20
trans-1,2-Dichloroethene	2000	1960		ug/Kg		98	74 - 125	0	20
1,2-Dichloropropane	2000	1910		ug/Kg		95	76 - 123	1	20
1,3-Dichloropropane	2000	1830		ug/Kg		91	77 - 121	2	20
2,2-Dichloropropane	2000	2010		ug/Kg		100	67 - 133	1	20
1,1-Dichloropropene	2000	1870		ug/Kg		93	76 - 125	0	20
cis-1,3-Dichloropropene	2000	2110		ug/Kg		105	74 - 126	1	20
trans-1,3-Dichloropropene	2000	2190		ug/Kg		109	71 - 130	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-435215/3-A
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	2000	1920		ug/Kg		96	76 - 122	0	20
2-Hexanone	8000	7410		ug/Kg		93	53 - 145	2	20
Hexachlorobutadiene	2000	2140		ug/Kg		107	61 - 135	0	20
Isopropylbenzene	2000	1980		ug/Kg		99	68 - 134	1	20
4-Isopropyltoluene	2000	2070		ug/Kg		104	73 - 127	1	20
Methylene Chloride	2000	1910		ug/Kg		96	70 - 128	4	20
4-Methyl-2-pentanone (MIBK)	8000	7550		ug/Kg		94	65 - 135	1	20
Methyl tert-butyl ether	2000	1880		ug/Kg		94	73 - 125	1	20
Naphthalene	2000	2140		ug/Kg		107	62 - 129	6	20
N-Propylbenzene	2000	2050		ug/Kg		103	73 - 125	1	20
Styrene	2000	2040		ug/Kg		102	76 - 124	1	20
1,1,1,2-Tetrachloroethane	2000	2080		ug/Kg		104	78 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	1910		ug/Kg		96	70 - 124	3	20
Tetrachloroethene	2000	1940		ug/Kg		97	73 - 128	1	20
Toluene	2000	1960		ug/Kg		98	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2110		ug/Kg		105	66 - 130	3	20
1,1,1-Trichloroethane	2000	2050		ug/Kg		102	73 - 130	2	20
1,1,2-Trichloroethane	2000	2040		ug/Kg		102	78 - 121	2	20
Trichloroethene	2000	1920		ug/Kg		96	77 - 123	1	20
Trichlorofluoromethane	2000	1760		ug/Kg		88	62 - 140	2	20
1,2,4-Trichlorobenzene	2000	2090		ug/Kg		105	67 - 129	3	20
1,2,3-Trichloropropane	2000	2060		ug/Kg		103	73 - 125	6	20
1,2,4-Trimethylbenzene	2000	1990		ug/Kg		100	75 - 123	2	20
1,3,5-Trimethylbenzene	2000	2030		ug/Kg		102	73 - 124	2	20
Vinyl chloride	2000	1670		ug/Kg		83	56 - 135	1	20
o-Xylene	2000	1960		ug/Kg		98	77 - 123	1	20
m-Xylene & p-Xylene	2000	1900		ug/Kg		95	77 - 124	1	20
2-Chlorotoluene	2000	1990		ug/Kg		99	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: 280-115896-2 MS
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	57000	D Q J1	2210	37300	D 4	ug/Kg	☼	-884	77 - 121		
Bromobenzene	2200	U Q J1	2210	2060	J D Q	ug/Kg	☼	93	78 - 121		
Bromochloromethane	8600	U	2210	8900	U	ug/Kg	☼	NC	78 - 125		
Bromoform	8600	U Q	2210	8900	U Q	ug/Kg	☼	NC	67 - 132		
Bromomethane	8600	U	2210	8900	U	ug/Kg	☼	NC	53 - 143		
2-Butanone (MEK)	34000	U	8850	35000	U	ug/Kg	☼	NC	51 - 148		
n-Butylbenzene	7900	D Q J1	2210	9860	J D Q	ug/Kg	☼	89	70 - 128		
sec-Butylbenzene	10000	D Q J1	2210	13900	J D Q 4	ug/Kg	☼	173	73 - 126		

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115896-2 MS
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butylbenzene	4300	U M Q J1	2210	9470	J D Q J1	ug/Kg	☼	428	73 - 125
Carbon disulfide	8600	U M	2210	8900	U	ug/Kg	☼	NC	63 - 132
Carbon tetrachloride	2200	U Q J1	2210	2110	J D	ug/Kg	☼	95	70 - 135
Chlorobenzene	4300	U M Q J1	2210	2110	J D Q	ug/Kg	☼	95	79 - 120
Chloroethane	8600	U	2210	8900	U	ug/Kg	☼	NC	59 - 139
Chloroform	8600	U	2210	8900	U	ug/Kg	☼	NC	78 - 123
Chloromethane	8600	U	2210	8900	U	ug/Kg	☼	NC	50 - 136
4-Chlorotoluene	4300	U M Q J1	2210	2240	J D Q	ug/Kg	☼	101	72 - 124
Dibromochloromethane	4300	U Q J1	2210	4400	U Q J1	ug/Kg	☼	0	74 - 126
1,2-Dibromo-3-Chloropropane	17000	U Q	2210	18000	U Q	ug/Kg	☼	NC	61 - 132
Dichlorodifluoromethane	4300	U J1	2210	4400	U J1	ug/Kg	☼	0	29 - 149
Dibromomethane	4300	U Q J1	2210	2320	J D	ug/Kg	☼	105	78 - 125
Ethylene Dibromide	4300	U M Q J1	2210	2390	J D Q	ug/Kg	☼	108	78 - 122
1,2-Dichlorobenzene	17000	U Q	2210	18000	U Q	ug/Kg	☼	NC	78 - 121
1,3-Dichlorobenzene	8600	U Q	2210	8900	U Q	ug/Kg	☼	NC	77 - 121
1,4-Dichlorobenzene	4300	U Q J1	2210	2050	J D Q	ug/Kg	☼	92	75 - 120
1,1-Dichloroethane	8600	U	2210	8900	U	ug/Kg	☼	NC	76 - 125
1,2-Dichloroethane	4300	U M Q J1	2210	4060	J D J1	ug/Kg	☼	184	73 - 128
1,1-Dichloroethene	8600	U	2210	8900	U	ug/Kg	☼	NC	70 - 131
1,2-Dichloroethene, Total	4300	U J1	4420	2060	J J1	ug/Kg	☼	47	78 - 122
cis-1,2-Dichloroethene	4300	U J1	2210	2060	J D	ug/Kg	☼	93	77 - 123
trans-1,2-Dichloroethene	8600	U	2210	8900	U	ug/Kg	☼	NC	74 - 125
1,3-Dichloropropane	4300	U Q	2210	1720	J D Q	ug/Kg	☼	78	77 - 121
2,2-Dichloropropane	4300	U J1	2210	2420	J D	ug/Kg	☼	110	67 - 133
1,1-Dichloropropene	8600	U Q	2210	8900	U	ug/Kg	☼	NC	76 - 125
cis-1,3-Dichloropropene	4300	U Q J1	2210	1550	J D J1	ug/Kg	☼	70	74 - 126
trans-1,3-Dichloropropene	8600	U Q	2210	8900	U	ug/Kg	☼	NC	71 - 130
Ethylbenzene	79000	D Q J1	2210	66400	D Q 4	ug/Kg	☼	-576	76 - 122
Hexachlorobutadiene	8600	U Q	2210	8900	U Q	ug/Kg	☼	NC	61 - 135
Isopropylbenzene	15000	D Q J1	2210	15100	D Q 4	ug/Kg	☼	-17	68 - 134
4-Isopropyltoluene	5400	D Q J1	2210	7350	J D Q	ug/Kg	☼	89	73 - 127
Methylene Chloride	8600	U M	2210	8900	U	ug/Kg	☼	NC	70 - 128
Methyl tert-butyl ether	8600	U	2210	8900	U	ug/Kg	☼	NC	73 - 125
Naphthalene	11000	D Q J1	2210	11300	J D Q 4	ug/Kg	☼	23	62 - 129
N-Propylbenzene	25000	D Q J1	2210	24200	D Q 4	ug/Kg	☼	-20	73 - 125
Styrene	4300	U M Q J1	2210	3710	J D Q J1	ug/Kg	☼	168	76 - 124
1,1,1,2-Tetrachloroethane	4300	U Q J1	2210	1760	J D Q	ug/Kg	☼	80	78 - 125
1,1,2,2-Tetrachloroethane	4300	U M Q J1	2210	3980	J D Q J1	ug/Kg	☼	180	70 - 124
Tetrachloroethene	4300	U Q J1	2210	1910	J D Q	ug/Kg	☼	86	73 - 128
Toluene	310000	D Q J1	2210	238000	D 4	ug/Kg	☼	-3392	77 - 121
1,2,3-Trichlorobenzene	4300	U M Q J1	2210	2370	J D Q	ug/Kg	☼	107	66 - 130
1,1,1-Trichloroethane	2200	U J1	2210	2000	J D	ug/Kg	☼	90	73 - 130
1,1,2-Trichloroethane	4300	U M Q J1	2210	170000	D J1	ug/Kg	☼	7663	78 - 121
Trichloroethene	4300	U Q J1	2210	2220	J D	ug/Kg	☼	100	77 - 123
Trichlorofluoromethane	8600	U	2210	8900	U	ug/Kg	☼	NC	62 - 140
1,2,4-Trichlorobenzene	8600	U Q	2210	8900	U Q	ug/Kg	☼	NC	67 - 129
1,2,4-Trimethylbenzene	68000	D Q J1	2210	63600	D Q 4	ug/Kg	☼	-219	75 - 123
1,3,5-Trimethylbenzene	31000	D Q J1	2210	30400	D Q 4	ug/Kg	☼	-29	73 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115896-2 MS
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	4300	U J1	2210	4400	U J1	ug/Kg	☼	0	56 - 135
o-Xylene	71000	D Q J1	2210	59900	D Q 4	ug/Kg	☼	-508	77 - 123
m-Xylene & p-Xylene	200000	D Q J1	2210	169000	D Q 4	ug/Kg	☼	-1530	77 - 124
2-Chlorotoluene	4300	U M Q J1	2210	2210	J D Q	ug/Kg	☼	100	75 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*551*	*D Q*	*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*133*	*D*	*71 - 136*
4-Bromofluorobenzene (Surr)	*263*	*D Q*	*79 - 119*
Dibromofluoromethane (Surr)	*93*	*D*	*78 - 119*

Lab Sample ID: 280-115896-2 MSD
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	57000	D Q J1	1770	39800	D Q 4	ug/Kg	☼	-969	77 - 121	6	20
Bromobenzene	2200	U Q J1	1770	1370	J D Q J1	ug/Kg	☼	77	78 - 121	40	20
Bromochloromethane	8600	U	1770	7100	U	ug/Kg	☼	NC	78 - 125	NC	20
Bromoform	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	67 - 132	NC	20
Bromomethane	8600	U	1770	7100	U	ug/Kg	☼	NC	53 - 143	NC	20
2-Butanone (MEK)	34000	U	7070	28000	U	ug/Kg	☼	NC	51 - 148	NC	20
n-Butylbenzene	7900	D Q J1	1770	5600	J D Q 4 J1	ug/Kg	☼	-129	70 - 128	55	20
sec-Butylbenzene	10000	D Q J1	1770	8870	J D Q 4 J1	ug/Kg	☼	-65	73 - 126	44	20
tert-Butylbenzene	4300	U M Q J1	1770	6440	J D Q J1	ug/Kg	☼	364	73 - 125	38	20
Carbon disulfide	8600	U M	1770	7100	U	ug/Kg	☼	NC	63 - 132	NC	20
Carbon tetrachloride	2200	U Q J1	1770	1530	J D Q J1	ug/Kg	☼	87	70 - 135	32	20
Chlorobenzene	4300	U M Q J1	1770	1330	J D Q J1	ug/Kg	☼	75	79 - 120	45	20
Chloroethane	8600	U	1770	7100	U	ug/Kg	☼	NC	59 - 139	NC	20
Chloroform	8600	U	1770	7100	U	ug/Kg	☼	NC	78 - 123	NC	20
Chloromethane	8600	U	1770	7100	U	ug/Kg	☼	NC	50 - 136	NC	20
4-Chlorotoluene	4300	U M Q J1	1770	1550	J D Q J1	ug/Kg	☼	88	72 - 124	36	20
Dibromochloromethane	4300	U Q J1	1770	1540	J D Q J1	ug/Kg	☼	87	74 - 126	200	20
1,2-Dibromo-3-Chloropropane	17000	U Q	1770	14000	U Q	ug/Kg	☼	NC	61 - 132	NC	20
Dichlorodifluoromethane	4300	U J1	1770	3500	U J1	ug/Kg	☼	0	29 - 149	NC	20
Dibromomethane	4300	U Q J1	1770	1770	J D Q J1	ug/Kg	☼	100	78 - 125	27	20
Ethylene Dibromide	4300	U M Q J1	1770	1920	J D Q J1	ug/Kg	☼	108	78 - 122	22	20
1,2-Dichlorobenzene	17000	U Q	1770	14000	U Q	ug/Kg	☼	NC	78 - 121	NC	20
1,3-Dichlorobenzene	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	77 - 121	NC	20
1,4-Dichlorobenzene	4300	U Q J1	1770	1180	J D Q J1	ug/Kg	☼	67	75 - 120	54	20
1,1-Dichloroethane	8600	U	1770	7100	U	ug/Kg	☼	NC	76 - 125	NC	20
1,2-Dichloroethane	4300	U M Q J1	1770	4000	J D Q J1	ug/Kg	☼	226	73 - 128	1	20
1,1-Dichloroethene	8600	U	1770	7100	U	ug/Kg	☼	NC	70 - 131	NC	20
1,2-Dichloroethene, Total	4300	U J1	3540	1520	J J1	ug/Kg	☼	43	78 - 122	30	20
cis-1,2-Dichloroethene	4300	U J1	1770	1520	J D J1	ug/Kg	☼	86	77 - 123	30	20
trans-1,2-Dichloroethene	8600	U	1770	7100	U	ug/Kg	☼	NC	74 - 125	NC	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-115896-2 MSD
Matrix: Solid
Analysis Batch: 435463

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435215

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichloropropane	4300	U Q	1770	1440	J D Q	ug/Kg	☼	82	77 - 121	18	20
2,2-Dichloropropane	4300	U J1	1770	1960	J D J1	ug/Kg	☼	111	67 - 133	21	20
1,1-Dichloropropene	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	76 - 125	NC	20
cis-1,3-Dichloropropene	4300	U Q J1	1770	1230	J D Q J1	ug/Kg	☼	70	74 - 126	22	20
trans-1,3-Dichloropropene	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	71 - 130	NC	20
Ethylbenzene	79000	D Q J1	1770	51500	D Q 4 J1	ug/Kg	☼	-1567	76 - 122	25	20
Hexachlorobutadiene	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	61 - 135	NC	20
Isopropylbenzene	15000	D Q J1	1770	11000	D Q 4 J1	ug/Kg	☼	-254	68 - 134	32	20
4-Isopropyltoluene	5400	D Q J1	1770	4270	J D Q J1	ug/Kg	☼	-63	73 - 127	53	20
Methylene Chloride	8600	U M	1770	7100	U	ug/Kg	☼	NC	70 - 128	NC	20
Methyl tert-butyl ether	8600	U	1770	7100	U	ug/Kg	☼	NC	73 - 125	NC	20
Naphthalene	11000	D Q J1	1770	9720	J D Q 4	ug/Kg	☼	-61	62 - 129	15	20
N-Propylbenzene	25000	D Q J1	1770	16400	D Q 4 J1	ug/Kg	☼	-470	73 - 125	39	20
Styrene	4300	U M Q J1	1770	3050	J D Q J1	ug/Kg	☼	173	76 - 124	19	20
1,1,1,2-Tetrachloroethane	4300	U Q J1	1770	1290	J D Q J1	ug/Kg	☼	73	78 - 125	31	20
1,1,2,2-Tetrachloroethane	4300	U M Q J1	1770	3070	J D Q J1	ug/Kg	☼	174	70 - 124	26	20
Tetrachloroethene	4300	U Q J1	1770	3500	U Q J1	ug/Kg	☼	0	73 - 128	200	20
Toluene	310000	D Q J1	1770	214000	D Q 4	ug/Kg	☼	-5627	77 - 121	11	20
1,2,3-Trichlorobenzene	4300	U M Q J1	1770	1710	J D Q J1	ug/Kg	☼	97	66 - 130	33	20
1,1,1-Trichloroethane	2200	U J1	1770	1380	J D J1	ug/Kg	☼	78	73 - 130	37	20
1,1,2-Trichloroethane	4300	U M Q J1	1770	142000	D Q J1	ug/Kg	☼	8037	78 - 121	18	20
Trichloroethene	4300	U Q J1	1770	1420	J D Q J1	ug/Kg	☼	80	77 - 123	44	20
Trichlorofluoromethane	8600	U	1770	7100	U	ug/Kg	☼	NC	62 - 140	NC	20
1,2,4-Trichlorobenzene	8600	U Q	1770	7100	U Q	ug/Kg	☼	NC	67 - 129	NC	20
1,2,4-Trimethylbenzene	68000	D Q J1	1770	45100	D Q 4 J1	ug/Kg	☼	-1324	75 - 123	34	20
1,3,5-Trimethylbenzene	31000	D Q J1	1770	21200	D Q 4 J1	ug/Kg	☼	-560	73 - 124	36	20
Vinyl chloride	4300	U J1	1770	3500	U J1	ug/Kg	☼	0	56 - 135	NC	20
o-Xylene	71000	D Q J1	1770	48600	D Q 4 J1	ug/Kg	☼	-1276	77 - 123	21	20
m-Xylene & p-Xylene	200000	D Q J1	1770	132000	D Q 4 J1	ug/Kg	☼	-3989	77 - 124	24	20
2-Chlorotoluene	4300	U M Q J1	1770	1520	J D Q J1	ug/Kg	☼	86	75 - 122	37	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*558*	*D Q*	*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*34*	*D Q*	*71 - 136*
4-Bromofluorobenzene (Surr)	*212*	*D Q*	*79 - 119*
Dibromofluoromethane (Surr)	*85*	*D*	*78 - 119*

Lab Sample ID: MB 280-436013/6
Matrix: Water
Analysis Batch: 436013

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/02/18 09:24	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/02/18 09:24	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 09:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436013/6
Matrix: Water
Analysis Batch: 436013

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/02/18 09:24	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/02/18 09:24	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/02/18 09:24	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/02/18 09:24	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/02/18 09:24	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/02/18 09:24	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/02/18 09:24	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 09:24	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/02/18 09:24	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/02/18 09:24	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 09:24	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 09:24	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/02/18 09:24	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 09:24	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/02/18 09:24	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/02/18 09:24	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/02/18 09:24	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 09:24	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 09:24	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 09:24	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 09:24	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/02/18 09:24	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 09:24	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 09:24	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/02/18 09:24	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/02/18 09:24	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 09:24	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/02/18 09:24	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/02/18 09:24	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/02/18 09:24	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/02/18 09:24	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/02/18 09:24	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 09:24	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 09:24	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/02/18 09:24	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 09:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436013/6
Matrix: Water
Analysis Batch: 436013

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/02/18 09:24	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/02/18 09:24	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/02/18 09:24	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/02/18 09:24	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/02/18 09:24	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/02/18 09:24	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/02/18 09:24	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/02/18 09:24	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/02/18 09:24	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/02/18 09:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*11/02/18 09:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*11/02/18 09:24*	*1*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*		*11/02/18 09:24*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 119*		*11/02/18 09:24*	*1*

Lab Sample ID: LCS 280-436013/4
Matrix: Water
Analysis Batch: 436013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.5		ug/L		93	39 - 160
Benzene	5.00	5.56		ug/L		111	79 - 120
Bromobenzene	5.00	5.16		ug/L		103	80 - 120
Bromochloromethane	5.00	5.62		ug/L		112	78 - 123
Bromodichloromethane	5.00	5.40		ug/L		108	79 - 125
Bromoform	5.00	4.61		ug/L		92	66 - 130
Bromomethane	5.00	5.47		ug/L		109	53 - 141
2-Butanone (MEK)	20.0	17.7		ug/L		89	56 - 143
n-Butylbenzene	5.00	4.59		ug/L		92	75 - 128
sec-Butylbenzene	5.00	4.93		ug/L		99	77 - 126
tert-Butylbenzene	5.00	4.86		ug/L		97	78 - 124
Carbon disulfide	5.00	5.19		ug/L		104	64 - 133
Carbon tetrachloride	5.00	4.92		ug/L		98	72 - 136
Chlorobenzene	5.00	5.13		ug/L		103	82 - 118
Chloroethane	5.00	5.46		ug/L		109	60 - 138
Chloroform	5.00	5.48		ug/L		110	79 - 124
Chloromethane	5.00	4.69		ug/L		94	50 - 139
4-Chlorotoluene	5.00	5.02		ug/L		100	78 - 122
Dibromochloromethane	5.00	4.85		ug/L		97	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.04		ug/L		101	62 - 128
Dichlorodifluoromethane	5.00	4.25		ug/L		85	32 - 152
Dibromomethane	5.00	5.30		ug/L		106	79 - 123
Ethylene Dibromide	5.00	5.52		ug/L		110	77 - 121
1,2-Dichlorobenzene	5.00	4.99		ug/L		100	80 - 119

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436013/4
Matrix: Water
Analysis Batch: 436013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	5.00	4.91		ug/L		98	80 - 119
1,4-Dichlorobenzene	5.00	4.90		ug/L		98	79 - 118
1,1-Dichloroethane	5.00	5.61		ug/L		112	77 - 125
1,2-Dichloroethane	5.00	5.16		ug/L		103	73 - 128
1,1-Dichloroethene	5.00	5.48		ug/L		110	71 - 131
1,2-Dichloroethene, Total	10.0	11.1		ug/L		111	79 - 121
cis-1,2-Dichloroethene	5.00	5.52		ug/L		110	78 - 123
trans-1,2-Dichloroethene	5.00	5.54		ug/L		111	75 - 124
1,2-Dichloropropane	5.00	5.86		ug/L		117	78 - 122
1,3-Dichloropropane	5.00	5.34		ug/L		107	80 - 119
2,2-Dichloropropane	5.00	5.05		ug/L		101	60 - 139
1,1-Dichloropropene	5.00	5.20		ug/L		104	79 - 125
cis-1,3-Dichloropropene	5.00	5.18		ug/L		104	75 - 124
trans-1,3-Dichloropropene	5.00	5.08		ug/L		102	73 - 127
Ethylbenzene	5.00	4.99		ug/L		100	79 - 121
2-Hexanone	20.0	18.9		ug/L		95	57 - 139
Hexachlorobutadiene	5.00	4.43		ug/L		89	66 - 134
Isopropylbenzene	5.00	4.86		ug/L		97	72 - 131
4-Isopropyltoluene	5.00	4.75		ug/L		95	77 - 127
Methylene Chloride	5.00	5.30		ug/L		106	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	22.4		ug/L		112	67 - 130
Methyl tert-butyl ether	5.00	5.27		ug/L		105	71 - 124
Naphthalene	5.00	4.84		ug/L		97	61 - 128
N-Propylbenzene	5.00	4.92		ug/L		98	76 - 126
Styrene	5.00	5.17		ug/L		103	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.14		ug/L		103	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.45		ug/L		109	71 - 121
Tetrachloroethene	5.00	5.01		ug/L		100	74 - 129
Toluene	5.00	5.64		ug/L		113	80 - 121
1,2,3-Trichlorobenzene	5.00	5.22		ug/L		104	69 - 129
1,1,1-Trichloroethane	5.00	5.13		ug/L		103	74 - 131
1,1,2-Trichloroethane	5.00	5.90		ug/L		118	80 - 119
Trichloroethene	5.00	5.16		ug/L		103	79 - 123
Trichlorofluoromethane	5.00	4.95		ug/L		99	65 - 141
1,2,4-Trichlorobenzene	5.00	4.93		ug/L		99	69 - 130
1,2,3-Trichloropropane	5.00	5.32		ug/L		106	73 - 122
1,2,4-Trimethylbenzene	5.00	4.81		ug/L		96	76 - 124
1,3,5-Trimethylbenzene	5.00	4.81		ug/L		96	75 - 124
Vinyl chloride	5.00	4.90		ug/L		98	58 - 137
o-Xylene	5.00	5.21		ug/L		104	78 - 122
m-Xylene & p-Xylene	5.00	5.11		ug/L		102	80 - 121
2-Chlorotoluene	5.00	4.91		ug/L		98	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*
Dibromofluoromethane (Surr)	*111*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435575/2-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435575

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.606	J	1.2	1.1	0.33	mg/Kg		10/30/18 14:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*10/30/18 01:00*	*10/30/18 14:49*	*1*

Lab Sample ID: LCS 280-435575/1-A
Matrix: Solid
Analysis Batch: 435565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.89	M	mg/Kg		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: 280-115896-4 MS
Matrix: Solid
Analysis Batch: 436055

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	2300	Q J1 B D M	5.25	5910	4 D M Q	mg/Kg		68993	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*0*	*Q*	*77 - 123*

Lab Sample ID: 280-115896-4 MSD
Matrix: Solid
Analysis Batch: 436055

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435575

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	2300	Q J1 B D M	5.69	5500	Q 4 D M	mg/Kg		56596	79 - 122	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*0*	*Q*	*77 - 123*

Lab Sample ID: MB 280-435717/5
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/31/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/31/18 12:07*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			101	94.4	M	ug/L		94	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*86*		*82 - 110*

Lab Sample ID: MB 280-436088/1-A
Matrix: Solid
Analysis Batch: 435881

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436088

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.05	J M	1.2	1.1	0.33	mg/Kg		11/01/18 20:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*105*		*77 - 123*	*11/01/18 13:13*	*11/01/18 20:53*	*1*

Lab Sample ID: LCS 280-436088/2-A
Matrix: Solid
Analysis Batch: 435881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436088

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			5.50	6.40	M	mg/Kg		116	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*

Lab Sample ID: LCSD 280-436088/3-A
Matrix: Solid
Analysis Batch: 435881

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436088

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	5.48		mg/Kg		100	79 - 122	15	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*80*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/01/18 21:10	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	106		55 - 130	10/29/18 14:26	11/01/18 21:10	1

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.874		ug/Kg		100	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	110		55 - 130

Lab Sample ID: LCSD 280-435369/3-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.855		ug/Kg		98	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	109		55 - 130

Lab Sample ID: 280-115896-2 MS
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	290	D J1	0.872	239	D 4	ug/Kg		-5810	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dibromopropane	0	Q M D	55 - 130

Lab Sample ID: 280-115896-2 MSD
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: V-S9-191018-490
Prep Type: Total/NA
Prep Batch: 435369

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	290	D J1	0.875	159	D 4 J1	ug/Kg		-14924	70 - 130	40	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dibromopropane	0	Q M D	55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-437059/4-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437059

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/15/18 21:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*	*M*	*55 - 130*	*11/09/18 14:56*	*11/15/18 21:33*	*1*

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.763		ug/Kg		87	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*108*		*55 - 130*

Lab Sample ID: LCSD 280-437059/3-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.740	M	ug/Kg		85	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.37	J	7.4	3.7	1.3	mg/Kg		10/26/18 16:08	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg		10/26/18 16:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*83*		*45 - 130*	*10/24/18 20:26*	*10/26/18 16:08*	*1*
n-Octacosane	*73*		*25 - 162*	*10/24/18 20:26*	*10/26/18 16:08*	*1*

Lab Sample ID: LCS 280-434808/2-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	123	90.1		mg/Kg		73	38 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-434808/2-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	80		45 - 130
n-Octacosane	70		25 - 162

Lab Sample ID: LCS 280-434808/3-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	268		mg/Kg		85	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130
n-Octacosane	84		25 - 162

Lab Sample ID: 280-115896-4 MS
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	1900	J1	120	1790	4	mg/Kg		-98	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	83		45 - 130
n-Octacosane	67		25 - 162

Lab Sample ID: 280-115896-4 MS
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	12	J	304	257		mg/Kg		80	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	107		45 - 130
n-Octacosane	78		25 - 162

Lab Sample ID: 280-115896-4 MSD
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	1900	J1	127	1900	4	mg/Kg		-5	38 - 132	6	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-115896-4 MSD
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 434808

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*70*		*25 - 162*

Lab Sample ID: 280-115896-4 MSD
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: P-S9-191018-490
Prep Type: Total/NA
Prep Batch: 434808

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	12	J	319	282		mg/Kg		85	45 - 130	9	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*111*		*45 - 130*
n-Octacosane	*84*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115896-5 DU
Matrix: Solid
Analysis Batch: 434956

Client Sample ID: P-S9-191058-490
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	9.6		9.6		%		0	20

GC/MS VOA

Prep Batch: 435215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-2	V-S9-191018-490	Total/NA	Solid	5035	
280-115896-3	V-S9-191058-490	Total/NA	Solid	5035	
MB 280-435215/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435215/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-435215/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
280-115896-2 MS	V-S9-191018-490	Total/NA	Solid	5035	
280-115896-2 MSD	V-S9-191018-490	Total/NA	Solid	5035	

Analysis Batch: 435463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-2	V-S9-191018-490	Total/NA	Solid	8260B	435215
280-115896-3	V-S9-191058-490	Total/NA	Solid	8260B	435215
MB 280-435215/1-A	Method Blank	Total/NA	Solid	8260B	435215
LCS 280-435215/2-A	Lab Control Sample	Total/NA	Solid	8260B	435215
LCSD 280-435215/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	435215
280-115896-2 MS	V-S9-191018-490	Total/NA	Solid	8260B	435215
280-115896-2 MSD	V-S9-191018-490	Total/NA	Solid	8260B	435215

Analysis Batch: 436013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-1	TB-S9-191018-01	Total/NA	Water	8260B	
MB 280-436013/6	Method Blank	Total/NA	Water	8260B	
LCS 280-436013/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-435575/2-A	Method Blank	Total/NA	Solid	8015D GRO	435575
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	435575

Prep Batch: 435575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-4	P-S9-191018-490	Total/NA	Solid	5035	
MB 280-435575/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-435575/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	5035	
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	5035	

Analysis Batch: 435717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-1	TB-S9-191018-01	Total/NA	Water	8015D GRO	
MB 280-435717/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435717/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 435881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-436088/1-A	Method Blank	Total/NA	Solid	8015D GRO	436088
LCS 280-436088/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	436088
LCSD 280-436088/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	436088

GC VOA (Continued)

Analysis Batch: 436055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-4	P-S9-191018-490	Total/NA	Solid	8015D GRO	435575
280-115896-5	P-S9-191058-490	Total/NA	Solid	8015D GRO	436088
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	8015D GRO	435575
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	8015D GRO	435575

Prep Batch: 436088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-5	P-S9-191058-490	Total/NA	Solid	5035	
MB 280-436088/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436088/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-436088/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 434808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-4	P-S9-191018-490	Total/NA	Solid	3546	
280-115896-5	P-S9-191058-490	Total/NA	Solid	3546	
MB 280-434808/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	3546	
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	3546	
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	3546	
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	3546	

Analysis Batch: 435068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-4	P-S9-191018-490	Total/NA	Solid	8015D DRO	434808
280-115896-5	P-S9-191058-490	Total/NA	Solid	8015D DRO	434808
MB 280-434808/1-A	Method Blank	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	8015D DRO	434808
280-115896-4 MS	P-S9-191018-490	Total/NA	Solid	8015D DRO	434808
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	8015D DRO	434808
280-115896-4 MSD	P-S9-191018-490	Total/NA	Solid	8015D DRO	434808

Prep Batch: 435369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-2	V-S9-191018-490	Total/NA	Solid	8011	
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-115896-2 MS	V-S9-191018-490	Total/NA	Solid	8011	
280-115896-2 MSD	V-S9-191018-490	Total/NA	Solid	8011	

Analysis Batch: 435949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-2	V-S9-191018-490	Total/NA	Solid	8011	435369

GC Semi VOA (Continued)

Analysis Batch: 435949 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369
280-115896-2 MS	V-S9-191018-490	Total/NA	Solid	8011	435369
280-115896-2 MSD	V-S9-191018-490	Total/NA	Solid	8011	435369

Prep Batch: 437059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-3	V-S9-191058-490	Total/NA	Solid	8011	
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 437819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	437059
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	437059
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	437059

Analysis Batch: 437905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-3	V-S9-191058-490	Total/NA	Solid	8011	437059

General Chemistry

Analysis Batch: 434956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115896-2	V-S9-191018-490	Total/NA	Solid	Moisture	
280-115896-3	V-S9-191058-490	Total/NA	Solid	Moisture	
280-115896-4	P-S9-191018-490	Total/NA	Solid	Moisture	
280-115896-5	P-S9-191058-490	Total/NA	Solid	Moisture	
280-115896-5 DU	P-S9-191058-490	Total/NA	Solid	Moisture	

Client Sample ID: TB-S9-191018-01

Lab Sample ID: 280-115896-1
Matrix: Water
Date Collected: 10/19/18 16:50
Date Received: 10/20/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436013	11/02/18 10:41	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 23:55	GPM	TAL DEN

Client Sample ID: V-S9-191018-490

Lab Sample ID: 280-115896-2
Matrix: Solid
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: V-S9-191018-490

Lab Sample ID: 280-115896-2
Matrix: Solid
Percent Solids: 90.1
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.158 g	1000 mL	435215	10/19/18 14:29	JLS	TAL DEN
Total/NA	Analysis	8260B		50	20 mL	20 mL	435463	10/30/18 15:53	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		200			435949	11/01/18 22:28	MJS	TAL DEN

Client Sample ID: V-S9-191058-490

Lab Sample ID: 280-115896-3
Matrix: Solid
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: V-S9-191058-490

Lab Sample ID: 280-115896-3
Matrix: Solid
Percent Solids: 89.6
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.625 g	1000 mL	435215	10/19/18 14:29	JLS	TAL DEN
Total/NA	Analysis	8260B		20	20 mL	20 mL	435463	10/30/18 16:48	JLS	TAL DEN
Total/NA	Prep	8011			10.01 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		200			437905	11/16/18 12:31	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Client Sample ID: P-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: P-S9-191018-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-4
Matrix: Solid
Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.64 g	5 mL	435575	10/19/18 14:29	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		200	0.1 mL	5 mL	436055	11/02/18 16:59	CAS	TAL DEN
Total/NA	Prep	3546			16.4 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 17:56	CSM	TAL DEN

Client Sample ID: P-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			434956	10/25/18 13:18	LMD	TAL DEN

Client Sample ID: P-S9-191058-490
Date Collected: 10/19/18 14:29
Date Received: 10/20/18 08:50

Lab Sample ID: 280-115896-5
Matrix: Solid
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.615 g	5 mL	436088	10/19/18 14:29	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		100	0.1 mL	5 mL	436055	11/02/18 17:47	CAS	TAL DEN
Total/NA	Prep	3546			15.5 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 20:28	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115896-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7748	COC No: COC1-59-TA-2018 019
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & GRO, Soil	8015D_GRO_DOD5 - GRO, Soil		8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & GRO, Water	8015D_GRO_DOD5 - GRO, Water				Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F		A	R	N	A				X	
TB-59-191018-~~98~~	10/19/18	1650	G	W	N	N	—						X	—		X	—			2	
V-59-191018-490	10/19/18	1429	G	S	N	N	X	X	X	—										12	MS/MSD
V-59-191058-490	10/19/18	1429	G	S	N	N	X	X	X	—										4	
P-59-191018-490	10/19/18	1429	G	S	N	N	—			X	X									9	MS/MSD
P-59-191058-490	10/19/18	1429	G	S	N	N	—			X	X									3	

280-115896 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKeage	10/19/18 1830	EA	FedEx		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				10/20/18 0850	TA DEN

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1 & 0.7 by AP 10/20/18

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115896-1

Login Number: 115896
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115951-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
11/30/2018 6:46:03 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115951-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115951-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/23/2018 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

Receipt Exceptions

The sample IDs, as well as sampling times, as given on the Chain of Custody do not match the information given on the container labels for samples 2, 3 and 4. As noted on the Chain of Custody, the sample IDs are as follows: "RB-S9-201018-01", with an additional note in the special instructions column as "RB_10_20_2018_01"; "RB-S9-201018-02", with an additional note in the special instructions column as "RB_10_20_2018_02; "SWB-S9-201018-01", with an additional note in the special instructions column as "SWB_10_20_2018_01". The times for samples 2, 3, and 4 are given as: 1610, 1630 and 1600 respectively on the Chain of Custody. As instructed by the client, the sample IDs and times were logged as follows:

Sample ID / Time:
RB-S9-201018-01 / 1610
RB-S9-201018-02/ 1630
SWB-S9-201018-01/ 1600

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples TB-S9-221018-01 (280-115951-1), RB-S9-201018-01 (280-115951-2), RB-S9-201018-02 (280-115951-3) and SWB-S9-201018-01 (280-115951-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/03/2018 and 11/06/2018.

The following samples in analytical batch 280-436409 were analyzed outside of analytical holding time due to backlog capacity issues: TB-S9-221018-01 (280-115951-1). The client was notified and instructed the laboratory to report the data.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for TB-S9-221018-01 (280-115951-1). Associated results have been flagged "Q". Refer to the QC report for details. This sample did not contain any target analytes; therefore, re-analysis was not performed.

Methylene Chloride was detected in method blank MB 280-436409/4 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection was less than one-half the LOQ. The following sample is associated: TB-S9-221018-01

Job ID: 280-115951-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-115951-1).

1,1,2-Trichloroethane and 1,2-Dichloropropane failed the recovery criteria high for LCS 280-436409/5 and LCSD 280-436409/6. All assoicated results have been flagged "Q". Refer to the QC report for details. These analytes were biased high in the LCS and LCSD and were not detected in the associated samples; therefore, the data have been reported. The following sample was impacted: TB-S9-221018-01 (280-115951-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples TB-S9-221018-01 (280-115951-1), RB-S9-201018-01 (280-115951-2), RB-S9-201018-02 (280-115951-3) and SWB-S9-201018-01 (280-115951-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/02/2018 and 11/05/2018 and analyzed on 11/05/2018 and 11/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples TB-S9-221018-01 (280-115951-1), RB-S9-201018-01 (280-115951-2), RB-S9-201018-02 (280-115951-3) and SWB-S9-201018-01 (280-115951-4) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples RB-S9-201018-01 (280-115951-2), RB-S9-201018-02 (280-115951-3) and SWB-S9-201018-01 (280-115951-4) were analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 10/24/2018 and analyzed on 10/26/2018.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 280-434673. A duplicate LCS (LCSD) was performed.

No LCS was performed for Motor Oil (C10-C28).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Client Sample ID: TB-S9-221018-01 — Lab Sample ID: 280-115951-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	17	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: RB-S9-201018-01 — Lab Sample ID: 280-115951-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.8	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	25		25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.048	J	0.24	0.12	0.032	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S9-201018-02 — Lab Sample ID: 280-115951-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.8	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	13	J	25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.064	J	0.24	0.11	0.031	mg/L	1		8015D DRO	Total/NA

Client Sample ID: SWB-S9-201018-01 — Lab Sample ID: 280-115951-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Bromodichloromethane	0.89	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Bromoform	4.6		1.0	0.40	0.19	ug/L	1		8260B	Total/NA
Chloroform	0.39	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Dibromochloromethane	2.3		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	23	J	25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.049	J	0.25	0.12	0.032	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115951-1	TB-S9-221018-01	Water	10/22/18 16:00	10/23/18 08:50
280-115951-2	RB-S9-201018-01	Water	10/20/18 16:10	10/23/18 08:50
280-115951-3	RB-S9-201018-02	Water	10/20/18 16:30	10/23/18 08:50
280-115951-4	SWB-S9-201018-01	Water	10/20/18 16:00	10/23/18 08:50

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-221018-01
Date Collected: 10/22/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H Q	10	6.4	1.9	ug/L		11/06/18 04:17	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
Bromochloromethane	0.20	U H Q	1.0	0.20	0.10	ug/L		11/06/18 04:17	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:17	1
Bromomethane	0.80	U H Q	2.0	0.80	0.21	ug/L		11/06/18 04:17	1
2-Butanone (MEK)	4.0	U H Q	6.0	4.0	2.0	ug/L		11/06/18 04:17	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		11/06/18 04:17	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Carbon disulfide	1.6	U H Q	2.0	1.6	0.45	ug/L		11/06/18 04:17	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		11/06/18 04:17	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
Chloroethane	1.6	U H Q	2.0	1.6	0.41	ug/L		11/06/18 04:17	1
Chloroform	0.40	U H Q	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Chloromethane	0.80	U H Q	2.0	0.80	0.30	ug/L		11/06/18 04:17	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:17	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		11/06/18 04:17	1
Dichlorodifluoromethane	0.80	U H Q	2.0	0.80	0.31	ug/L		11/06/18 04:17	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		11/06/18 04:17	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:17	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		11/06/18 04:17	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
1,1-Dichloroethane	0.80	U H Q	1.0	0.80	0.22	ug/L		11/06/18 04:17	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		11/06/18 04:17	1
1,1-Dichloroethene	0.80	U H Q	1.0	0.80	0.23	ug/L		11/06/18 04:17	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		11/06/18 04:17	1
cis-1,2-Dichloroethene	0.40	U H Q	1.0	0.40	0.15	ug/L		11/06/18 04:17	1
trans-1,2-Dichloroethene	0.40	U H Q	1.0	0.40	0.15	ug/L		11/06/18 04:17	1
1,2-Dichloropropane	0.40	U Q H	1.0	0.40	0.18	ug/L		11/06/18 04:17	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		11/06/18 04:17	1
2,2-Dichloropropane	0.40	U H Q	1.0	0.40	0.18	ug/L		11/06/18 04:17	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:17	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:17	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		11/06/18 04:17	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		11/06/18 04:17	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:17	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		11/06/18 04:17	1
Methylene Chloride	0.80	U H Q	5.0	0.80	0.32	ug/L		11/06/18 04:17	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		11/06/18 04:17	1
Methyl tert-butyl ether	0.80	U H Q	5.0	0.80	0.25	ug/L		11/06/18 04:17	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		11/06/18 04:17	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-221018-01
Date Collected: 10/22/18 16:00
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115951-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:17	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:17	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		11/06/18 04:17	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:17	1
1,1,1-Trichloroethane	0.40	U H Q	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
1,1,2-Trichloroethane	0.80	U Q H	1.0	0.80	0.27	ug/L		11/06/18 04:17	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Trichlorofluoromethane	0.80	U H Q	2.0	0.80	0.29	ug/L		11/06/18 04:17	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:17	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		11/06/18 04:17	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:17	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:17	1
Vinyl chloride	0.20	U H Q	1.5	0.20	0.10	ug/L		11/06/18 04:17	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:17	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		11/06/18 04:17	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*89 - 112*		*11/06/18 04:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*11/06/18 04:17*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/06/18 04:17*	*1*
Dibromofluoromethane (Surr)	*120*	*Q*	*80 - 119*		*11/06/18 04:17*	*1*

Client Sample ID: RB-S9-201018-01
Date Collected: 10/20/18 16:10
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115951-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	2.8	J	10	6.4	1.9	ug/L		11/03/18 19:35	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/03/18 19:35	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:35	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/03/18 19:35	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/03/18 19:35	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/03/18 19:35	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/03/18 19:35	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/03/18 19:35	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/03/18 19:35	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/03/18 19:35	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:35	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/03/18 19:35	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/03/18 19:35	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S9-201018-01
Date Collected: 10/20/18 16:10
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115951-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:35	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:35	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 19:35	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:35	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 19:35	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/03/18 19:35	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/03/18 19:35	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:35	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:35	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:35	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:35	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:35	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:35	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:35	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/03/18 19:35	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/03/18 19:35	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:35	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 19:35	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/03/18 19:35	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/03/18 19:35	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/03/18 19:35	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:35	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:35	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:35	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 19:35	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:35	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/03/18 19:35	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/03/18 19:35	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:35	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/03/18 19:35	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:35	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:35	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/03/18 19:35	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:35	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/03/18 19:35	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/03/18 19:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*81 - 118*		*11/03/18 19:35*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/03/18 19:35*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*11/03/18 19:35*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Client Sample ID: RB-S9-201018-02
Date Collected: 10/20/18 16:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.8**	**J**	10	6.4	1.9	ug/L		11/03/18 19:55	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/03/18 19:55	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:55	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/03/18 19:55	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/03/18 19:55	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/03/18 19:55	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/03/18 19:55	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/03/18 19:55	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/03/18 19:55	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/03/18 19:55	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:55	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/03/18 19:55	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/03/18 19:55	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:55	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:55	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 19:55	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:55	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 19:55	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/03/18 19:55	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/03/18 19:55	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:55	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:55	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:55	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:55	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 19:55	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:55	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:55	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/03/18 19:55	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/03/18 19:55	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:55	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 19:55	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/03/18 19:55	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/03/18 19:55	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/03/18 19:55	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 19:55	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:55	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S9-201018-02
Date Collected: 10/20/18 16:30
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115951-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 19:55	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:55	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/03/18 19:55	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/03/18 19:55	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 19:55	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/03/18 19:55	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 19:55	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 19:55	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/03/18 19:55	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 19:55	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/03/18 19:55	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*89 - 112*		*11/03/18 19:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*81 - 118*		*11/03/18 19:55*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*11/03/18 19:55*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*11/03/18 19:55*	*1*

Client Sample ID: SWB-S9-201018-01
Date Collected: 10/20/18 16:00
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115951-4
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.6**	**J**	10	6.4	1.9	ug/L		11/03/18 20:16	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/03/18 20:16	1
Bromodichloromethane	**0.89**	**J**	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
Bromoform	**4.6**		1.0	0.40	0.19	ug/L		11/03/18 20:16	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/03/18 20:16	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/03/18 20:16	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/03/18 20:16	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/03/18 20:16	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/03/18 20:16	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/03/18 20:16	1
Chloroform	**0.39**	**J**	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/03/18 20:16	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 20:16	1
Dibromochloromethane	**2.3**		1.0	0.40	0.17	ug/L		11/03/18 20:16	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/03/18 20:16	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/03/18 20:16	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 20:16	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 20:16	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: SWB-S9-201018-01
Date Collected: 10/20/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-4
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 20:16	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 20:16	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 20:16	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/03/18 20:16	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/03/18 20:16	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 20:16	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 20:16	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 20:16	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 20:16	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 20:16	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 20:16	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 20:16	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/03/18 20:16	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/03/18 20:16	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 20:16	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 20:16	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/03/18 20:16	1
4-Methyl-2-pentanone (MIBK)	3.2	U M	5.0	3.2	0.98	ug/L		11/03/18 20:16	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/03/18 20:16	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 20:16	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 20:16	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 20:16	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 20:16	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 20:16	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/03/18 20:16	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/03/18 20:16	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 20:16	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/03/18 20:16	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 20:16	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 20:16	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/03/18 20:16	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 20:16	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/03/18 20:16	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*89 - 112*		*11/03/18 20:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*		*11/03/18 20:16*	*1*
4-Bromofluorobenzene (Surr)	*105*		*85 - 114*		*11/03/18 20:16*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*11/03/18 20:16*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-221018-01
Date Collected: 10/22/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	17	J	25	25	10	ug/L		10/27/18 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*82 - 110*		*10/27/18 20:29*	*1*

Client Sample ID: RB-S9-201018-01
Date Collected: 10/20/18 16:10
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	25		25	25	10	ug/L		10/27/18 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*89*		*82 - 110*		*10/27/18 20:54*	*1*

Client Sample ID: RB-S9-201018-02
Date Collected: 10/20/18 16:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	13	J	25	25	10	ug/L		10/27/18 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*84*		*82 - 110*		*10/27/18 21:18*	*1*

Client Sample ID: SWB-S9-201018-01
Date Collected: 10/20/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-4
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	23	J	25	25	10	ug/L		10/27/18 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*82 - 110*		*10/27/18 21:43*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S9-221018-01
Date Collected: 10/22/18 16:00
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/14/18 20:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*105*		*70 - 130*	*11/05/18 10:37*	*11/14/18 20:31*	*1*

Client Sample ID: RB-S9-201018-01
Date Collected: 10/20/18 16:10
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115951-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/05/18 16:38	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*113*		*70 - 130*	*11/02/18 10:38*	*11/05/18 16:38*	*1*

Client Sample ID: RB-S9-201018-02 — **Lab Sample ID: 280-115951-3**
Date Collected: 10/20/18 16:30 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/05/18 16:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*111*		*70 - 130*	*11/02/18 10:38*	*11/05/18 16:58*	*1*

Client Sample ID: SWB-S9-201018-01 — **Lab Sample ID: 280-115951-4**
Date Collected: 10/20/18 16:00 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/05/18 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*117*	*M*	*70 - 130*	*11/02/18 10:38*	*11/05/18 17:18*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S9-201018-01 — **Lab Sample ID: 280-115951-2**
Date Collected: 10/20/18 16:10 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.048**	**J**	0.24	0.12	0.032	mg/L		10/26/18 13:36	1
Motor Oil (C20-C38)	0.12	U	0.49	0.12	0.055	mg/L		10/26/18 13:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*84*		*56 - 125*	*10/24/18 08:24*	*10/26/18 13:36*	*1*
n-Octacosane	*74*		*60 - 142*	*10/24/18 08:24*	*10/26/18 13:36*	*1*

Client Sample ID: RB-S9-201018-02 — **Lab Sample ID: 280-115951-3**
Date Collected: 10/20/18 16:30 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.064**	**J**	0.24	0.11	0.031	mg/L		10/26/18 13:58	1
Motor Oil (C20-C38)	0.12	U	0.48	0.12	0.053	mg/L		10/26/18 13:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*84*		*56 - 125*	*10/24/18 08:24*	*10/26/18 13:58*	*1*
n-Octacosane	*77*		*60 - 142*	*10/24/18 08:24*	*10/26/18 13:58*	*1*

Client Sample ID: SWB-S9-201018-01 — **Lab Sample ID: 280-115951-4**
Date Collected: 10/20/18 16:00 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.049**	**J**	0.25	0.12	0.032	mg/L		10/26/18 14:20	1
Motor Oil (C20-C38)	0.12	U	0.49	0.12	0.055	mg/L		10/26/18 14:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*83*		*56 - 125*	*10/24/18 08:24*	*10/26/18 14:20*	*1*
n-Octacosane	*73*		*60 - 142*	*10/24/18 08:24*	*10/26/18 14:20*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115951-1	TB-S9-221018-01	105	116	101	120 Q
280-115951-2	RB-S9-201018-01	97	86	101	95
280-115951-3	RB-S9-201018-02	96	86	97	96
280-115951-4	SWB-S9-201018-01	96	87	105	96
LCS 280-436196/4	Lab Control Sample	99	100	101	98
LCS 280-436409/5	Lab Control Sample	100	115	89	114
LCSD 280-436196/5	Lab Control Sample Dup	99	101	104	98
LCSD 280-436409/6	Lab Control Sample Dup	100	117	91	116
MB 280-436196/8	Method Blank	100	99	105	99
MB 280-436409/4	Method Blank	106	114	100	117

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115951-1	TB-S9-221018-01	85
280-115951-2	RB-S9-201018-01	89
280-115951-3	RB-S9-201018-02	84
280-115951-4	SWB-S9-201018-01	88
LCS 280-435210/3	Lab Control Sample	87
MB 280-435210/5	Method Blank	87

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-115951-1	TB-S9-221018-01	105
280-115951-2	RB-S9-201018-01	113
280-115951-3	RB-S9-201018-02	111
280-115951-4	SWB-S9-201018-01	117 M
LCS 280-436052/2-A	Lab Control Sample	115
LCS 280-436333/2-A	Lab Control Sample	107
LCSD 280-436052/3-A	Lab Control Sample Dup	122
LCSD 280-436333/3-A	Lab Control Sample Dup	104
MB 280-436052/4-A	Method Blank	113
MB 280-436333/4-A	Method Blank	105

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
280-115951-2	RB-S9-201018-01	84	74								
280-115951-3	RB-S9-201018-02	84	77								
280-115951-4	SWB-S9-201018-01	83	73								
LCS 280-434673/2-A	Lab Control Sample	88	78								
LCSD 280-434673/3-A	Lab Control Sample Dup	85	73								
MB 280-434673/1-A	Method Blank	83	75								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436196/8
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/03/18 13:46	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/03/18 13:46	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 13:46	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/03/18 13:46	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/03/18 13:46	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/03/18 13:46	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/03/18 13:46	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/03/18 13:46	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/03/18 13:46	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/03/18 13:46	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 13:46	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/03/18 13:46	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/03/18 13:46	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 13:46	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 13:46	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 13:46	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 13:46	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/03/18 13:46	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/03/18 13:46	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/03/18 13:46	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 13:46	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 13:46	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 13:46	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 13:46	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/03/18 13:46	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 13:46	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 13:46	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/03/18 13:46	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/03/18 13:46	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 13:46	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 13:46	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/03/18 13:46	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/03/18 13:46	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/03/18 13:46	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/03/18 13:46	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436196/8
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 13:46	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 13:46	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/03/18 13:46	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 13:46	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/03/18 13:46	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/03/18 13:46	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/03/18 13:46	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/03/18 13:46	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/03/18 13:46	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/03/18 13:46	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/03/18 13:46	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/03/18 13:46	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/03/18 13:46	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/03/18 13:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*11/03/18 13:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*		*11/03/18 13:46*	*1*
4-Bromofluorobenzene (Surr)	*105*		*85 - 114*		*11/03/18 13:46*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*11/03/18 13:46*	*1*

Lab Sample ID: LCS 280-436196/4
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	16.4		ug/L		82	39 - 160
Benzene	5.00	4.77		ug/L		95	79 - 120
Bromobenzene	5.00	5.01		ug/L		100	80 - 120
Bromochloromethane	5.00	4.94		ug/L		99	78 - 123
Bromodichloromethane	5.00	4.86		ug/L		97	79 - 125
Bromoform	5.00	5.60		ug/L		112	66 - 130
Bromomethane	5.00	5.35		ug/L		107	53 - 141
2-Butanone (MEK)	20.0	14.3		ug/L		72	56 - 143
n-Butylbenzene	5.00	4.91		ug/L		98	75 - 128
sec-Butylbenzene	5.00	4.79		ug/L		96	77 - 126
tert-Butylbenzene	5.00	4.65		ug/L		93	78 - 124
Carbon disulfide	5.00	4.92		ug/L		98	64 - 133
Carbon tetrachloride	5.00	4.79		ug/L		96	72 - 136
Chlorobenzene	5.00	4.86		ug/L		97	82 - 118
Chloroethane	5.00	4.84		ug/L		97	60 - 138
Chloroform	5.00	4.83		ug/L		97	79 - 124
Chloromethane	5.00	4.36		ug/L		87	50 - 139
4-Chlorotoluene	5.00	4.80		ug/L		96	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436196/4
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.18		ug/L		104	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.21		ug/L		104	62 - 128
Dichlorodifluoromethane	5.00	4.53		ug/L		91	32 - 152
Dibromomethane	5.00	4.89		ug/L		98	79 - 123
Ethylene Dibromide	5.00	5.18		ug/L		104	77 - 121
1,2-Dichlorobenzene	5.00	5.01		ug/L		100	80 - 119
1,3-Dichlorobenzene	5.00	4.89		ug/L		98	80 - 119
1,4-Dichlorobenzene	5.00	4.90		ug/L		98	79 - 118
1,1-Dichloroethane	5.00	4.74		ug/L		95	77 - 125
1,2-Dichloroethane	5.00	4.88		ug/L		98	73 - 128
1,1-Dichloroethene	5.00	4.71		ug/L		94	71 - 131
cis-1,2-Dichloroethene	5.00	4.66		ug/L		93	78 - 123
trans-1,2-Dichloroethene	5.00	4.80		ug/L		96	75 - 124
1,2-Dichloropropane	5.00	5.13		ug/L		103	78 - 122
1,3-Dichloropropane	5.00	4.95		ug/L		99	80 - 119
2,2-Dichloropropane	5.00	4.70		ug/L		94	60 - 139
1,1-Dichloropropene	5.00	4.82		ug/L		96	79 - 125
cis-1,3-Dichloropropene	5.00	5.14		ug/L		103	75 - 124
trans-1,3-Dichloropropene	5.00	4.45		ug/L		89	73 - 127
Ethylbenzene	5.00	4.79		ug/L		96	79 - 121
2-Hexanone	20.0	17.7		ug/L		88	57 - 139
Hexachlorobutadiene	5.00	5.09		ug/L		102	66 - 134
Isopropylbenzene	5.00	4.80		ug/L		96	72 - 131
4-Isopropyltoluene	5.00	4.84		ug/L		97	77 - 127
Methylene Chloride	5.00	4.47	J	ug/L		89	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	18.0		ug/L		90	67 - 130
Methyl tert-butyl ether	5.00	4.81	J	ug/L		96	71 - 124
Naphthalene	5.00	5.42		ug/L		108	61 - 128
N-Propylbenzene	5.00	4.65		ug/L		93	76 - 126
Styrene	5.00	4.86		ug/L		97	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.07		ug/L		101	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.23		ug/L		105	71 - 121
Tetrachloroethene	5.00	4.78		ug/L		96	74 - 129
Toluene	5.00	4.80		ug/L		96	80 - 121
1,2,3-Trichlorobenzene	5.00	5.14		ug/L		103	69 - 129
1,1,1-Trichloroethane	5.00	4.78		ug/L		96	74 - 131
1,1,2-Trichloroethane	5.00	4.98		ug/L		100	80 - 119
Trichloroethene	5.00	4.60		ug/L		92	79 - 123
Trichlorofluoromethane	5.00	5.01		ug/L		100	65 - 141
1,2,4-Trichlorobenzene	5.00	5.06		ug/L		101	69 - 130
1,2,3-Trichloropropane	5.00	5.18		ug/L		104	73 - 122
1,2,4-Trimethylbenzene	5.00	4.82		ug/L		96	76 - 124
1,3,5-Trimethylbenzene	5.00	4.86		ug/L		97	75 - 124
Vinyl chloride	5.00	4.80		ug/L		96	58 - 137
o-Xylene	5.00	4.98		ug/L		100	78 - 122
m-Xylene & p-Xylene	5.00	4.69		ug/L		94	80 - 121
2-Chlorotoluene	5.00	4.87		ug/L		97	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436196/4
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Lab Sample ID: LCSD 280-436196/5
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			20.0	17.2		ug/L		86	39 - 160	5	20
Benzene			5.00	5.15		ug/L		103	79 - 120	8	20
Bromobenzene			5.00	5.38		ug/L		108	80 - 120	7	20
Bromochloromethane			5.00	5.17		ug/L		103	78 - 123	5	20
Bromodichloromethane			5.00	5.18		ug/L		104	79 - 125	6	20
Bromoform			5.00	5.77		ug/L		115	66 - 130	3	20
Bromomethane			5.00	5.50		ug/L		110	53 - 141	3	20
2-Butanone (MEK)			20.0	15.2		ug/L		76	56 - 143	6	20
n-Butylbenzene			5.00	5.18		ug/L		104	75 - 128	5	20
sec-Butylbenzene			5.00	5.12		ug/L		102	77 - 126	7	20
tert-Butylbenzene			5.00	4.93		ug/L		99	78 - 124	6	20
Carbon disulfide			5.00	5.09		ug/L		102	64 - 133	3	20
Carbon tetrachloride			5.00	5.09		ug/L		102	72 - 136	6	20
Chlorobenzene			5.00	5.17		ug/L		103	82 - 118	6	20
Chloroethane			5.00	5.00		ug/L		100	60 - 138	3	20
Chloroform			5.00	5.06		ug/L		101	79 - 124	5	20
Chloromethane			5.00	4.62		ug/L		92	50 - 139	6	20
4-Chlorotoluene			5.00	5.14		ug/L		103	78 - 122	7	20
Dibromochloromethane			5.00	5.52		ug/L		110	74 - 126	6	20
1,2-Dibromo-3-Chloropropane			5.00	5.53		ug/L		111	62 - 128	6	20
Dichlorodifluoromethane			5.00	4.87		ug/L		97	32 - 152	7	20
Dibromomethane			5.00	5.35		ug/L		107	79 - 123	9	20
Ethylene Dibromide			5.00	5.48		ug/L		110	77 - 121	6	20
1,2-Dichlorobenzene			5.00	5.31		ug/L		106	80 - 119	6	20
1,3-Dichlorobenzene			5.00	5.22		ug/L		104	80 - 119	7	20
1,4-Dichlorobenzene			5.00	5.25		ug/L		105	79 - 118	7	20
1,1-Dichloroethane			5.00	4.91		ug/L		98	77 - 125	3	20
1,2-Dichloroethane			5.00	5.17		ug/L		103	73 - 128	6	20
1,1-Dichloroethene			5.00	4.97		ug/L		99	71 - 131	5	20
cis-1,2-Dichloroethene			5.00	4.93		ug/L		99	78 - 123	6	20
trans-1,2-Dichloroethene			5.00	4.97		ug/L		99	75 - 124	4	20
1,2-Dichloropropane			5.00	5.48		ug/L		110	78 - 122	7	20
1,3-Dichloropropane			5.00	5.24		ug/L		105	80 - 119	6	20
2,2-Dichloropropane			5.00	5.00		ug/L		100	60 - 139	6	20
1,1-Dichloropropene			5.00	5.15		ug/L		103	79 - 125	7	20
cis-1,3-Dichloropropene			5.00	5.61		ug/L		112	75 - 124	9	20
trans-1,3-Dichloropropene			5.00	5.01		ug/L		100	73 - 127	12	20
Ethylbenzene			5.00	5.17		ug/L		103	79 - 121	8	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436196/5
Matrix: Water
Analysis Batch: 436196

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	20.0	18.5		ug/L		92	57 - 139	5	20
Hexachlorobutadiene	5.00	5.49		ug/L		110	66 - 134	8	20
Isopropylbenzene	5.00	5.19		ug/L		104	72 - 131	8	20
4-Isopropyltoluene	5.00	5.18		ug/L		104	77 - 127	7	20
Methylene Chloride	5.00	4.58	J	ug/L		92	74 - 124	2	20
4-Methyl-2-pentanone (MIBK)	20.0	19.4		ug/L		97	67 - 130	8	20
Methyl tert-butyl ether	5.00	5.08		ug/L		102	71 - 124	5	20
Naphthalene	5.00	5.47		ug/L		109	61 - 128	1	20
N-Propylbenzene	5.00	5.06		ug/L		101	76 - 126	8	20
Styrene	5.00	5.23		ug/L		105	78 - 123	7	20
1,1,1,2-Tetrachloroethane	5.00	5.31		ug/L		106	78 - 124	5	20
1,1,2,2-Tetrachloroethane	5.00	5.55		ug/L		111	71 - 121	6	20
Tetrachloroethene	5.00	5.08		ug/L		102	74 - 129	6	20
Toluene	5.00	5.11		ug/L		102	80 - 121	6	20
1,2,3-Trichlorobenzene	5.00	5.50		ug/L		110	69 - 129	7	20
1,1,1-Trichloroethane	5.00	5.11		ug/L		102	74 - 131	7	20
1,1,2-Trichloroethane	5.00	5.36		ug/L		107	80 - 119	7	20
Trichloroethene	5.00	5.07		ug/L		101	79 - 123	10	20
Trichlorofluoromethane	5.00	5.07		ug/L		101	65 - 141	1	20
1,2,4-Trichlorobenzene	5.00	5.45		ug/L		109	69 - 130	7	20
1,2,3-Trichloropropane	5.00	5.46		ug/L		109	73 - 122	5	20
1,2,4-Trimethylbenzene	5.00	5.16		ug/L		103	76 - 124	7	20
1,3,5-Trimethylbenzene	5.00	5.28		ug/L		106	75 - 124	8	20
Vinyl chloride	5.00	5.03		ug/L		101	58 - 137	5	20
o-Xylene	5.00	5.30		ug/L		106	78 - 122	6	20
m-Xylene & p-Xylene	5.00	5.07		ug/L		101	80 - 121	8	20
2-Chlorotoluene	5.00	5.26		ug/L		105	79 - 122	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/05/18 20:31	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/05/18 20:31	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/05/18 20:31	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/05/18 20:31	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/05/18 20:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/05/18 20:31	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/05/18 20:31	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/05/18 20:31	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/05/18 20:31	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/05/18 20:31	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/05/18 20:31	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/05/18 20:31	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/05/18 20:31	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/05/18 20:31	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/05/18 20:31	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
Methylene Chloride	0.472	J	5.0	0.80	0.32	ug/L		11/05/18 20:31	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/05/18 20:31	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/05/18 20:31	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/05/18 20:31	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/05/18 20:31	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/05/18 20:31	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/05/18 20:31	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/05/18 20:31	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*89 - 112*		*11/05/18 20:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*81 - 118*		*11/05/18 20:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*11/05/18 20:31*	*1*
Dibromofluoromethane (Surr)	*117*		*80 - 119*		*11/05/18 20:31*	*1*

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.7		ug/L		109	39 - 160
Benzene	5.00	5.78		ug/L		116	79 - 120
Bromobenzene	5.00	4.73		ug/L		95	80 - 120
Bromochloromethane	5.00	5.80		ug/L		116	78 - 123
Bromodichloromethane	5.00	5.77		ug/L		115	79 - 125
Bromoform	5.00	4.53		ug/L		91	66 - 130
Bromomethane	5.00	5.83		ug/L		117	53 - 141
2-Butanone (MEK)	20.0	19.8		ug/L		99	56 - 143
n-Butylbenzene	5.00	4.74		ug/L		95	75 - 128
sec-Butylbenzene	5.00	4.80		ug/L		96	77 - 126
tert-Butylbenzene	5.00	4.79		ug/L		96	78 - 124
Carbon disulfide	5.00	5.55		ug/L		111	64 - 133
Carbon tetrachloride	5.00	5.49		ug/L		110	72 - 136
Chlorobenzene	5.00	5.05		ug/L		101	82 - 118
Chloroethane	5.00	5.89		ug/L		118	60 - 138
Chloroform	5.00	5.86		ug/L		117	79 - 124
Chloromethane	5.00	5.09		ug/L		102	50 - 139
4-Chlorotoluene	5.00	4.73		ug/L		95	78 - 122
Dibromochloromethane	5.00	4.80		ug/L		96	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.32		ug/L		106	62 - 128
Dichlorodifluoromethane	5.00	4.58		ug/L		92	32 - 152
Dibromomethane	5.00	5.72		ug/L		114	79 - 123
Ethylene Dibromide	5.00	5.26		ug/L		105	77 - 121
1,2-Dichlorobenzene	5.00	4.78		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.76		ug/L		95	80 - 119
1,4-Dichlorobenzene	5.00	4.77		ug/L		95	79 - 118
1,1-Dichloroethane	5.00	5.94		ug/L		119	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.76		ug/L		115	73 - 128
1,1-Dichloroethene	5.00	5.75		ug/L		115	71 - 131
cis-1,2-Dichloroethene	5.00	5.87		ug/L		117	78 - 123
trans-1,2-Dichloroethene	5.00	5.83		ug/L		117	75 - 124
1,2-Dichloropropane	5.00	6.33	Q	ug/L		127	78 - 122
1,3-Dichloropropane	5.00	5.33		ug/L		107	80 - 119
2,2-Dichloropropane	5.00	5.33		ug/L		107	60 - 139
1,1-Dichloropropene	5.00	5.64		ug/L		113	79 - 125
cis-1,3-Dichloropropene	5.00	5.10		ug/L		102	75 - 124
trans-1,3-Dichloropropene	5.00	5.19		ug/L		104	73 - 127
Ethylbenzene	5.00	4.91		ug/L		98	79 - 121
2-Hexanone	20.0	20.2		ug/L		101	57 - 139
Hexachlorobutadiene	5.00	4.55		ug/L		91	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
4-Isopropyltoluene	5.00	4.80		ug/L		96	77 - 127
Methylene Chloride	5.00	5.74		ug/L		115	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130
Methyl tert-butyl ether	5.00	5.51		ug/L		110	71 - 124
Naphthalene	5.00	4.95		ug/L		99	61 - 128
N-Propylbenzene	5.00	4.84		ug/L		97	76 - 126
Styrene	5.00	5.06		ug/L		101	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.14		ug/L		103	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.24		ug/L		105	71 - 121
Tetrachloroethene	5.00	4.89		ug/L		98	74 - 129
Toluene	5.00	5.95		ug/L		119	80 - 121
1,2,3-Trichlorobenzene	5.00	5.04		ug/L		101	69 - 129
1,1,1-Trichloroethane	5.00	5.58		ug/L		112	74 - 131
1,1,2-Trichloroethane	5.00	6.24	Q	ug/L		125	80 - 119
Trichloroethene	5.00	5.57		ug/L		111	79 - 123
Trichlorofluoromethane	5.00	5.38		ug/L		108	65 - 141
1,2,4-Trichlorobenzene	5.00	4.71		ug/L		94	69 - 130
1,2,3-Trichloropropane	5.00	5.19		ug/L		104	73 - 122
1,2,4-Trimethylbenzene	5.00	4.70		ug/L		94	76 - 124
1,3,5-Trimethylbenzene	5.00	4.65		ug/L		93	75 - 124
Vinyl chloride	5.00	5.50		ug/L		110	58 - 137
o-Xylene	5.00	5.18		ug/L		104	78 - 122
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	80 - 121
2-Chlorotoluene	5.00	4.82		ug/L		96	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*89*		*85 - 114*
Dibromofluoromethane (Surr)	*114*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	21.9		ug/L		109	39 - 160	1	20
Benzene	5.00	5.93		ug/L		119	79 - 120	2	20
Bromobenzene	5.00	4.94		ug/L		99	80 - 120	4	20
Bromochloromethane	5.00	6.03		ug/L		121	78 - 123	4	20
Bromodichloromethane	5.00	5.88		ug/L		118	79 - 125	2	20
Bromoform	5.00	5.06		ug/L		101	66 - 130	11	20
Bromomethane	5.00	6.15		ug/L		123	53 - 141	5	20
2-Butanone (MEK)	20.0	18.2		ug/L		91	56 - 143	8	20
n-Butylbenzene	5.00	4.96		ug/L		99	75 - 128	5	20
sec-Butylbenzene	5.00	5.02		ug/L		100	77 - 126	4	20
tert-Butylbenzene	5.00	4.83		ug/L		97	78 - 124	1	20
Carbon disulfide	5.00	5.83		ug/L		117	64 - 133	5	20
Carbon tetrachloride	5.00	5.52		ug/L		110	72 - 136	1	20
Chlorobenzene	5.00	5.07		ug/L		101	82 - 118	0	20
Chloroethane	5.00	6.16		ug/L		123	60 - 138	5	20
Chloroform	5.00	5.82		ug/L		116	79 - 124	1	20
Chloromethane	5.00	5.32		ug/L		106	50 - 139	4	20
4-Chlorotoluene	5.00	5.04		ug/L		101	78 - 122	7	20
Dibromochloromethane	5.00	4.73		ug/L		95	74 - 126	2	20
1,2-Dibromo-3-Chloropropane	5.00	4.76	J	ug/L		95	62 - 128	11	20
Dichlorodifluoromethane	5.00	5.32		ug/L		106	32 - 152	15	20
Dibromomethane	5.00	5.92		ug/L		118	79 - 123	4	20
Ethylene Dibromide	5.00	5.32		ug/L		106	77 - 121	1	20
1,2-Dichlorobenzene	5.00	4.99		ug/L		100	80 - 119	4	20
1,3-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119	2	20
1,4-Dichlorobenzene	5.00	4.97		ug/L		99	79 - 118	4	20
1,1-Dichloroethane	5.00	5.93		ug/L		119	77 - 125	0	20
1,2-Dichloroethane	5.00	5.83		ug/L		117	73 - 128	1	20
1,1-Dichloroethene	5.00	5.98		ug/L		120	71 - 131	4	20
cis-1,2-Dichloroethene	5.00	5.70		ug/L		114	78 - 123	3	20
trans-1,2-Dichloroethene	5.00	5.96		ug/L		119	75 - 124	2	20
1,2-Dichloropropane	5.00	6.20	Q	ug/L		124	78 - 122	2	20
1,3-Dichloropropane	5.00	5.19		ug/L		104	80 - 119	3	20
2,2-Dichloropropane	5.00	5.23		ug/L		105	60 - 139	2	20
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125	1	20
cis-1,3-Dichloropropene	5.00	5.17		ug/L		103	75 - 124	1	20
trans-1,3-Dichloropropene	5.00	5.16		ug/L		103	73 - 127	0	20
Ethylbenzene	5.00	5.01		ug/L		100	79 - 121	2	20
2-Hexanone	20.0	18.6		ug/L		93	57 - 139	8	20
Hexachlorobutadiene	5.00	4.68		ug/L		94	66 - 134	3	20
Isopropylbenzene	5.00	4.84		ug/L		97	72 - 131	2	20
4-Isopropyltoluene	5.00	4.97		ug/L		99	77 - 127	3	20
Methylene Chloride	5.00	5.57		ug/L		111	74 - 124	3	20
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130	0	20
Methyl tert-butyl ether	5.00	5.59		ug/L		112	71 - 124	1	20
Naphthalene	5.00	4.75		ug/L		95	61 - 128	4	20
N-Propylbenzene	5.00	4.95		ug/L		99	76 - 126	2	20
Styrene	5.00	4.97		ug/L		99	78 - 123	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			5.00	5.17		ug/L		103	78 - 124	1	20
1,1,2,2-Tetrachloroethane			5.00	5.24		ug/L		105	71 - 121	0	20
Tetrachloroethene			5.00	5.05		ug/L		101	74 - 129	3	20
Toluene			5.00	5.88		ug/L		118	80 - 121	1	20
1,2,3-Trichlorobenzene			5.00	5.20		ug/L		104	69 - 129	3	20
1,1,1-Trichloroethane			5.00	5.65		ug/L		113	74 - 131	1	20
1,1,2-Trichloroethane			5.00	6.21	Q	ug/L		124	80 - 119	1	20
Trichloroethene			5.00	5.62		ug/L		112	79 - 123	1	20
Trichlorofluoromethane			5.00	5.82		ug/L		116	65 - 141	8	20
1,2,4-Trichlorobenzene			5.00	4.74		ug/L		95	69 - 130	1	20
1,2,3-Trichloropropane			5.00	5.12		ug/L		102	73 - 122	1	20
1,2,4-Trimethylbenzene			5.00	4.83		ug/L		97	76 - 124	3	20
1,3,5-Trimethylbenzene			5.00	4.88		ug/L		98	75 - 124	5	20
Vinyl chloride			5.00	5.68		ug/L		114	58 - 137	3	20
o-Xylene			5.00	5.15		ug/L		103	78 - 122	1	20
m-Xylene & p-Xylene			5.00	5.16		ug/L		103	80 - 121	1	20
2-Chlorotoluene			5.00	4.92		ug/L		98	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*
4-Bromofluorobenzene (Surr)	*91*		*85 - 114*
Dibromofluoromethane (Surr)	*116*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435210/5
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/27/18 14:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*82 - 110*		*10/27/18 14:06*	*1*

Lab Sample ID: LCS 280-435210/3
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			101	89.8	M	ug/L		89	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*87*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-436052/4-A
Matrix: Water
Analysis Batch: 436360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436052

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/05/18 16:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*113*		*70 - 130*	*11/02/18 10:38*	*11/05/18 16:18*	*1*

Lab Sample ID: LCS 280-436052/2-A
Matrix: Water
Analysis Batch: 436360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436052

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.234		ug/L		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*115*		*70 - 130*

Lab Sample ID: LCSD 280-436052/3-A
Matrix: Water
Analysis Batch: 436360

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436052

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.252		ug/L		101	70 - 130	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*122*		*70 - 130*

Lab Sample ID: MB 280-436333/4-A
Matrix: Water
Analysis Batch: 437629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436333

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/14/18 20:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*105*		*70 - 130*	*11/05/18 10:37*	*11/14/18 20:12*	*1*

Lab Sample ID: LCS 280-436333/2-A
Matrix: Water
Analysis Batch: 437629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436333

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.228	M	ug/L		91	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*107*		*70 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-436333/3-A
Matrix: Water
Analysis Batch: 437629

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436333

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.231	M	ug/L		93	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434673/1-A
Matrix: Water
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434673

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		10/26/18 12:30	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		10/26/18 12:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*83*		*56 - 125*	*10/24/18 08:24*	*10/26/18 12:30*	*1*
n-Octacosane	*75*		*60 - 142*	*10/24/18 08:24*	*10/26/18 12:30*	*1*

Lab Sample ID: LCS 280-434673/2-A
Matrix: Water
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434673

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]			2.00	1.74		mg/L		87	36 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*88*		*56 - 125*
n-Octacosane	*78*		*60 - 142*

Lab Sample ID: LCSD 280-434673/3-A
Matrix: Water
Analysis Batch: 435068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434673

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.62		mg/L		81	36 - 132	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*85*		*56 - 125*
n-Octacosane	*73*		*60 - 142*

GC/MS VOA

Analysis Batch: 436196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-2	RB-S9-201018-01	Total/NA	Water	8260B	
280-115951-3	RB-S9-201018-02	Total/NA	Water	8260B	
280-115951-4	SWB-S9-201018-01	Total/NA	Water	8260B	
MB 280-436196/8	Method Blank	Total/NA	Water	8260B	
LCS 280-436196/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-436196/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 436409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-1	TB-S9-221018-01	Total/NA	Water	8260B	
MB 280-436409/4	Method Blank	Total/NA	Water	8260B	
LCS 280-436409/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-436409/6	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-1	TB-S9-221018-01	Total/NA	Water	8015D GRO	
280-115951-2	RB-S9-201018-01	Total/NA	Water	8015D GRO	
280-115951-3	RB-S9-201018-02	Total/NA	Water	8015D GRO	
280-115951-4	SWB-S9-201018-01	Total/NA	Water	8015D GRO	
MB 280-435210/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435210/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 434673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-2	RB-S9-201018-01	Total/NA	Water	3510C	
280-115951-3	RB-S9-201018-02	Total/NA	Water	3510C	
280-115951-4	SWB-S9-201018-01	Total/NA	Water	3510C	
MB 280-434673/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-434673/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-434673/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 435068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-2	RB-S9-201018-01	Total/NA	Water	8015D DRO	434673
280-115951-3	RB-S9-201018-02	Total/NA	Water	8015D DRO	434673
280-115951-4	SWB-S9-201018-01	Total/NA	Water	8015D DRO	434673
MB 280-434673/1-A	Method Blank	Total/NA	Water	8015D DRO	434673
LCS 280-434673/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	434673
LCSD 280-434673/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	434673

Prep Batch: 436052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-2	RB-S9-201018-01	Total/NA	Water	8011	
280-115951-3	RB-S9-201018-02	Total/NA	Water	8011	
280-115951-4	SWB-S9-201018-01	Total/NA	Water	8011	

GC Semi VOA (Continued)

Prep Batch: 436052 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-436052/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-436052/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-436052/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 436333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-1	TB-S9-221018-01	Total/NA	Water	8011	
MB 280-436333/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-436333/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-436333/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 436360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-2	RB-S9-201018-01	Total/NA	Water	8011	436052
280-115951-3	RB-S9-201018-02	Total/NA	Water	8011	436052
280-115951-4	SWB-S9-201018-01	Total/NA	Water	8011	436052
MB 280-436052/4-A	Method Blank	Total/NA	Water	8011	436052
LCS 280-436052/2-A	Lab Control Sample	Total/NA	Water	8011	436052
LCSD 280-436052/3-A	Lab Control Sample Dup	Total/NA	Water	8011	436052

Analysis Batch: 437629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115951-1	TB-S9-221018-01	Total/NA	Water	8011	436333
MB 280-436333/4-A	Method Blank	Total/NA	Water	8011	436333
LCS 280-436333/2-A	Lab Control Sample	Total/NA	Water	8011	436333
LCSD 280-436333/3-A	Lab Control Sample Dup	Total/NA	Water	8011	436333

Client Sample ID: TB-S9-221018-01

Lab Sample ID: 280-115951-1

Date Collected: 10/22/18 16:00

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436409	11/06/18 04:17	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/27/18 20:29	GPM	TAL DEN
Total/NA	Prep	8011			34.3 mL	35 mL	436333	11/05/18 10:37	SU	TAL DEN
Total/NA	Analysis	8011		1			437629	11/14/18 20:31	JLW	TAL DEN

Client Sample ID: RB-S9-201018-01

Lab Sample ID: 280-115951-2

Date Collected: 10/20/18 16:10

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436196	11/03/18 19:35	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/27/18 20:54	GPM	TAL DEN
Total/NA	Prep	8011			34.3 mL	35 mL	436052	11/02/18 10:38	SU	TAL DEN
Total/NA	Analysis	8011		1			436360	11/05/18 16:38	JLW	TAL DEN
Total/NA	Prep	3510C			1027.7 mL	1 mL	434673	10/24/18 08:24	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 13:36	CSM	TAL DEN

Client Sample ID: RB-S9-201018-02

Lab Sample ID: 280-115951-3

Date Collected: 10/20/18 16:30

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436196	11/03/18 19:55	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/27/18 21:18	GPM	TAL DEN
Total/NA	Prep	8011			34.6 mL	35 mL	436052	11/02/18 10:38	SU	TAL DEN
Total/NA	Analysis	8011		1			436360	11/05/18 16:58	JLW	TAL DEN
Total/NA	Prep	3510C			1050.5 mL	1 mL	434673	10/24/18 08:24	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 13:58	CSM	TAL DEN

Client Sample ID: SWB-S9-201018-01

Lab Sample ID: 280-115951-4

Date Collected: 10/20/18 16:00

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436196	11/03/18 20:16	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/27/18 21:43	GPM	TAL DEN
Total/NA	Prep	8011			35 mL	35 mL	436052	11/02/18 10:38	SU	TAL DEN
Total/NA	Analysis	8011		1			436360	11/05/18 17:18	JLW	TAL DEN
Total/NA	Prep	3510C			1020.2 mL	1 mL	434673	10/24/18 08:24	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 14:20	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115951-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Denise Wilt	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443333992 7726	COC No: COC 1-59-TA-20181022
Client Contact: Pamela Moss	Phone: 717-781-5600	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO
City: Greenwood Village	TAT Requested (days): Per PO
State, Zip: CO, 80111	
Phone: 303-590-9143(Tel)	PO #: 16065
Email: pmoss@eaest.com	WO #: 62735DM02.1017
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071
Site: Kirtland BFF	SSOW#: —

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:							J/F	N	N	N	F	A	R	N	A		
TB-59-221018-01	10/22/18	1600	G	W	N	N	—	—	—	—	—	X	X	—	X	4	
RB-59-201018-01	10/20/18	1610	G	W	N	N	—	—	—	—	—	X	X	X	X	10	RB_10_20_2018_01
RB-59-201018_02	10/20/18	1630	G	W	N	N	—	—	—	—	—	X	X	X	X	10	RB_10_20_2018_02
SWB-59-201018-01	10/20/18	1600	G	W	N	N	—	—	—	—	—	X	X	X	X	11	SWB_10_20_2018_01

280-115951 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kevin McKeon	10/22/18 1830	EA		10/23/18 0850	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.4°C IR#9 CF+0.7

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115951-1

Login Number: 115951
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-115956-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/30/2018 8:06:56 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-115956-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-115956-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/23/2018 8:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.0º C and 3.1º C.

Receipt Exceptions

All five soil analysis indicated on COC for sample IDs V-S5-211018-417 and P-S5-211018-417. Only 8260, 8011 and Moisture containers were received for sample ID V-S5-211018-417 and DRO, GRO and Moisture containers for sample ID P-S5-211018-417. Samples have been logged as they historically have been, with methods 8260, 8011 and Moisture for the "V" sample and 8015 DRO, GRO and Moisture for the "P" sample. Confirming with client.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Sample V-S5-211018-417 (280-115956-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/21/2018 and analyzed on 11/02/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S5-221018-01 (280-115956-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/06/2018.

The following samples in analytical batch 280-436409 were analyzed outside of analytical holding time due to backlog capacity issues: TB-S5-221018-01 (280-115956-1). As instructed by the client, the data have been reported.

Methylene Chloride was detected in method blank MB 280-436409/4 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

1,1,2-Trichloroethane and 1,2-Dichloropropane failed the recovery criteria high for LCS 280-436409/5 and LCSD 280-436409/6. All associated results have been flagged "Q". Refer to the QC report for details. These analytes were biased high in the LCS and LCSD and were not detected in the associated samples; therefore, the data have been reported. The following samples are impacted: TB-S5-221018-01 (280-115956-1), (LCS 280-436409/5) and (LCSD 280-436409/6).

Job ID: 280-115956-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample V-S5-211018-417 (280-115956-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 10/29/2018 and analyzed on 11/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Sample P-S5-211018-417 (280-115956-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/02/2018 and analyzed on 11/06/2018.

The following sample was analyzed outside of analytical holding time due to an instrument malfunction: P-S5-211018-417 (280-115956-3). The sample was loaded to run on the last day of the holding time but due to the instrument stopping the sample did not run. As instructed by the client, the data have been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S5-221018-01 (280-115956-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/28/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Sample P-S5-211018-417 (280-115956-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 10/24/2018 and analyzed on 10/26/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-434808/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable since the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples V-S5-211018-417 (280-115956-2) and P-S5-211018-417 (280-115956-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 10/31/2018 and 11/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Client Sample ID: TB-S5-221018-01 — Lab Sample ID: 280-115956-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.66	J H	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	17	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S5-211018-417 — Lab Sample ID: 280-115956-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	0.38	J	4.0	0.64	0.17	ug/Kg	1	☼	8260B	Total/NA
1,2-Dichloroethene, Total	9.1		4.0	1.3	0.31	ug/Kg	1	☼	8260B	Total/NA
Acetone	5.2	J	16	10	4.3	ug/Kg	1	☼	8260B	Total/NA
cis-1,2-Dichloroethene	9.1		4.0	1.3	0.45	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.3	J	4.0	2.5	1.3	ug/Kg	1	☼	8260B	Total/NA
Toluene	0.91	J	4.0	1.3	0.55	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S5-211018-417 — Lab Sample ID: 280-115956-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.0	J	7.8	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-115956-1	TB-S5-221018-01	Water	10/22/18 15:30	10/23/18 08:50
280-115956-2	V-S5-211018-417	Solid	10/21/18 17:12	10/23/18 08:50
280-115956-3	P-S5-211018-417	Solid	10/21/18 17:12	10/23/18 08:50

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S5-221018-01
Date Collected: 10/22/18 15:30
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115956-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H M	10	6.4	1.9	ug/L		11/06/18 04:36	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		11/06/18 04:36	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:36	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		11/06/18 04:36	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		11/06/18 04:36	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		11/06/18 04:36	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		11/06/18 04:36	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		11/06/18 04:36	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		11/06/18 04:36	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		11/06/18 04:36	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:36	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		11/06/18 04:36	1
Dichlorodifluoromethane	0.80	U H	2.0	0.80	0.31	ug/L		11/06/18 04:36	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		11/06/18 04:36	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:36	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		11/06/18 04:36	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		11/06/18 04:36	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		11/06/18 04:36	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		11/06/18 04:36	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		11/06/18 04:36	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:36	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:36	1
1,2-Dichloropropane	0.40	U Q H	1.0	0.40	0.18	ug/L		11/06/18 04:36	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		11/06/18 04:36	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/06/18 04:36	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:36	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:36	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		11/06/18 04:36	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		11/06/18 04:36	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:36	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		11/06/18 04:36	1
Methylene Chloride	**0.66**	**J H**	5.0	0.80	0.32	ug/L		11/06/18 04:36	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		11/06/18 04:36	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		11/06/18 04:36	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		11/06/18 04:36	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S5-221018-01
Date Collected: 10/22/18 15:30
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115956-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:36	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:36	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		11/06/18 04:36	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:36	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
1,1,2-Trichloroethane	0.80	U Q H	1.0	0.80	0.27	ug/L		11/06/18 04:36	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		11/06/18 04:36	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/06/18 04:36	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		11/06/18 04:36	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/06/18 04:36	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/06/18 04:36	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		11/06/18 04:36	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		11/06/18 04:36	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		11/06/18 04:36	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		11/06/18 04:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*11/06/18 04:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*		*11/06/18 04:36*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*11/06/18 04:36*	*1*
Dibromofluoromethane (Surr)	*117*		*80 - 119*		*11/06/18 04:36*	*1*

Client Sample ID: V-S5-211018-417
Date Collected: 10/21/18 17:12
Date Received: 10/23/18 08:50
Lab Sample ID: 280-115956-2
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.3	U	4.0	1.3	0.45	ug/Kg	☼	11/02/18 18:17	1
1,1,1-Trichloroethane	1.3	U	4.0	1.3	0.41	ug/Kg	☼	11/02/18 18:17	1
1,1,2,2-Tetrachloroethane	1.3	U	4.0	1.3	0.49	ug/Kg	☼	11/02/18 18:17	1
1,1,2-Trichloroethane	2.5	U	4.0	2.5	0.70	ug/Kg	☼	11/02/18 18:17	1
1,1-Dichloroethane	**0.38**	**J**	4.0	0.64	0.17	ug/Kg	☼	11/02/18 18:17	1
1,1-Dichloroethene	1.3	U	4.0	1.3	0.47	ug/Kg	☼	11/02/18 18:17	1
1,1-Dichloropropene	1.3	U	4.0	1.3	0.43	ug/Kg	☼	11/02/18 18:17	1
1,2,3-Trichlorobenzene	1.3	U	4.0	1.3	0.60	ug/Kg	☼	11/02/18 18:17	1
1,2,3-Trichloropropane	2.5	U	4.0	2.5	0.64	ug/Kg	☼	11/02/18 18:17	1
1,2,4-Trichlorobenzene	1.3	U	4.0	1.3	0.58	ug/Kg	☼	11/02/18 18:17	1
1,2,4-Trimethylbenzene	2.5	U	4.0	2.5	0.46	ug/Kg	☼	11/02/18 18:17	1
1,2-Dibromo-3-Chloropropane	1.3	U	8.0	1.3	0.48	ug/Kg	☼	11/02/18 18:17	1
1,2-Dichlorobenzene	1.3	U	4.0	1.3	0.36	ug/Kg	☼	11/02/18 18:17	1
1,2-Dichloroethane	1.3	U	4.0	1.3	0.56	ug/Kg	☼	11/02/18 18:17	1
1,2-Dichloroethene, Total	**9.1**		4.0	1.3	0.31	ug/Kg	☼	11/02/18 18:17	1
1,2-Dichloropropane	1.3	U	4.0	1.3	0.44	ug/Kg	☼	11/02/18 18:17	1
1,3,5-Trimethylbenzene	1.3	U	4.0	1.3	0.45	ug/Kg	☼	11/02/18 18:17	1
1,3-Dichlorobenzene	1.3	U	4.0	1.3	0.38	ug/Kg	☼	11/02/18 18:17	1
1,3-Dichloropropane	1.3	U	4.0	1.3	0.41	ug/Kg	☼	11/02/18 18:17	1
1,4-Dichlorobenzene	1.3	U	4.0	1.3	0.62	ug/Kg	☼	11/02/18 18:17	1
2,2-Dichloropropane	1.3	U	4.0	1.3	0.35	ug/Kg	☼	11/02/18 18:17	1
2-Butanone (MEK)	5.1	U	16	5.1	1.5	ug/Kg	☼	11/02/18 18:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S5-211018-417
Date Collected: 10/21/18 17:12
Date Received: 10/23/18 08:50

Lab Sample ID: 280-115956-2
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.3	U	4.0	1.3	0.41	ug/Kg	☼	11/02/18 18:17	1
2-Hexanone	10	U	16	10	3.9	ug/Kg	☼	11/02/18 18:17	1
4-Chlorotoluene	1.3	U	4.0	1.3	0.62	ug/Kg	☼	11/02/18 18:17	1
4-Isopropyltoluene	1.3	U	4.0	1.3	0.39	ug/Kg	☼	11/02/18 18:17	1
4-Methyl-2-pentanone (MIBK)	10	U	16	10	3.5	ug/Kg	☼	11/02/18 18:17	1
Acetone	**5.2**	**J**	16	10	4.3	ug/Kg	☼	11/02/18 18:17	1
Benzene	1.3	U	4.0	1.3	0.37	ug/Kg	☼	11/02/18 18:17	1
Bromobenzene	1.3	U	4.0	1.3	0.39	ug/Kg	☼	11/02/18 18:17	1
Bromoform	0.64	U	4.0	0.64	0.18	ug/Kg	☼	11/02/18 18:17	1
Bromomethane	1.3	U	8.0	1.3	0.40	ug/Kg	☼	11/02/18 18:17	1
Carbon disulfide	1.3	U M	4.0	1.3	0.33	ug/Kg	☼	11/02/18 18:17	1
Carbon tetrachloride	1.3	U	4.0	1.3	0.50	ug/Kg	☼	11/02/18 18:17	1
Chlorobenzene	1.3	U	4.0	1.3	0.43	ug/Kg	☼	11/02/18 18:17	1
Bromochloromethane	0.64	U	4.0	0.64	0.24	ug/Kg	☼	11/02/18 18:17	1
Dibromochloromethane	1.3	U	4.0	1.3	0.45	ug/Kg	☼	11/02/18 18:17	1
Chloroethane	2.5	U	8.0	2.5	0.71	ug/Kg	☼	11/02/18 18:17	1
Chloroform	0.64	U	8.0	0.64	0.23	ug/Kg	☼	11/02/18 18:17	1
Chloromethane	1.3	U	8.0	1.3	0.61	ug/Kg	☼	11/02/18 18:17	1
cis-1,2-Dichloroethene	**9.1**		4.0	1.3	0.45	ug/Kg	☼	11/02/18 18:17	1
cis-1,3-Dichloropropene	2.5	U	4.0	2.5	1.0	ug/Kg	☼	11/02/18 18:17	1
Dibromomethane	2.5	U	4.0	2.5	0.67	ug/Kg	☼	11/02/18 18:17	1
Bromodichloromethane	0.64	U	4.0	0.64	0.18	ug/Kg	☼	11/02/18 18:17	1
Dichlorodifluoromethane	1.3	U	8.0	1.3	0.41	ug/Kg	☼	11/02/18 18:17	1
Ethylbenzene	1.3	U	4.0	1.3	0.53	ug/Kg	☼	11/02/18 18:17	1
Ethylene Dibromide	1.3	U	4.0	1.3	0.41	ug/Kg	☼	11/02/18 18:17	1
Hexachlorobutadiene	1.3	U	4.0	1.3	0.44	ug/Kg	☼	11/02/18 18:17	1
Isopropylbenzene	1.3	U	4.0	1.3	0.47	ug/Kg	☼	11/02/18 18:17	1
Methyl tert-butyl ether	0.64	U	16	0.64	0.27	ug/Kg	☼	11/02/18 18:17	1
Methylene Chloride	**2.3**	**J**	4.0	2.5	1.3	ug/Kg	☼	11/02/18 18:17	1
m-Xylene & p-Xylene	2.5	U	2.5	2.5	0.83	ug/Kg	☼	11/02/18 18:17	1
Naphthalene	1.3	U	4.0	1.3	0.50	ug/Kg	☼	11/02/18 18:17	1
n-Butylbenzene	1.3	U	4.0	1.3	0.45	ug/Kg	☼	11/02/18 18:17	1
N-Propylbenzene	1.3	U	4.0	1.3	0.46	ug/Kg	☼	11/02/18 18:17	1
o-Xylene	1.3	U	4.0	1.3	0.49	ug/Kg	☼	11/02/18 18:17	1
sec-Butylbenzene	1.3	U	4.0	1.3	0.61	ug/Kg	☼	11/02/18 18:17	1
Styrene	1.3	U	4.0	1.3	0.50	ug/Kg	☼	11/02/18 18:17	1
tert-Butylbenzene	1.3	U	4.0	1.3	0.40	ug/Kg	☼	11/02/18 18:17	1
Tetrachloroethene	1.3	U	4.0	1.3	0.47	ug/Kg	☼	11/02/18 18:17	1
Toluene	**0.91**	**J**	4.0	1.3	0.55	ug/Kg	☼	11/02/18 18:17	1
trans-1,2-Dichloroethene	0.64	U	4.0	0.64	0.31	ug/Kg	☼	11/02/18 18:17	1
trans-1,3-Dichloropropene	1.3	U	4.0	1.3	0.53	ug/Kg	☼	11/02/18 18:17	1
Trichloroethene	0.64	U	4.0	0.64	0.18	ug/Kg	☼	11/02/18 18:17	1
Trichlorofluoromethane	2.5	U	8.0	2.5	0.83	ug/Kg	☼	11/02/18 18:17	1
Vinyl chloride	2.5	U M	4.0	2.5	1.1	ug/Kg	☼	11/02/18 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*10/21/18 17:12*	*11/02/18 18:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*10/21/18 17:12*	*11/02/18 18:17*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*10/21/18 17:12*	*11/02/18 18:17*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*10/21/18 17:12*	*11/02/18 18:17*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S5-221018-01 — **Lab Sample ID: 280-115956-1**
Date Collected: 10/22/18 15:30 — **Matrix: Water**
Date Received: 10/23/18 08:50

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	17	J	25	25	10	ug/L		10/28/18 10:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*82 - 110*		*10/28/18 10:33*	*1*

Client Sample ID: P-S5-211018-417 — **Lab Sample ID: 280-115956-3**
Date Collected: 10/21/18 17:12 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U H	1.3	1.2	0.36	mg/Kg	☼	11/06/18 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*11/02/18 13:20*	*11/06/18 02:21*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S5-211018-417 — **Lab Sample ID: 280-115956-2**
Date Collected: 10/21/18 17:12 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.015	ug/Kg	☼	11/01/18 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*96*		*55 - 130*	*10/29/18 14:26*	*11/01/18 23:26*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S5-211018-417 — **Lab Sample ID: 280-115956-3**
Date Collected: 10/21/18 17:12 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.0	J	7.8	3.9	1.3	mg/Kg	☼	10/26/18 21:33	1
Motor Oil (C20-C38)	23	U	23	23	7.6	mg/Kg	☼	10/26/18 21:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*77*		*45 - 130*	*10/24/18 20:26*	*10/26/18 21:33*	*1*
n-Octacosane	*68*		*25 - 162*	*10/24/18 20:26*	*10/26/18 21:33*	*1*

General Chemistry

Client Sample ID: V-S5-211018-417 — **Lab Sample ID: 280-115956-2**
Date Collected: 10/21/18 17:12 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.6		0.1	0.05	0.1	%		10/31/18 16:11	1

Client Sample ID: P-S5-211018-417 — **Lab Sample ID: 280-115956-3**
Date Collected: 10/21/18 17:12 — **Matrix: Solid**
Date Received: 10/23/18 08:50 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.6		0.1	0.05	0.1	%		11/01/18 12:40	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-115956-2	V-S5-211018-417	101	92	95	102
LCS 280-436099/2-A	Lab Control Sample	104	92	95	99
LCSD 280-436099/3-A	Lab Control Sample Dup	101	101	98	103
MB 280-436099/1-A	Method Blank	104	94	97	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-115956-1	TB-S5-221018-01	102	117	98	117
LCS 280-436409/5	Lab Control Sample	100	115	89	114
LCSD 280-436409/6	Lab Control Sample Dup	100	117	91	116
MB 280-436409/4	Method Blank	106	114	100	117

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-115956-3	P-S5-211018-417	92
LCS 280-436090/2-A	Lab Control Sample	88
MB 280-436090/14-A	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-115956-1	TB-S5-221018-01	95
LCS 280-435210/3	Lab Control Sample	87
LCS 280-435210/58	Lab Control Sample	107

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
MB 280-435210/31	Method Blank	96
MB 280-435210/5	Method Blank	87

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-115956-2	V-S5-211018-417	96
LCS 280-435369/2-A	Lab Control Sample	110
LCSD 280-435369/3-A	Lab Control Sample Dup	109
MB 280-435369/4-A	Method Blank	106

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-115956-3	P-S5-211018-417	77	68
LCS 280-434808/2-A	Lab Control Sample	80	70
LCS 280-434808/3-A	Lab Control Sample	87	84
MB 280-434808/1-A	Method Blank	83	73

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436099/1-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436099

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/02/18 15:53	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/02/18 15:53	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/02/18 15:53	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/02/18 15:53	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/02/18 15:53	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/02/18 15:53	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/02/18 15:53	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/02/18 15:53	1
Acetone	13	U M	20	13	5.4	ug/Kg		11/02/18 15:53	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/02/18 15:53	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/02/18 15:53	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/02/18 15:53	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/02/18 15:53	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/02/18 15:53	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/02/18 15:53	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/02/18 15:53	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/02/18 15:53	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/02/18 15:53	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/02/18 15:53	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/02/18 15:53	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/02/18 15:53	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/02/18 15:53	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/02/18 15:53	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/02/18 15:53	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/02/18 15:53	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/02/18 15:53	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		11/02/18 15:53	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/02/18 15:53	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/02/18 15:53	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/02/18 15:53	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/02/18 15:53	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/02/18 15:53	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/02/18 15:53	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/02/18 15:53	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/02/18 15:53	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/02/18 15:53	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/02/18 15:53	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/02/18 15:53	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/02/18 15:53	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/02/18 15:53	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/02/18 15:53	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/02/18 15:53	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/02/18 15:53	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/02/18 15:53	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/02/18 15:53	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/02/18 15:53	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/02/18 15:53	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/02/18 15:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436099/1-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436099

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/02/18 15:53	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/02/18 15:53	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/02/18 15:53	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/02/18 15:53	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/02/18 15:53	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/02/18 15:53	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/02/18 15:53	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/02/18 15:53	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/02/18 15:53	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/02/18 15:53	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/02/18 15:53	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/02/18 15:53	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/02/18 15:53	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/02/18 15:53	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/02/18 15:53	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/02/18 15:53	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/02/18 15:53	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/02/18 15:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*11/02/18 07:00*	*11/02/18 15:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*11/02/18 07:00*	*11/02/18 15:53*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*11/02/18 07:00*	*11/02/18 15:53*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*11/02/18 07:00*	*11/02/18 15:53*	*1*

Lab Sample ID: LCS 280-436099/2-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436099

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	52.0		ug/Kg		104	61 - 132
2-Butanone (MEK)	200	219		ug/Kg		109	51 - 148
1,2-Dichlorobenzene	50.0	53.0		ug/Kg		106	78 - 121
1,3-Dichlorobenzene	50.0	52.8		ug/Kg		106	77 - 121
4-Chlorotoluene	50.0	52.3		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	51.6		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	49.5		ug/Kg		99	76 - 125
1,2-Dichloroethane	50.0	52.1		ug/Kg		104	73 - 128
Acetone	200	208		ug/Kg		104	36 - 164
1,1-Dichloroethene	50.0	53.8		ug/Kg		108	70 - 131
Benzene	50.0	50.3		ug/Kg		101	77 - 121
Bromobenzene	50.0	53.7		ug/Kg		107	78 - 121
Bromoform	50.0	59.7		ug/Kg		119	67 - 132
Bromomethane	50.0	55.7		ug/Kg		111	53 - 143
1,2-Dichloropropane	50.0	50.4		ug/Kg		101	76 - 123
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	53.2		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	49.2		ug/Kg		98	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436099/2-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436099

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	48.6		ug/Kg		97	67 - 133
Chlorobenzene	50.0	51.8		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	49.7		ug/Kg		99	76 - 125
Bromochloromethane	50.0	52.4		ug/Kg		105	78 - 125
Dibromochloromethane	50.0	58.4		ug/Kg		117	74 - 126
Chloroethane	50.0	48.3		ug/Kg		97	59 - 139
Chloroform	50.0	49.8		ug/Kg		100	78 - 123
2-Hexanone	200	222		ug/Kg		111	53 - 145
Chloromethane	50.0	48.7		ug/Kg		97	50 - 136
cis-1,2-Dichloroethene	50.0	52.5		ug/Kg		105	77 - 123
cis-1,3-Dichloropropene	50.0	60.1		ug/Kg		120	74 - 126
4-Isopropyltoluene	50.0	53.7		ug/Kg		107	73 - 127
Dibromomethane	50.0	51.2		ug/Kg		102	78 - 125
Bromodichloromethane	50.0	53.3		ug/Kg		107	75 - 127
4-Methyl-2-pentanone (MIBK)	200	215		ug/Kg		108	65 - 135
Dichlorodifluoromethane	50.0	47.2		ug/Kg		94	29 - 149
Ethylbenzene	50.0	53.1		ug/Kg		106	76 - 122
Ethylene Dibromide	50.0	55.1		ug/Kg		110	78 - 122
Hexachlorobutadiene	50.0	50.8		ug/Kg		102	61 - 135
Isopropylbenzene	50.0	52.7		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.7		ug/Kg		107	78 - 125
Methyl tert-butyl ether	50.0	52.1		ug/Kg		104	73 - 125
1,1,2,2-Tetrachloroethane	50.0	51.8		ug/Kg		104	70 - 124
Methylene Chloride	50.0	53.4		ug/Kg		107	70 - 128
Naphthalene	50.0	57.8		ug/Kg		116	62 - 129
1,2,3-Trichlorobenzene	50.0	56.5		ug/Kg		113	66 - 130
n-Butylbenzene	50.0	52.8		ug/Kg		106	70 - 128
1,1,1-Trichloroethane	50.0	50.6		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	51.9		ug/Kg		104	73 - 125
1,1,2-Trichloroethane	50.0	53.5		ug/Kg		107	78 - 121
sec-Butylbenzene	50.0	55.8		ug/Kg		112	73 - 126
Styrene	50.0	54.7		ug/Kg		109	76 - 124
1,2,4-Trichlorobenzene	50.0	57.7		ug/Kg		115	67 - 129
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 125
1,2,3-Trichloropropane	50.0	56.7		ug/Kg		113	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	51.8		ug/Kg		104	75 - 123
Toluene	50.0	51.3		ug/Kg		103	77 - 121
1,3,5-Trimethylbenzene	50.0	53.3		ug/Kg		107	73 - 124
trans-1,2-Dichloroethene	50.0	53.7		ug/Kg		107	74 - 125
trans-1,3-Dichloropropene	50.0	57.4		ug/Kg		115	71 - 130
o-Xylene	50.0	54.7		ug/Kg		109	77 - 123
Trichloroethene	50.0	51.3		ug/Kg		103	77 - 123
m-Xylene & p-Xylene	50.0	52.5		ug/Kg		105	77 - 124
Trichlorofluoromethane	50.0	49.1		ug/Kg		98	62 - 140
Vinyl chloride	50.0	47.5		ug/Kg		95	56 - 135
2-Chlorotoluene	50.0	53.3		ug/Kg		107	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436099/2-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436099

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-436099/3-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	54.9		ug/Kg		110	61 - 132	5	20
2-Butanone (MEK)			200	226		ug/Kg		113	51 - 148	3	20
1,2-Dichlorobenzene			50.0	52.4		ug/Kg		105	78 - 121	1	20
1,3-Dichlorobenzene			50.0	52.3		ug/Kg		105	77 - 121	1	20
4-Chlorotoluene			50.0	54.9		ug/Kg		110	72 - 124	5	20
1,4-Dichlorobenzene			50.0	52.6		ug/Kg		105	75 - 120	2	20
1,1-Dichloroethane			50.0	53.2		ug/Kg		106	76 - 125	7	20
1,2-Dichloroethane			50.0	56.4		ug/Kg		113	73 - 128	8	20
Acetone			200	221		ug/Kg		110	36 - 164	6	20
1,1-Dichloroethene			50.0	56.8		ug/Kg		114	70 - 131	5	20
Benzene			50.0	53.3		ug/Kg		107	77 - 121	6	20
Bromobenzene			50.0	54.8		ug/Kg		110	78 - 121	2	20
Bromoform			50.0	62.8		ug/Kg		126	67 - 132	5	20
Bromomethane			50.0	63.2		ug/Kg		126	53 - 143	13	20
1,2-Dichloropropane			50.0	53.8		ug/Kg		108	76 - 123	7	20
Carbon disulfide			50.0	55.7		ug/Kg		111	63 - 132	6	20
1,3-Dichloropropane			50.0	51.7		ug/Kg		103	77 - 121	3	20
Carbon tetrachloride			50.0	56.4		ug/Kg		113	70 - 135	14	20
2,2-Dichloropropane			50.0	53.8		ug/Kg		108	67 - 133	10	20
Chlorobenzene			50.0	53.4		ug/Kg		107	79 - 120	3	20
1,1-Dichloropropene			50.0	55.0		ug/Kg		110	76 - 125	10	20
Bromochloromethane			50.0	54.8		ug/Kg		110	78 - 125	4	20
Dibromochloromethane			50.0	56.9		ug/Kg		114	74 - 126	3	20
Chloroethane			50.0	55.7		ug/Kg		111	59 - 139	14	20
Chloroform			50.0	54.1		ug/Kg		108	78 - 123	8	20
2-Hexanone			200	225		ug/Kg		112	53 - 145	1	20
Chloromethane			50.0	54.5		ug/Kg		109	50 - 136	11	20
cis-1,2-Dichloroethene			50.0	55.1		ug/Kg		110	77 - 123	5	20
cis-1,3-Dichloropropene			50.0	58.4		ug/Kg		117	74 - 126	3	20
4-Isopropyltoluene			50.0	54.0		ug/Kg		108	73 - 127	1	20
Dibromomethane			50.0	54.2		ug/Kg		108	78 - 125	6	20
Bromodichloromethane			50.0	58.1		ug/Kg		116	75 - 127	9	20
4-Methyl-2-pentanone (MIBK)			200	226		ug/Kg		113	65 - 135	5	20
Dichlorodifluoromethane			50.0	53.8		ug/Kg		108	29 - 149	13	20
Ethylbenzene			50.0	54.8		ug/Kg		110	76 - 122	3	20
Ethylene Dibromide			50.0	55.7		ug/Kg		111	78 - 122	1	20
Hexachlorobutadiene			50.0	51.2		ug/Kg		102	61 - 135	1	20
Isopropylbenzene			50.0	55.1		ug/Kg		110	68 - 134	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436099/3-A
Matrix: Solid
Analysis Batch: 436014

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	55.9		ug/Kg		112	78 - 125	4	20
Methyl tert-butyl ether			50.0	55.3		ug/Kg		111	73 - 125	6	20
1,1,2,2-Tetrachloroethane			50.0	52.1		ug/Kg		104	70 - 124	0	20
Methylene Chloride			50.0	55.3		ug/Kg		111	70 - 128	4	20
Naphthalene			50.0	59.1		ug/Kg		118	62 - 129	2	20
1,2,3-Trichlorobenzene			50.0	55.6		ug/Kg		111	66 - 130	2	20
n-Butylbenzene			50.0	53.6		ug/Kg		107	70 - 128	1	20
1,1,1-Trichloroethane			50.0	57.3		ug/Kg		115	73 - 130	12	20
N-Propylbenzene			50.0	53.5		ug/Kg		107	73 - 125	3	20
1,1,2-Trichloroethane			50.0	55.0		ug/Kg		110	78 - 121	3	20
sec-Butylbenzene			50.0	55.8		ug/Kg		112	73 - 126	0	20
Styrene			50.0	57.8		ug/Kg		116	76 - 124	5	20
1,2,4-Trichlorobenzene			50.0	57.7		ug/Kg		115	67 - 129	0	20
tert-Butylbenzene			50.0	54.4		ug/Kg		109	73 - 125	3	20
1,2,3-Trichloropropane			50.0	57.0		ug/Kg		114	73 - 125	0	20
Tetrachloroethene			50.0	51.0		ug/Kg		102	73 - 128	2	20
1,2,4-Trimethylbenzene			50.0	52.5		ug/Kg		105	75 - 123	1	20
Toluene			50.0	54.4		ug/Kg		109	77 - 121	6	20
1,3,5-Trimethylbenzene			50.0	54.7		ug/Kg		109	73 - 124	3	20
trans-1,2-Dichloroethene			50.0	56.8		ug/Kg		114	74 - 125	6	20
trans-1,3-Dichloropropene			50.0	61.0		ug/Kg		122	71 - 130	6	20
o-Xylene			50.0	58.4		ug/Kg		117	77 - 123	7	20
Trichloroethene			50.0	54.3		ug/Kg		109	77 - 123	6	20
m-Xylene & p-Xylene			50.0	55.4		ug/Kg		111	77 - 124	5	20
Trichlorofluoromethane			50.0	56.1		ug/Kg		112	62 - 140	13	20
Vinyl chloride			50.0	55.3		ug/Kg		111	56 - 135	15	20
2-Chlorotoluene			50.0	55.9		ug/Kg		112	75 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/05/18 20:31	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/05/18 20:31	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/05/18 20:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/05/18 20:31	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/05/18 20:31	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/05/18 20:31	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/05/18 20:31	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/05/18 20:31	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/05/18 20:31	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/05/18 20:31	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/05/18 20:31	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/05/18 20:31	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/05/18 20:31	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/05/18 20:31	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/05/18 20:31	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Methylene Chloride	0.472	J	5.0	0.80	0.32	ug/L		11/05/18 20:31	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/05/18 20:31	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/05/18 20:31	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/05/18 20:31	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/05/18 20:31	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/05/18 20:31	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/05/18 20:31	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*89 - 112*		*11/05/18 20:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*81 - 118*		*11/05/18 20:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*11/05/18 20:31*	*1*
Dibromofluoromethane (Surr)	*117*		*80 - 119*		*11/05/18 20:31*	*1*

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.32		ug/L		106	62 - 128
2-Butanone (MEK)	20.0	19.8		ug/L		99	56 - 143
1,2-Dichlorobenzene	5.00	4.78		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.76		ug/L		95	80 - 119
4-Chlorotoluene	5.00	4.73		ug/L		95	78 - 122
1,4-Dichlorobenzene	5.00	4.77		ug/L		95	79 - 118
1,1-Dichloroethane	5.00	5.94		ug/L		119	77 - 125
1,2-Dichloroethane	5.00	5.76		ug/L		115	73 - 128
Acetone	20.0	21.7		ug/L		109	39 - 160
1,1-Dichloroethene	5.00	5.75		ug/L		115	71 - 131
Benzene	5.00	5.78		ug/L		116	79 - 120
Bromobenzene	5.00	4.73		ug/L		95	80 - 120
Bromoform	5.00	4.53		ug/L		91	66 - 130
Bromomethane	5.00	5.83		ug/L		117	53 - 141
1,2-Dichloropropane	5.00	6.33	Q	ug/L		127	78 - 122
Carbon disulfide	5.00	5.55		ug/L		111	64 - 133
1,3-Dichloropropane	5.00	5.33		ug/L		107	80 - 119
Carbon tetrachloride	5.00	5.49		ug/L		110	72 - 136
2,2-Dichloropropane	5.00	5.33		ug/L		107	60 - 139
Chlorobenzene	5.00	5.05		ug/L		101	82 - 118
1,1-Dichloropropene	5.00	5.64		ug/L		113	79 - 125
Bromochloromethane	5.00	5.80		ug/L		116	78 - 123
Dibromochloromethane	5.00	4.80		ug/L		96	74 - 126
Chloroethane	5.00	5.89		ug/L		118	60 - 138
Chloroform	5.00	5.86		ug/L		117	79 - 124
2-Hexanone	20.0	20.2		ug/L		101	57 - 139
Chloromethane	5.00	5.09		ug/L		102	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.87		ug/L		117	78 - 123
cis-1,3-Dichloropropene	5.00	5.10		ug/L		102	75 - 124
4-Isopropyltoluene	5.00	4.80		ug/L		96	77 - 127
Dibromomethane	5.00	5.72		ug/L		114	79 - 123
Bromodichloromethane	5.00	5.77		ug/L		115	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130
Dichlorodifluoromethane	5.00	4.58		ug/L		92	32 - 152
Ethylbenzene	5.00	4.91		ug/L		98	79 - 121
Ethylene Dibromide	5.00	5.26		ug/L		105	77 - 121
Hexachlorobutadiene	5.00	4.55		ug/L		91	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.14		ug/L		103	78 - 124
Methyl tert-butyl ether	5.00	5.51		ug/L		110	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.24		ug/L		105	71 - 121
Methylene Chloride	5.00	5.74		ug/L		115	74 - 124
Naphthalene	5.00	4.95		ug/L		99	61 - 128
1,2,3-Trichlorobenzene	5.00	5.04		ug/L		101	69 - 129
n-Butylbenzene	5.00	4.74		ug/L		95	75 - 128
1,1,1-Trichloroethane	5.00	5.58		ug/L		112	74 - 131
N-Propylbenzene	5.00	4.84		ug/L		97	76 - 126
1,1,2-Trichloroethane	5.00	6.24	Q	ug/L		125	80 - 119
sec-Butylbenzene	5.00	4.80		ug/L		96	77 - 126
Styrene	5.00	5.06		ug/L		101	78 - 123
1,2,4-Trichlorobenzene	5.00	4.71		ug/L		94	69 - 130
tert-Butylbenzene	5.00	4.79		ug/L		96	78 - 124
1,2,3-Trichloropropane	5.00	5.19		ug/L		104	73 - 122
Tetrachloroethene	5.00	4.89		ug/L		98	74 - 129
1,2,4-Trimethylbenzene	5.00	4.70		ug/L		94	76 - 124
Toluene	5.00	5.95		ug/L		119	80 - 121
1,3,5-Trimethylbenzene	5.00	4.65		ug/L		93	75 - 124
trans-1,2-Dichloroethene	5.00	5.83		ug/L		117	75 - 124
trans-1,3-Dichloropropene	5.00	5.19		ug/L		104	73 - 127
o-Xylene	5.00	5.18		ug/L		104	78 - 122
Trichloroethene	5.00	5.57		ug/L		111	79 - 123
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	80 - 121
Trichlorofluoromethane	5.00	5.38		ug/L		108	65 - 141
Vinyl chloride	5.00	5.50		ug/L		110	58 - 137
2-Chlorotoluene	5.00	4.82		ug/L		96	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*89*		*85 - 114*
Dibromofluoromethane (Surr)	*114*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	4.76	J	ug/L		95	62 - 128	11	20
2-Butanone (MEK)	20.0	18.2		ug/L		91	56 - 143	8	20
1,2-Dichlorobenzene	5.00	4.99		ug/L		100	80 - 119	4	20
1,3-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119	2	20
4-Chlorotoluene	5.00	5.04		ug/L		101	78 - 122	7	20
1,4-Dichlorobenzene	5.00	4.97		ug/L		99	79 - 118	4	20
1,1-Dichloroethane	5.00	5.93		ug/L		119	77 - 125	0	20
1,2-Dichloroethane	5.00	5.83		ug/L		117	73 - 128	1	20
Acetone	20.0	21.9		ug/L		109	39 - 160	1	20
1,1-Dichloroethene	5.00	5.98		ug/L		120	71 - 131	4	20
Benzene	5.00	5.93		ug/L		119	79 - 120	2	20
Bromobenzene	5.00	4.94		ug/L		99	80 - 120	4	20
Bromoform	5.00	5.06		ug/L		101	66 - 130	11	20
Bromomethane	5.00	6.15		ug/L		123	53 - 141	5	20
1,2-Dichloropropane	5.00	6.20	Q	ug/L		124	78 - 122	2	20
Carbon disulfide	5.00	5.83		ug/L		117	64 - 133	5	20
1,3-Dichloropropane	5.00	5.19		ug/L		104	80 - 119	3	20
Carbon tetrachloride	5.00	5.52		ug/L		110	72 - 136	1	20
2,2-Dichloropropane	5.00	5.23		ug/L		105	60 - 139	2	20
Chlorobenzene	5.00	5.07		ug/L		101	82 - 118	0	20
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125	1	20
Bromochloromethane	5.00	6.03		ug/L		121	78 - 123	4	20
Dibromochloromethane	5.00	4.73		ug/L		95	74 - 126	2	20
Chloroethane	5.00	6.16		ug/L		123	60 - 138	5	20
Chloroform	5.00	5.82		ug/L		116	79 - 124	1	20
2-Hexanone	20.0	18.6		ug/L		93	57 - 139	8	20
Chloromethane	5.00	5.32		ug/L		106	50 - 139	4	20
cis-1,2-Dichloroethene	5.00	5.70		ug/L		114	78 - 123	3	20
cis-1,3-Dichloropropene	5.00	5.17		ug/L		103	75 - 124	1	20
4-Isopropyltoluene	5.00	4.97		ug/L		99	77 - 127	3	20
Dibromomethane	5.00	5.92		ug/L		118	79 - 123	4	20
Bromodichloromethane	5.00	5.88		ug/L		118	79 - 125	2	20
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130	0	20
Dichlorodifluoromethane	5.00	5.32		ug/L		106	32 - 152	15	20
Ethylbenzene	5.00	5.01		ug/L		100	79 - 121	2	20
Ethylene Dibromide	5.00	5.32		ug/L		106	77 - 121	1	20
Hexachlorobutadiene	5.00	4.68		ug/L		94	66 - 134	3	20
Isopropylbenzene	5.00	4.84		ug/L		97	72 - 131	2	20
1,1,1,2-Tetrachloroethane	5.00	5.17		ug/L		103	78 - 124	1	20
Methyl tert-butyl ether	5.00	5.59		ug/L		112	71 - 124	1	20
1,1,2,2-Tetrachloroethane	5.00	5.24		ug/L		105	71 - 121	0	20
Methylene Chloride	5.00	5.57		ug/L		111	74 - 124	3	20
Naphthalene	5.00	4.75		ug/L		95	61 - 128	4	20
1,2,3-Trichlorobenzene	5.00	5.20		ug/L		104	69 - 129	3	20
n-Butylbenzene	5.00	4.96		ug/L		99	75 - 128	5	20
1,1,1-Trichloroethane	5.00	5.65		ug/L		113	74 - 131	1	20
N-Propylbenzene	5.00	4.95		ug/L		99	76 - 126	2	20
1,1,2-Trichloroethane	5.00	6.21	Q	ug/L		124	80 - 119	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene	5.00	5.02		ug/L		100	77 - 126	4	20
Styrene	5.00	4.97		ug/L		99	78 - 123	2	20
1,2,4-Trichlorobenzene	5.00	4.74		ug/L		95	69 - 130	1	20
tert-Butylbenzene	5.00	4.83		ug/L		97	78 - 124	1	20
1,2,3-Trichloropropane	5.00	5.12		ug/L		102	73 - 122	1	20
Tetrachloroethene	5.00	5.05		ug/L		101	74 - 129	3	20
1,2,4-Trimethylbenzene	5.00	4.83		ug/L		97	76 - 124	3	20
Toluene	5.00	5.88		ug/L		118	80 - 121	1	20
1,3,5-Trimethylbenzene	5.00	4.88		ug/L		98	75 - 124	5	20
trans-1,2-Dichloroethene	5.00	5.96		ug/L		119	75 - 124	2	20
trans-1,3-Dichloropropene	5.00	5.16		ug/L		103	73 - 127	0	20
o-Xylene	5.00	5.15		ug/L		103	78 - 122	1	20
Trichloroethene	5.00	5.62		ug/L		112	79 - 123	1	20
m-Xylene & p-Xylene	5.00	5.16		ug/L		103	80 - 121	1	20
Trichlorofluoromethane	5.00	5.82		ug/L		116	65 - 141	8	20
Vinyl chloride	5.00	5.68		ug/L		114	58 - 137	3	20
2-Chlorotoluene	5.00	4.92		ug/L		98	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*
4-Bromofluorobenzene (Surr)	*91*		*85 - 114*
Dibromofluoromethane (Surr)	*116*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435210/31
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/28/18 00:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*10/28/18 00:35*	*1*

Lab Sample ID: MB 280-435210/5
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/27/18 14:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*82 - 110*		*10/27/18 14:06*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-435210/3
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	89.8	M	ug/L		89	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*87*		*82 - 110*

Lab Sample ID: LCS 280-435210/58
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	82.1		ug/L		81	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*107*		*82 - 110*

Lab Sample ID: MB 280-436090/14-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436090

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/05/18 00:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*11/02/18 15:14*	*11/05/18 00:43*	*1*

Lab Sample ID: LCS 280-436090/2-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	4.52		mg/Kg		82	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/01/18 21:10	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	106		55 - 130	10/29/18 14:26	11/01/18 21:10	1

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.874		ug/Kg		100	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	110		55 - 130

Lab Sample ID: LCSD 280-435369/3-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.855		ug/Kg		98	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	109		55 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-434808/1-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434808

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.37	J	7.4	3.7	1.3	mg/Kg		10/26/18 16:08	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg		10/26/18 16:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	83		45 - 130	10/24/18 20:26	10/26/18 16:08	1
n-Octacosane	73		25 - 162	10/24/18 20:26	10/26/18 16:08	1

Lab Sample ID: LCS 280-434808/2-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			123	90.1		mg/Kg		73	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	80		45 - 130
n-Octacosane	70		25 - 162

Lab Sample ID: LCS 280-434808/3-A
Matrix: Solid
Analysis Batch: 435068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434808

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			313	268		mg/Kg		85	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*87*		*45 - 130*
n-Octacosane	*84*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-115956-3 DU
Matrix: Solid
Analysis Batch: 435892

Client Sample ID: P-S5-211018-417
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	2.6			2.6		%				0.7	20

GC/MS VOA

Analysis Batch: 436014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-2	V-S5-211018-417	Total/NA	Solid	8260B	436099
MB 280-436099/1-A	Method Blank	Total/NA	Solid	8260B	436099
LCS 280-436099/2-A	Lab Control Sample	Total/NA	Solid	8260B	436099
LCSD 280-436099/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	436099

Prep Batch: 436099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-2	V-S5-211018-417	Total/NA	Solid	5035	
MB 280-436099/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436099/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-436099/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 436409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-1	TB-S5-221018-01	Total/NA	Water	8260B	
MB 280-436409/4	Method Blank	Total/NA	Water	8260B	
LCS 280-436409/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-436409/6	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-1	TB-S5-221018-01	Total/NA	Water	8015D GRO	
MB 280-435210/31	Method Blank	Total/NA	Water	8015D GRO	
MB 280-435210/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435210/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCS 280-435210/58	Lab Control Sample	Total/NA	Water	8015D GRO	

Prep Batch: 436090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-3	P-S5-211018-417	Total/NA	Solid	5035	
MB 280-436090/14-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 436343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-3	P-S5-211018-417	Total/NA	Solid	8015D GRO	436090
MB 280-436090/14-A	Method Blank	Total/NA	Solid	8015D GRO	436090
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	436090

GC Semi VOA

Prep Batch: 434808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-3	P-S5-211018-417	Total/NA	Solid	3546	
MB 280-434808/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Analysis Batch: 435068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-3	P-S5-211018-417	Total/NA	Solid	8015D DRO	434808
MB 280-434808/1-A	Method Blank	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808
LCS 280-434808/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	434808

Prep Batch: 435369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-2	V-S5-211018-417	Total/NA	Solid	8011	
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 435949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-2	V-S5-211018-417	Total/NA	Solid	8011	435369
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369

General Chemistry

Analysis Batch: 435772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-2	V-S5-211018-417	Total/NA	Solid	Moisture	

Analysis Batch: 435892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-115956-3	P-S5-211018-417	Total/NA	Solid	Moisture	
280-115956-3 DU	P-S5-211018-417	Total/NA	Solid	Moisture	

Client Sample ID: TB-S5-221018-01

Lab Sample ID: 280-115956-1

Date Collected: 10/22/18 15:30

Matrix: Water

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436409	11/06/18 04:36	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/28/18 10:33	GPM	TAL DEN

Client Sample ID: V-S5-211018-417

Lab Sample ID: 280-115956-2

Date Collected: 10/21/18 17:12

Matrix: Solid

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435772	10/31/18 16:11	LMD	TAL DEN

Client Sample ID: V-S5-211018-417

Lab Sample ID: 280-115956-2

Date Collected: 10/21/18 17:12

Matrix: Solid

Date Received: 10/23/18 08:50

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.448 g	5 mL	436099	10/21/18 17:12	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436014	11/02/18 18:17	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/01/18 23:26	MJS	TAL DEN

Client Sample ID: P-S5-211018-417

Lab Sample ID: 280-115956-3

Date Collected: 10/21/18 17:12

Matrix: Solid

Date Received: 10/23/18 08:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435892	11/01/18 12:40	LMD	TAL DEN

Client Sample ID: P-S5-211018-417

Lab Sample ID: 280-115956-3

Date Collected: 10/21/18 17:12

Matrix: Solid

Date Received: 10/23/18 08:50

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.807 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	436343	11/06/18 02:21	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	434808	10/24/18 20:26	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			435068	10/26/18 21:33	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-115956-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443377927715	COC No: COC 1-55-TA-20181022
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-55-221018-01	10/22/18	1530	G	W	N	N	—	—	—	—	—	X	—	—	X	—	
V-55-211018-417	10/21/18	1712	G	S	N	N	X	X	X	X	X	—	—	—	—	—	
P-55-211018-417	10/21/18	1712	G	S	N	N	X	X	X	X	X	—	—	—	—	—	

280-115956 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Kevin McKeage	22OCT18 1830	EA		10/23/18 0850	
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1.3, 2.4°C IR-9 CF +0.7

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-115956-1

Login Number: 115956
List Number: 1
Creator: Rhoades, Joseph P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116044-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/4/2018 1:45:19 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

General Chemistry

Qualifier	Qualifier Description
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116044-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology
Project: Kirtland BFF Vadose Zone Coring
Report Number: 280-116044-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/24/2018; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.9º C and 3.3º C.

One 125mL plastic bottle for soil for sample ID V-S5-231018-467 was noted as empty at receipt. Container was intact and sealed.

2 x 40mL VOA vials were submitted for sample TB-S5-231018-02 (280-116044-6). One was analyzed for GRO; however, the vial that was logged for VOCs 8260B was found broken in the box. As instructed by the client, the VOCs analysis was cancelled since the other vial had already been analyzed for GRO.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS) - Solid

Samples V-S5-231018-467 (280-116044-2), V-S5-231058-467 (280-116044-4), V-S5-231018-491 (280-116044-7) and V-S5-231018-506 (280-116044-9) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260B. The samples were prepared on 10/23/2018 and analyzed on 11/05/2018 and 11/06/2018.

Sample V-S5-231018-491 (280-116044-7)[10X] required dilution prior to analysis. Associated results have been flagged "D". The reporting limits have been adjusted accordingly.

Acetone was detected in method blank MB 280-436362/1-A at a level exceeding the limit of quantitation. Acetone was detected in samples V-S5-231018-467 (280-116044-2), V-S5-231058-467 (280-116044-4), V-S5-231018-506 (280-116044-9) greater than the LOD but less than the LOQ.

Job ID: 280-116044-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

1,1-Dichloroethene exceeded the RPD limit for LCSD 280-436362/3-A. Associated results have been flagged "Q". The individual recoveries of both the LCS and LCSD met the acceptance criteria.

1,2-Dibromo-3-Chloropropane and Chloroethane exceeded the RPD limit for LCSD 280-436482/3-A. Associated results have been flagged "Q". The individual recoveries of both the LCS and LCSD met the acceptance criteria.

Toluene-d8 (Surr) failed the surrogate recovery criteria high for V-S5-231018-491 (280-116044-7). Associated results have been flagged "Q". This sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC) - Water

Sample TB-S5-231018-01 (280-116044-1) was analyzed for volatile organic compounds (GC) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/06/2018.

Methylene Chloride was detected in method blank MB 280-436409/4 at a level that was above the detection limit but below ½ the limit of quantitation (LOQ). The value should be considered an estimate, and has been flagged.

1,1,2-Trichloroethane and 1,2-Dichloropropane failed the recovery criteria high for LCS 280-436409/5 and LCSD 280-436409/6. All associated results have been flagged "Q". These analytes were biased high in the LCS and LCSD and were not detected in the associated samples; therefore, the data have been reported.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for TB-S5-231018-01 (280-116044-1). All associated results have been flagged "Q". Only one vial was provided for analysis and the only analyte associated with this surrogate was methylene chloride, therefore, re-analysis was not able to be performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GAS RANGE ORGANICS - Solid

Samples P-S5-231018-467 (280-116044-3), P-S5-231058-467 (280-116044-5), P-S5-231018-491 (280-116044-8) and P-S5-231018-506 (280-116044-10) were analyzed for gas range organics in accordance with 8015D GRO. The samples were prepared on 11/02/2018 and analyzed on 11/06/2018.

Sample P-S5-231018-491 (280-116044-8)[20X] required dilution prior to analysis. Associated results have been flagged "D". The reporting limits have been adjusted accordingly.

Gasoline Range Organics (GRO)-C6-C10 exceeded the RPD limit for the MSD of sample P-S5-231018-467 (280-116044-3) in batch 280-436343. Associated results have been flagged "J1". The individual recoveries of both the MS and MSD met the acceptance criteria.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria low for P-S5-231058-467 (280-116044-5). Re-extraction and re-analysis was performed with concurring results, indicating matrix interference. The re-analyses is reported because the original analyses also had a contaminated method blank.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S5-231018-491 (280-116044-8). This sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Samples TB-S5-231018-01 (280-116044-1) and TB-S5-231018-02 (280-116044-6) were analyzed for gasoline range organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/31/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-116044-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

EDB AND DBCP

Samples V-S5-231018-467 (280-116044-2), V-S5-231058-467 (280-116044-4), V-S5-231018-491 (280-116044-7) and V-S5-231018-506 (280-116044-9) were analyzed for EDB and DBCP in accordance with EPA SW-846 Method 8011. The samples were prepared on 10/29/2018 and analyzed on 11/02/2018 and 11/07/2018.

Sample V-S5-231018-491 (280-116044-7)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

1,2-Dibromopropane failed the surrogate recovery criteria low for V-S5-231018-491 (280-116044-7). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples P-S5-231018-467 (280-116044-3), P-S5-231058-467 (280-116044-5), P-S5-231018-491 (280-116044-8) and P-S5-231018-506 (280-116044-10) were analyzed for diesel range organics in accordance with 8015DRO. The samples were prepared on 10/31/2018 and analyzed on 11/12/2018 and 11/14/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-435639/1-A at a level that was above the detection limit but below ½ the limit of quantitation (LOQ). The value should be considered an estimate, and has been flagged.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S5-231018-467 (280-116044-2), P-S5-231018-467 (280-116044-3), V-S5-231058-467 (280-116044-4), P-S5-231058-467 (280-116044-5), V-S5-231018-491 (280-116044-7), P-S5-231018-491 (280-116044-8), V-S5-231018-506 (280-116044-9) and P-S5-231018-506 (280-116044-10) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 10/30/2018.

Percent Moisture exceeded the RPD limit for the duplicate of sample P-S5-231018-491DU (280-116044-8). The sample may not be homogeneous.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Client Sample ID: TB-S5-231018-01 — Lab Sample ID: 280-116044-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.79	J Q	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	17	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S5-231018-467 — Lab Sample ID: 280-116044-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	20	J B	21	14	5.7	ug/Kg	1	☼	8260B	Total/NA
Toluene	0.94	J	5.3	1.7	0.73	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S5-231018-467 — Lab Sample ID: 280-116044-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.6	J	7.5	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S5-231058-467 — Lab Sample ID: 280-116044-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	4.2	J	21	6.8	1.9	ug/Kg	1	☼	8260B	Total/NA
Acetone	18	J B	21	14	5.7	ug/Kg	1	☼	8260B	Total/NA
Benzene	0.60	J	5.3	1.7	0.50	ug/Kg	1	☼	8260B	Total/NA
Toluene	2.1	J	5.3	1.7	0.73	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S5-231058-467 — Lab Sample ID: 280-116044-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.7	J	7.9	4.0	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: TB-S5-231018-02 — Lab Sample ID: 280-116044-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	24	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S5-231018-491 — Lab Sample ID: 280-116044-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone - DL	11000	J D	13000	11000	3400	ug/Kg	10	☼	8260B	Total/NA
Benzene - DL	2100	D	2100	1400	380	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene - DL	1600	J D	2100	680	270	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene - DL	1500	J D	2100	680	320	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene - DL	11000	D Q	2100	680	290	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene - DL	2100	D	2100	680	250	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene - DL	790	J D	2100	680	270	ug/Kg	10	☼	8260B	Total/NA
Naphthalene - DL	1600	J D	4200	680	320	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene - DL	3800	D	2100	1400	350	ug/Kg	10	☼	8260B	Total/NA
Toluene - DL	31000	D	2100	680	330	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene - DL	8700	D	2100	680	260	ug/Kg	10	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: V-S5-231018-491 (Continued) — Lab Sample ID: 280-116044-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trimethylbenzene - DL	3500	D	2100	680	330	ug/Kg	10	☼	8260B	Total/NA
o-Xylene - DL	8000	D Q	1100	680	300	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	23000	D Q	2100	1400	660	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	5.1	D M	2.3	0.86	0.34	ug/Kg	20	☼	8011	Total/NA

Client Sample ID: P-S5-231018-491 — Lab Sample ID: 280-116044-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	490	D Q	22	20	5.8	mg/Kg	20	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	440		9.1	4.6	1.6	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S5-231018-506 — Lab Sample ID: 280-116044-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	1.5	J	4.6	3.0	0.54	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	0.83	J	4.6	1.5	0.53	ug/Kg	1	☼	8260B	Total/NA
Acetone	16	J B	19	12	5.0	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	1.1	J	3.0	3.0	0.96	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	0.89	J	4.6	1.5	0.52	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	0.87	J	4.6	1.5	0.71	ug/Kg	1	☼	8260B	Total/NA
Toluene	1.5	J	4.6	1.5	0.64	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	0.13		0.12	0.044	0.017	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S5-231018-506 — Lab Sample ID: 280-116044-10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.5	J	1.7	1.5	0.45	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	5.3	J	8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116044-1	TB-S5-231018-01	Water	10/23/18 15:00	10/24/18 09:45
280-116044-2	V-S5-231018-467	Solid	10/23/18 08:40	10/24/18 09:45
280-116044-3	P-S5-231018-467	Solid	10/23/18 08:40	10/24/18 09:45
280-116044-4	V-S5-231058-467	Solid	10/23/18 08:40	10/24/18 09:45
280-116044-5	P-S5-231058-467	Solid	10/23/18 08:40	10/24/18 09:45
280-116044-6	TB-S5-231018-02	Water	10/23/18 16:00	10/24/18 09:45
280-116044-7	V-S5-231018-491	Solid	10/23/18 13:31	10/24/18 09:45
280-116044-8	P-S5-231018-491	Solid	10/23/18 13:31	10/24/18 09:45
280-116044-9	V-S5-231018-506	Solid	10/23/18 16:45	10/24/18 09:45
280-116044-10	P-S5-231018-506	Solid	10/23/18 16:45	10/24/18 09:45

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S5-231018-01
Date Collected: 10/23/18 15:00
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M Q	10	6.4	1.9	ug/L		11/06/18 04:54	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
Bromochloromethane	0.20	U Q	1.0	0.20	0.10	ug/L		11/06/18 04:54	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/06/18 04:54	1
Bromomethane	0.80	U Q	2.0	0.80	0.21	ug/L		11/06/18 04:54	1
2-Butanone (MEK)	4.0	U Q	6.0	4.0	2.0	ug/L		11/06/18 04:54	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/06/18 04:54	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Carbon disulfide	1.6	U Q	2.0	1.6	0.45	ug/L		11/06/18 04:54	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/06/18 04:54	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
Chloroethane	1.6	U Q	2.0	1.6	0.41	ug/L		11/06/18 04:54	1
Chloroform	0.40	U Q	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Chloromethane	0.80	U Q	2.0	0.80	0.30	ug/L		11/06/18 04:54	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/06/18 04:54	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/06/18 04:54	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		11/06/18 04:54	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/06/18 04:54	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/06/18 04:54	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/06/18 04:54	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
1,1-Dichloroethane	0.80	U Q	1.0	0.80	0.22	ug/L		11/06/18 04:54	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/06/18 04:54	1
1,1-Dichloroethene	0.80	U Q	1.0	0.80	0.23	ug/L		11/06/18 04:54	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/06/18 04:54	1
cis-1,2-Dichloroethene	0.40	U Q	1.0	0.40	0.15	ug/L		11/06/18 04:54	1
trans-1,2-Dichloroethene	0.40	U Q	1.0	0.40	0.15	ug/L		11/06/18 04:54	1
1,2-Dichloropropane	0.40	U Q	1.0	0.40	0.18	ug/L		11/06/18 04:54	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/06/18 04:54	1
2,2-Dichloropropane	0.40	U Q	1.0	0.40	0.18	ug/L		11/06/18 04:54	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/06/18 04:54	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/06/18 04:54	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/06/18 04:54	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/06/18 04:54	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/06/18 04:54	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/06/18 04:54	1
Methylene Chloride	**0.79**	**J Q**	5.0	0.80	0.32	ug/L		11/06/18 04:54	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/06/18 04:54	1
Methyl tert-butyl ether	0.80	U Q	5.0	0.80	0.25	ug/L		11/06/18 04:54	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/06/18 04:54	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S5-231018-01
Date Collected: 10/23/18 15:00
Date Received: 10/24/18 09:45
Lab Sample ID: 280-116044-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/06/18 04:54	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/06/18 04:54	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/06/18 04:54	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/06/18 04:54	1
1,1,1-Trichloroethane	0.40	U Q	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		11/06/18 04:54	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Trichlorofluoromethane	0.80	U Q	2.0	0.80	0.29	ug/L		11/06/18 04:54	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/06/18 04:54	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/06/18 04:54	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/06/18 04:54	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/06/18 04:54	1
Vinyl chloride	0.20	U Q	1.5	0.20	0.10	ug/L		11/06/18 04:54	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/06/18 04:54	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/06/18 04:54	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/06/18 04:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*89 - 112*		*11/06/18 04:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*		*11/06/18 04:54*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*11/06/18 04:54*	*1*
Dibromofluoromethane (Surr)	*122*	*Q*	*80 - 119*		*11/06/18 04:54*	*1*

Client Sample ID: V-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45
Lab Sample ID: 280-116044-2
Matrix: Solid
Percent Solids: 95.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.3	1.7	0.60	ug/Kg	☼	11/05/18 15:44	1
1,1,1-Trichloroethane	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/05/18 15:44	1
1,1,2,2-Tetrachloroethane	1.7	U M	5.3	1.7	0.65	ug/Kg	☼	11/05/18 15:44	1
1,1,2-Trichloroethane	3.4	U	5.3	3.4	0.94	ug/Kg	☼	11/05/18 15:44	1
1,1-Dichloroethane	0.85	U	5.3	0.85	0.22	ug/Kg	☼	11/05/18 15:44	1
1,1-Dichloroethene	1.7	U Q	5.3	1.7	0.63	ug/Kg	☼	11/05/18 15:44	1
1,1-Dichloropropene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/05/18 15:44	1
1,2,3-Trichlorobenzene	1.7	U	5.3	1.7	0.80	ug/Kg	☼	11/05/18 15:44	1
1,2,3-Trichloropropane	3.4	U	5.3	3.4	0.86	ug/Kg	☼	11/05/18 15:44	1
1,2,4-Trichlorobenzene	1.7	U	5.3	1.7	0.78	ug/Kg	☼	11/05/18 15:44	1
1,2,4-Trimethylbenzene	3.4	U	5.3	3.4	0.62	ug/Kg	☼	11/05/18 15:44	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.64	ug/Kg	☼	11/05/18 15:44	1
1,2-Dichlorobenzene	1.7	U	5.3	1.7	0.48	ug/Kg	☼	11/05/18 15:44	1
1,2-Dichloroethane	1.7	U	5.3	1.7	0.74	ug/Kg	☼	11/05/18 15:44	1
1,2-Dichloroethene, Total	1.7	U	5.3	1.7	0.42	ug/Kg	☼	11/05/18 15:44	1
1,2-Dichloropropane	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/05/18 15:44	1
1,3,5-Trimethylbenzene	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/05/18 15:44	1
1,3-Dichlorobenzene	1.7	U	5.3	1.7	0.51	ug/Kg	☼	11/05/18 15:44	1
1,3-Dichloropropane	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/05/18 15:44	1
1,4-Dichlorobenzene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/05/18 15:44	1
2,2-Dichloropropane	1.7	U	5.3	1.7	0.47	ug/Kg	☼	11/05/18 15:44	1
2-Butanone (MEK)	6.8	U M	21	6.8	1.9	ug/Kg	☼	11/05/18 15:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-2
Matrix: Solid
Percent Solids: 95.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/05/18 15:44	1
2-Hexanone	14	U	21	14	5.2	ug/Kg	☼	11/05/18 15:44	1
4-Chlorotoluene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/05/18 15:44	1
4-Isopropyltoluene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/05/18 15:44	1
4-Methyl-2-pentanone (MIBK)	14	U	21	14	4.6	ug/Kg	☼	11/05/18 15:44	1
Acetone	**20**	**J B**	21	14	5.7	ug/Kg	☼	11/05/18 15:44	1
Benzene	1.7	U	5.3	1.7	0.50	ug/Kg	☼	11/05/18 15:44	1
Bromobenzene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/05/18 15:44	1
Bromoform	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/05/18 15:44	1
Bromomethane	1.7	U	11	1.7	0.53	ug/Kg	☼	11/05/18 15:44	1
Carbon disulfide	1.7	U	5.3	1.7	0.45	ug/Kg	☼	11/05/18 15:44	1
Carbon tetrachloride	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 15:44	1
Chlorobenzene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/05/18 15:44	1
Bromochloromethane	0.85	U	5.3	0.85	0.32	ug/Kg	☼	11/05/18 15:44	1
Dibromochloromethane	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/05/18 15:44	1
Chloroethane	3.4	U	11	3.4	0.95	ug/Kg	☼	11/05/18 15:44	1
Chloroform	0.85	U	11	0.85	0.31	ug/Kg	☼	11/05/18 15:44	1
Chloromethane	1.7	U	11	1.7	0.82	ug/Kg	☼	11/05/18 15:44	1
cis-1,2-Dichloroethene	1.7	U M	5.3	1.7	0.60	ug/Kg	☼	11/05/18 15:44	1
cis-1,3-Dichloropropene	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/05/18 15:44	1
Dibromomethane	3.4	U	5.3	3.4	0.89	ug/Kg	☼	11/05/18 15:44	1
Bromodichloromethane	0.85	U	5.3	0.85	0.23	ug/Kg	☼	11/05/18 15:44	1
Dichlorodifluoromethane	1.7	U	11	1.7	0.55	ug/Kg	☼	11/05/18 15:44	1
Ethylbenzene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/05/18 15:44	1
Ethylene Dibromide	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/05/18 15:44	1
Hexachlorobutadiene	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/05/18 15:44	1
Isopropylbenzene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/05/18 15:44	1
Methyl tert-butyl ether	0.85	U	21	0.85	0.36	ug/Kg	☼	11/05/18 15:44	1
Methylene Chloride	3.4	U	5.3	3.4	1.7	ug/Kg	☼	11/05/18 15:44	1
m-Xylene & p-Xylene	3.4	U	3.4	3.4	1.1	ug/Kg	☼	11/05/18 15:44	1
Naphthalene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 15:44	1
n-Butylbenzene	1.7	U	5.3	1.7	0.60	ug/Kg	☼	11/05/18 15:44	1
N-Propylbenzene	1.7	U	5.3	1.7	0.62	ug/Kg	☼	11/05/18 15:44	1
o-Xylene	1.7	U	5.3	1.7	0.65	ug/Kg	☼	11/05/18 15:44	1
sec-Butylbenzene	1.7	U	5.3	1.7	0.82	ug/Kg	☼	11/05/18 15:44	1
Styrene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 15:44	1
tert-Butylbenzene	1.7	U	5.3	1.7	0.53	ug/Kg	☼	11/05/18 15:44	1
Tetrachloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/05/18 15:44	1
Toluene	**0.94**	**J**	5.3	1.7	0.73	ug/Kg	☼	11/05/18 15:44	1
trans-1,2-Dichloroethene	0.85	U	5.3	0.85	0.42	ug/Kg	☼	11/05/18 15:44	1
trans-1,3-Dichloropropene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/05/18 15:44	1
Trichloroethene	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/05/18 15:44	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	11/05/18 15:44	1
Vinyl chloride	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/05/18 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*10/23/18 08:40*	*11/05/18 15:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*	*10/23/18 08:40*	*11/05/18 15:44*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*10/23/18 08:40*	*11/05/18 15:44*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*10/23/18 08:40*	*11/05/18 15:44*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Client Sample ID: V-S5-231058-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-4
Matrix: Solid
Percent Solids: 95.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/05/18 16:45	1
1,1,1-Trichloroethane	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/05/18 16:45	1
1,1,2,2-Tetrachloroethane	1.7	U M	5.3	1.7	0.65	ug/Kg	☼	11/05/18 16:45	1
1,1,2-Trichloroethane	3.4	U	5.3	3.4	0.93	ug/Kg	☼	11/05/18 16:45	1
1,1-Dichloroethane	0.85	U	5.3	0.85	0.22	ug/Kg	☼	11/05/18 16:45	1
1,1-Dichloroethene	1.7	U Q	5.3	1.7	0.63	ug/Kg	☼	11/05/18 16:45	1
1,1-Dichloropropene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/05/18 16:45	1
1,2,3-Trichlorobenzene	1.7	U	5.3	1.7	0.80	ug/Kg	☼	11/05/18 16:45	1
1,2,3-Trichloropropane	3.4	U	5.3	3.4	0.86	ug/Kg	☼	11/05/18 16:45	1
1,2,4-Trichlorobenzene	1.7	U	5.3	1.7	0.77	ug/Kg	☼	11/05/18 16:45	1
1,2,4-Trimethylbenzene	3.4	U	5.3	3.4	0.62	ug/Kg	☼	11/05/18 16:45	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.64	ug/Kg	☼	11/05/18 16:45	1
1,2-Dichlorobenzene	1.7	U	5.3	1.7	0.48	ug/Kg	☼	11/05/18 16:45	1
1,2-Dichloroethane	1.7	U	5.3	1.7	0.74	ug/Kg	☼	11/05/18 16:45	1
1,2-Dichloroethene, Total	1.7	U	5.3	1.7	0.41	ug/Kg	☼	11/05/18 16:45	1
1,2-Dichloropropane	1.7	U	5.3	1.7	0.58	ug/Kg	☼	11/05/18 16:45	1
1,3,5-Trimethylbenzene	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/05/18 16:45	1
1,3-Dichlorobenzene	1.7	U	5.3	1.7	0.51	ug/Kg	☼	11/05/18 16:45	1
1,3-Dichloropropane	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/05/18 16:45	1
1,4-Dichlorobenzene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/05/18 16:45	1
2,2-Dichloropropane	1.7	U	5.3	1.7	0.47	ug/Kg	☼	11/05/18 16:45	1
2-Butanone (MEK)	**4.2**	**J**	21	6.8	1.9	ug/Kg	☼	11/05/18 16:45	1
2-Chlorotoluene	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/05/18 16:45	1
2-Hexanone	14	U	21	14	5.2	ug/Kg	☼	11/05/18 16:45	1
4-Chlorotoluene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/05/18 16:45	1
4-Isopropyltoluene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/05/18 16:45	1
4-Methyl-2-pentanone (MIBK)	14	U	21	14	4.6	ug/Kg	☼	11/05/18 16:45	1
Acetone	**18**	**J B**	21	14	5.7	ug/Kg	☼	11/05/18 16:45	1
Benzene	**0.60**	**J**	5.3	1.7	0.50	ug/Kg	☼	11/05/18 16:45	1
Bromobenzene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/05/18 16:45	1
Bromoform	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/05/18 16:45	1
Bromomethane	1.7	U	11	1.7	0.53	ug/Kg	☼	11/05/18 16:45	1
Carbon disulfide	1.7	U	5.3	1.7	0.45	ug/Kg	☼	11/05/18 16:45	1
Carbon tetrachloride	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 16:45	1
Chlorobenzene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/05/18 16:45	1
Bromochloromethane	0.85	U	5.3	0.85	0.32	ug/Kg	☼	11/05/18 16:45	1
Dibromochloromethane	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/05/18 16:45	1
Chloroethane	3.4	U	11	3.4	0.94	ug/Kg	☼	11/05/18 16:45	1
Chloroform	0.85	U	11	0.85	0.31	ug/Kg	☼	11/05/18 16:45	1
Chloromethane	1.7	U	11	1.7	0.82	ug/Kg	☼	11/05/18 16:45	1
cis-1,2-Dichloroethene	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/05/18 16:45	1
cis-1,3-Dichloropropene	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/05/18 16:45	1
Dibromomethane	3.4	U	5.3	3.4	0.89	ug/Kg	☼	11/05/18 16:45	1
Bromodichloromethane	0.85	U	5.3	0.85	0.23	ug/Kg	☼	11/05/18 16:45	1
Dichlorodifluoromethane	1.7	U	11	1.7	0.55	ug/Kg	☼	11/05/18 16:45	1
Ethylbenzene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/05/18 16:45	1
Ethylene Dibromide	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/05/18 16:45	1
Hexachlorobutadiene	1.7	U	5.3	1.7	0.58	ug/Kg	☼	11/05/18 16:45	1
Isopropylbenzene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/05/18 16:45	1
Methyl tert-butyl ether	0.85	U	21	0.85	0.36	ug/Kg	☼	11/05/18 16:45	1
Methylene Chloride	3.4	U	5.3	3.4	1.7	ug/Kg	☼	11/05/18 16:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S5-231058-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-4
Matrix: Solid
Percent Solids: 95.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	3.4	U	3.4	3.4	1.1	ug/Kg	☼	11/05/18 16:45	1
Naphthalene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 16:45	1
n-Butylbenzene	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/05/18 16:45	1
N-Propylbenzene	1.7	U	5.3	1.7	0.62	ug/Kg	☼	11/05/18 16:45	1
o-Xylene	1.7	U	5.3	1.7	0.65	ug/Kg	☼	11/05/18 16:45	1
sec-Butylbenzene	1.7	U	5.3	1.7	0.82	ug/Kg	☼	11/05/18 16:45	1
Styrene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/05/18 16:45	1
tert-Butylbenzene	1.7	U	5.3	1.7	0.53	ug/Kg	☼	11/05/18 16:45	1
Tetrachloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/05/18 16:45	1
Toluene	**2.1**	**J**	5.3	1.7	0.73	ug/Kg	☼	11/05/18 16:45	1
trans-1,2-Dichloroethene	0.85	U	5.3	0.85	0.41	ug/Kg	☼	11/05/18 16:45	1
trans-1,3-Dichloropropene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/05/18 16:45	1
Trichloroethene	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/05/18 16:45	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	11/05/18 16:45	1
Vinyl chloride	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/05/18 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*10/23/18 08:40*	*11/05/18 16:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*10/23/18 08:40*	*11/05/18 16:45*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*10/23/18 08:40*	*11/05/18 16:45*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*10/23/18 08:40*	*11/05/18 16:45*	*1*

Client Sample ID: V-S5-231018-506
Date Collected: 10/23/18 16:45
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-9
Matrix: Solid
Percent Solids: 86.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.5	U	4.6	1.5	0.52	ug/Kg	☼	11/05/18 17:05	1
1,1,1-Trichloroethane	1.5	U	4.6	1.5	0.48	ug/Kg	☼	11/05/18 17:05	1
1,1,2,2-Tetrachloroethane	1.5	U M	4.6	1.5	0.57	ug/Kg	☼	11/05/18 17:05	1
1,1,2-Trichloroethane	3.0	U M	4.6	3.0	0.82	ug/Kg	☼	11/05/18 17:05	1
1,1-Dichloroethane	0.74	U	4.6	0.74	0.19	ug/Kg	☼	11/05/18 17:05	1
1,1-Dichloroethene	1.5	U Q	4.6	1.5	0.55	ug/Kg	☼	11/05/18 17:05	1
1,1-Dichloropropene	1.5	U	4.6	1.5	0.50	ug/Kg	☼	11/05/18 17:05	1
1,2,3-Trichlorobenzene	1.5	U	4.6	1.5	0.70	ug/Kg	☼	11/05/18 17:05	1
1,2,3-Trichloropropane	3.0	U M	4.6	3.0	0.75	ug/Kg	☼	11/05/18 17:05	1
1,2,4-Trichlorobenzene	1.5	U	4.6	1.5	0.68	ug/Kg	☼	11/05/18 17:05	1
1,2,4-Trimethylbenzene	**1.5**	**J**	4.6	3.0	0.54	ug/Kg	☼	11/05/18 17:05	1
1,2-Dibromo-3-Chloropropane	1.5	U	9.3	1.5	0.56	ug/Kg	☼	11/05/18 17:05	1
1,2-Dichlorobenzene	1.5	U	4.6	1.5	0.42	ug/Kg	☼	11/05/18 17:05	1
1,2-Dichloroethane	1.5	U	4.6	1.5	0.65	ug/Kg	☼	11/05/18 17:05	1
1,2-Dichloroethene, Total	1.5	U	4.6	1.5	0.36	ug/Kg	☼	11/05/18 17:05	1
1,2-Dichloropropane	1.5	U M	4.6	1.5	0.51	ug/Kg	☼	11/05/18 17:05	1
1,3,5-Trimethylbenzene	**0.83**	**J**	4.6	1.5	0.53	ug/Kg	☼	11/05/18 17:05	1
1,3-Dichlorobenzene	1.5	U	4.6	1.5	0.44	ug/Kg	☼	11/05/18 17:05	1
1,3-Dichloropropane	1.5	U	4.6	1.5	0.47	ug/Kg	☼	11/05/18 17:05	1
1,4-Dichlorobenzene	1.5	U	4.6	1.5	0.72	ug/Kg	☼	11/05/18 17:05	1
2,2-Dichloropropane	1.5	U	4.6	1.5	0.41	ug/Kg	☼	11/05/18 17:05	1
2-Butanone (MEK)	5.9	U M	19	5.9	1.7	ug/Kg	☼	11/05/18 17:05	1
2-Chlorotoluene	1.5	U	4.6	1.5	0.47	ug/Kg	☼	11/05/18 17:05	1
2-Hexanone	12	U M	19	12	4.5	ug/Kg	☼	11/05/18 17:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S5-231018-506
Date Collected: 10/23/18 16:45
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-9
Matrix: Solid
Percent Solids: 86.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Chlorotoluene	1.5	U	4.6	1.5	0.72	ug/Kg	☼	11/05/18 17:05	1
4-Isopropyltoluene	1.5	U M	4.6	1.5	0.45	ug/Kg	☼	11/05/18 17:05	1
4-Methyl-2-pentanone (MIBK)	12	U M	19	12	4.0	ug/Kg	☼	11/05/18 17:05	1
Acetone	**16**	**J B**	19	12	5.0	ug/Kg	☼	11/05/18 17:05	1
Benzene	1.5	U	4.6	1.5	0.44	ug/Kg	☼	11/05/18 17:05	1
Bromobenzene	1.5	U	4.6	1.5	0.45	ug/Kg	☼	11/05/18 17:05	1
Bromoform	0.74	U	4.6	0.74	0.21	ug/Kg	☼	11/05/18 17:05	1
Bromomethane	1.5	U	9.3	1.5	0.46	ug/Kg	☼	11/05/18 17:05	1
Carbon disulfide	1.5	U M	4.6	1.5	0.39	ug/Kg	☼	11/05/18 17:05	1
Carbon tetrachloride	1.5	U	4.6	1.5	0.58	ug/Kg	☼	11/05/18 17:05	1
Chlorobenzene	1.5	U	4.6	1.5	0.50	ug/Kg	☼	11/05/18 17:05	1
Bromochloromethane	0.74	U	4.6	0.74	0.28	ug/Kg	☼	11/05/18 17:05	1
Dibromochloromethane	1.5	U	4.6	1.5	0.53	ug/Kg	☼	11/05/18 17:05	1
Chloroethane	3.0	U	9.3	3.0	0.82	ug/Kg	☼	11/05/18 17:05	1
Chloroform	0.74	U	9.3	0.74	0.27	ug/Kg	☼	11/05/18 17:05	1
Chloromethane	1.5	U	9.3	1.5	0.71	ug/Kg	☼	11/05/18 17:05	1
cis-1,2-Dichloroethene	1.5	U	4.6	1.5	0.52	ug/Kg	☼	11/05/18 17:05	1
cis-1,3-Dichloropropene	3.0	U	4.6	3.0	1.2	ug/Kg	☼	11/05/18 17:05	1
Dibromomethane	3.0	U	4.6	3.0	0.78	ug/Kg	☼	11/05/18 17:05	1
Bromodichloromethane	0.74	U M	4.6	0.74	0.20	ug/Kg	☼	11/05/18 17:05	1
Dichlorodifluoromethane	1.5	U	9.3	1.5	0.48	ug/Kg	☼	11/05/18 17:05	1
Ethylbenzene	1.5	U	4.6	1.5	0.62	ug/Kg	☼	11/05/18 17:05	1
Ethylene Dibromide	1.5	U	4.6	1.5	0.48	ug/Kg	☼	11/05/18 17:05	1
Hexachlorobutadiene	1.5	U	4.6	1.5	0.51	ug/Kg	☼	11/05/18 17:05	1
Isopropylbenzene	1.5	U	4.6	1.5	0.55	ug/Kg	☼	11/05/18 17:05	1
Methyl tert-butyl ether	0.74	U	19	0.74	0.32	ug/Kg	☼	11/05/18 17:05	1
Methylene Chloride	3.0	U	4.6	3.0	1.5	ug/Kg	☼	11/05/18 17:05	1
m-Xylene & p-Xylene	**1.1**	**J**	3.0	3.0	0.96	ug/Kg	☼	11/05/18 17:05	1
Naphthalene	1.5	U	4.6	1.5	0.58	ug/Kg	☼	11/05/18 17:05	1
n-Butylbenzene	**0.89**	**J**	4.6	1.5	0.52	ug/Kg	☼	11/05/18 17:05	1
N-Propylbenzene	1.5	U	4.6	1.5	0.54	ug/Kg	☼	11/05/18 17:05	1
o-Xylene	1.5	U	4.6	1.5	0.57	ug/Kg	☼	11/05/18 17:05	1
sec-Butylbenzene	**0.87**	**J**	4.6	1.5	0.71	ug/Kg	☼	11/05/18 17:05	1
Styrene	1.5	U	4.6	1.5	0.58	ug/Kg	☼	11/05/18 17:05	1
tert-Butylbenzene	1.5	U	4.6	1.5	0.46	ug/Kg	☼	11/05/18 17:05	1
Tetrachloroethene	1.5	U	4.6	1.5	0.55	ug/Kg	☼	11/05/18 17:05	1
Toluene	**1.5**	**J**	4.6	1.5	0.64	ug/Kg	☼	11/05/18 17:05	1
trans-1,2-Dichloroethene	0.74	U	4.6	0.74	0.36	ug/Kg	☼	11/05/18 17:05	1
trans-1,3-Dichloropropene	1.5	U	4.6	1.5	0.62	ug/Kg	☼	11/05/18 17:05	1
Trichloroethene	0.74	U	4.6	0.74	0.21	ug/Kg	☼	11/05/18 17:05	1
Trichlorofluoromethane	3.0	U	9.3	3.0	0.96	ug/Kg	☼	11/05/18 17:05	1
Vinyl chloride	3.0	U	4.6	3.0	1.2	ug/Kg	☼	11/05/18 17:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*10/23/18 16:45*	*11/05/18 17:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*10/23/18 16:45*	*11/05/18 17:05*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*10/23/18 16:45*	*11/05/18 17:05*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*10/23/18 16:45*	*11/05/18 17:05*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S5-231018-491
Date Collected: 10/23/18 13:31
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-7
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**11000**	**J D**	13000	11000	3400	ug/Kg	☼	11/06/18 15:12	10
Benzene	**2100**	**D**	2100	1400	380	ug/Kg	☼	11/06/18 15:12	10
Bromobenzene	340	U	2100	340	160	ug/Kg	☼	11/06/18 15:12	10
Bromochloromethane	1400	U	2100	1400	400	ug/Kg	☼	11/06/18 15:12	10
Bromodichloromethane	680	U M	2100	680	340	ug/Kg	☼	11/06/18 15:12	10
Bromoform	1400	U Q	2100	1400	1400	ug/Kg	☼	11/06/18 15:12	10
Bromomethane	1400	U	4200	1400	370	ug/Kg	☼	11/06/18 15:12	10
2-Butanone (MEK)	5400	U	8500	5400	2500	ug/Kg	☼	11/06/18 15:12	10
n-Butylbenzene	**1600**	**J D**	2100	680	270	ug/Kg	☼	11/06/18 15:12	10
sec-Butylbenzene	**1500**	**J D**	2100	680	320	ug/Kg	☼	11/06/18 15:12	10
tert-Butylbenzene	680	U M	2100	680	240	ug/Kg	☼	11/06/18 15:12	10
Carbon disulfide	1400	U M	2100	1400	540	ug/Kg	☼	11/06/18 15:12	10
Carbon tetrachloride	340	U	2100	340	140	ug/Kg	☼	11/06/18 15:12	10
Chlorobenzene	680	U Q	2100	680	250	ug/Kg	☼	11/06/18 15:12	10
Chloroethane	1400	U Q	4200	1400	370	ug/Kg	☼	11/06/18 15:12	10
Chloroform	1400	U	2100	1400	390	ug/Kg	☼	11/06/18 15:12	10
Chloromethane	1400	U	4200	1400	420	ug/Kg	☼	11/06/18 15:12	10
4-Chlorotoluene	680	U M	2100	680	200	ug/Kg	☼	11/06/18 15:12	10
Dibromochloromethane	680	U Q	2100	680	280	ug/Kg	☼	11/06/18 15:12	10
1,2-Dibromo-3-Chloropropane	2700	U Q	4200	2700	730	ug/Kg	☼	11/06/18 15:12	10
Dichlorodifluoromethane	680	U	4200	680	190	ug/Kg	☼	11/06/18 15:12	10
Dibromomethane	680	U	2100	680	250	ug/Kg	☼	11/06/18 15:12	10
Ethylene Dibromide	680	U Q	2100	680	210	ug/Kg	☼	11/06/18 15:12	10
1,2-Dichlorobenzene	2700	U	4200	2700	800	ug/Kg	☼	11/06/18 15:12	10
1,3-Dichlorobenzene	1400	U M	2100	1400	350	ug/Kg	☼	11/06/18 15:12	10
1,4-Dichlorobenzene	680	U M	2100	680	210	ug/Kg	☼	11/06/18 15:12	10
1,1-Dichloroethane	1400	U	2100	1400	430	ug/Kg	☼	11/06/18 15:12	10
1,2-Dichloroethane	680	U M	2100	680	210	ug/Kg	☼	11/06/18 15:12	10
1,1-Dichloroethene	1400	U	2100	1400	430	ug/Kg	☼	11/06/18 15:12	10
1,2-Dichloroethene, Total	680	U	1100	680	190	ug/Kg	☼	11/06/18 15:12	10
cis-1,2-Dichloroethene	680	U	1100	680	190	ug/Kg	☼	11/06/18 15:12	10
trans-1,2-Dichloroethene	1400	U	2100	1400	380	ug/Kg	☼	11/06/18 15:12	10
1,2-Dichloropropane	1400	U M	2100	1400	390	ug/Kg	☼	11/06/18 15:12	10
1,3-Dichloropropane	680	U Q	2100	680	240	ug/Kg	☼	11/06/18 15:12	10
2,2-Dichloropropane	680	U	2100	680	230	ug/Kg	☼	11/06/18 15:12	10
1,1-Dichloropropene	1400	U	2100	1400	410	ug/Kg	☼	11/06/18 15:12	10
cis-1,3-Dichloropropene	680	U	2100	680	230	ug/Kg	☼	11/06/18 15:12	10
trans-1,3-Dichloropropene	1400	U	2100	1400	350	ug/Kg	☼	11/06/18 15:12	10
Ethylbenzene	**11000**	**D Q**	2100	680	290	ug/Kg	☼	11/06/18 15:12	10
2-Hexanone	5400	U M Q	8500	5400	1800	ug/Kg	☼	11/06/18 15:12	10
Hexachlorobutadiene	1400	U	2100	1400	420	ug/Kg	☼	11/06/18 15:12	10
Isopropylbenzene	**2100**	**D**	2100	680	250	ug/Kg	☼	11/06/18 15:12	10
4-Isopropyltoluene	**790**	**J D**	2100	680	270	ug/Kg	☼	11/06/18 15:12	10
Methylene Chloride	1400	U M	2100	1400	590	ug/Kg	☼	11/06/18 15:12	10
4-Methyl-2-pentanone (MIBK)	5400	U M	8500	5400	1900	ug/Kg	☼	11/06/18 15:12	10
Methyl tert-butyl ether	1400	U	2100	1400	420	ug/Kg	☼	11/06/18 15:12	10
Naphthalene	**1600**	**J D**	4200	680	320	ug/Kg	☼	11/06/18 15:12	10
N-Propylbenzene	**3800**	**D**	2100	1400	350	ug/Kg	☼	11/06/18 15:12	10
Styrene	680	U M Q	2100	680	220	ug/Kg	☼	11/06/18 15:12	10

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: V-S5-231018-491 — **Lab Sample ID: 280-116044-7**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	680	U Q	2100	680	180	ug/Kg	☼	11/06/18 15:12	10
1,1,2,2-Tetrachloroethane	680	U M	2100	680	250	ug/Kg	☼	11/06/18 15:12	10
Tetrachloroethene	680	U Q	2100	680	230	ug/Kg	☼	11/06/18 15:12	10
Toluene	**31000**	**D**	2100	680	330	ug/Kg	☼	11/06/18 15:12	10
1,2,3-Trichlorobenzene	680	U M	2100	680	300	ug/Kg	☼	11/06/18 15:12	10
1,1,1-Trichloroethane	340	U	2100	340	170	ug/Kg	☼	11/06/18 15:12	10
1,1,2-Trichloroethane	680	U M	2100	680	230	ug/Kg	☼	11/06/18 15:12	10
Trichloroethene	680	U	2100	680	200	ug/Kg	☼	11/06/18 15:12	10
Trichlorofluoromethane	1400	U	4200	1400	420	ug/Kg	☼	11/06/18 15:12	10
1,2,4-Trichlorobenzene	1400	U	2100	1400	400	ug/Kg	☼	11/06/18 15:12	10
1,2,3-Trichloropropane	1400	U M	2100	1400	400	ug/Kg	☼	11/06/18 15:12	10
1,2,4-Trimethylbenzene	**8700**	**D**	2100	680	260	ug/Kg	☼	11/06/18 15:12	10
1,3,5-Trimethylbenzene	**3500**	**D**	2100	680	330	ug/Kg	☼	11/06/18 15:12	10
Vinyl chloride	680	U	4200	680	230	ug/Kg	☼	11/06/18 15:12	10
o-Xylene	**8000**	**D Q**	1100	680	300	ug/Kg	☼	11/06/18 15:12	10
m-Xylene & p-Xylene	**23000**	**D Q**	2100	1400	660	ug/Kg	☼	11/06/18 15:12	10
2-Chlorotoluene	680	U M	2100	680	220	ug/Kg	☼	11/06/18 15:12	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*132*	*Q D*	*85 - 116*	*10/23/18 13:31*	*11/06/18 15:12*	*10*
1,2-Dichloroethane-d4 (Surr)	*96*	*D*	*71 - 136*	*10/23/18 13:31*	*11/06/18 15:12*	*10*
4-Bromofluorobenzene (Surr)	*104*	*D*	*79 - 119*	*10/23/18 13:31*	*11/06/18 15:12*	*10*
Dibromofluoromethane (Surr)	*84*	*D*	*78 - 119*	*10/23/18 13:31*	*11/06/18 15:12*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S5-231018-01 — **Lab Sample ID: 280-116044-1**
Date Collected: 10/23/18 15:00 — **Matrix: Water**
Date Received: 10/24/18 09:45

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**17**	**J**	25	25	10	ug/L		10/31/18 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*82 - 110*		*10/31/18 22:17*	*1*

Client Sample ID: P-S5-231018-467 — **Lab Sample ID: 280-116044-3**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.6	U J1	1.7	1.6	0.46	mg/Kg	☼	11/06/18 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*	*11/02/18 13:20*	*11/06/18 02:45*	*1*

Client Sample ID: P-S5-231058-467 — **Lab Sample ID: 280-116044-5**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U Q	1.4	1.3	0.39	mg/Kg	☼	11/06/18 03:58	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	70	Q	77 - 123	11/02/18 13:20	11/06/18 03:58	1

Client Sample ID: TB-S5-231018-02 — **Lab Sample ID: 280-116044-6**
Date Collected: 10/23/18 16:00 — **Matrix: Water**
Date Received: 10/24/18 09:45

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	24	J	25	25	10	ug/L		10/31/18 22:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	107		82 - 110		10/31/18 22:42	1

Client Sample ID: P-S5-231018-491 — **Lab Sample ID: 280-116044-8**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 81.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	490	D Q	22	20	5.8	mg/Kg	☼	11/06/18 04:22	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	2493	Q	77 - 123	11/02/18 13:20	11/06/18 04:22	20

Client Sample ID: P-S5-231018-506 — **Lab Sample ID: 280-116044-10**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 91.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	1.5	J	1.7	1.5	0.45	mg/Kg	☼	11/06/18 04:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	119		77 - 123	11/02/18 13:20	11/06/18 04:46	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S5-231018-467 — **Lab Sample ID: 280-116044-2**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.016	ug/Kg	☼	11/02/18 01:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	114		55 - 130	10/29/18 14:26	11/02/18 01:43	1

Client Sample ID: V-S5-231058-467 — **Lab Sample ID: 280-116044-4**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 95.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	11/02/18 02:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	111		55 - 130	10/29/18 14:26	11/02/18 02:41	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S5-231018-491 — **Lab Sample ID: 280-116044-7**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	5.1	D M	2.3	0.86	0.34	ug/Kg	☼	11/07/18 17:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*	*10/29/18 14:26*	*11/07/18 17:28*	*20*

Client Sample ID: V-S5-231018-506 — **Lab Sample ID: 280-116044-9**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 86.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.13		0.12	0.044	0.017	ug/Kg	☼	11/02/18 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*109*	*M*	*55 - 130*	*10/29/18 14:26*	*11/02/18 03:20*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S5-231018-467 — **Lab Sample ID: 280-116044-3**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	5.6	J	7.5	3.8	1.3	mg/Kg	☼	11/12/18 18:32	1
Motor Oil (C20-C38)	22	U	23	22	7.3	mg/Kg	☼	11/12/18 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*45 - 130*	*10/31/18 08:39*	*11/12/18 18:32*	*1*
n-Octacosane	*91*		*25 - 162*	*10/31/18 08:39*	*11/12/18 18:32*	*1*

Client Sample ID: P-S5-231058-467 — **Lab Sample ID: 280-116044-5**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.7	J	7.9	4.0	1.3	mg/Kg	☼	11/14/18 22:36	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	11/14/18 22:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*45 - 130*	*10/31/18 08:39*	*11/14/18 22:36*	*1*
n-Octacosane	*82*		*25 - 162*	*10/31/18 08:39*	*11/14/18 22:36*	*1*

Client Sample ID: P-S5-231018-491 — **Lab Sample ID: 280-116044-8**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 81.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	440		9.1	4.6	1.6	mg/Kg	☼	11/14/18 22:58	1
Motor Oil (C20-C38)	27	U	27	27	8.9	mg/Kg	☼	11/14/18 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*10/31/18 08:39*	*11/14/18 22:58*	*1*
n-Octacosane	*80*		*25 - 162*	*10/31/18 08:39*	*11/14/18 22:58*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S5-231018-506 — **Lab Sample ID: 280-116044-10**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 91.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	5.3	J	8.0	4.0	1.4	mg/Kg	☼	11/14/18 23:20	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	11/14/18 23:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*10/31/18 08:39*	*11/14/18 23:20*	*1*
n-Octacosane	*85*		*25 - 162*	*10/31/18 08:39*	*11/14/18 23:20*	*1*

General Chemistry

Client Sample ID: V-S5-231018-467 — **Lab Sample ID: 280-116044-2**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.1		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: P-S5-231018-467 — **Lab Sample ID: 280-116044-3**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.8		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: V-S5-231058-467 — **Lab Sample ID: 280-116044-4**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 95.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.2		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: P-S5-231058-467 — **Lab Sample ID: 280-116044-5**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.7		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: V-S5-231018-491 — **Lab Sample ID: 280-116044-7**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.9		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: P-S5-231018-491 — **Lab Sample ID: 280-116044-8**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 81.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	18.3		0.1	0.05	0.1	%		10/30/18 15:57	1

Client Sample ID: V-S5-231018-506 — **Lab Sample ID: 280-116044-9**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 86.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.9		0.1	0.05	0.1	%		10/30/18 15:57	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

General Chemistry

Client Sample ID: P-S5-231018-506
Date Collected: 10/23/18 16:45
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-10
Matrix: Solid
Percent Solids: 91.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.7**		0.1	0.05	0.1	%		10/30/18 15:57	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-116044-2	V-S5-231018-467	103	98	97	103
280-116044-2 MS	V-S5-231018-467	101	91	95	100
280-116044-2 MSD	V-S5-231018-467	104	96	100	103
280-116044-4	V-S5-231058-467	103	96	100	103
280-116044-7 - DL	V-S5-231018-491	132 Q D	96 D	104 D	84 D
280-116044-9	V-S5-231018-506	104	95	94	102
LCS 280-436362/2-A	Lab Control Sample	101	92	101	98
LCS 280-436482/2-A	Lab Control Sample	99	113	91	110
LCSD 280-436362/3-A	Lab Control Sample Dup	104	94	99	100
LCSD 280-436482/3-A	Lab Control Sample Dup	96	107	93	108
MB 280-436362/1-A	Method Blank	101	95	98	98
MB 280-436482/1-A	Method Blank	97	106	92	103

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116044-1	TB-S5-231018-01	105	117	97	122 Q
LCS 280-436409/5	Lab Control Sample	100	115	89	114
LCSD 280-436409/6	Lab Control Sample Dup	100	117	91	116
MB 280-436409/4	Method Blank	106	114	100	117

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116044-3	P-S5-231018-467	88
280-116044-3 MS	P-S5-231018-467	97
280-116044-3 MSD	P-S5-231018-467	89
280-116044-5	P-S5-231058-467	70 Q
280-116044-8	P-S5-231018-491	2493 Q
280-116044-10	P-S5-231018-506	119
LCS 280-436090/2-A	Lab Control Sample	88
MB 280-436090/14-A	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-116044-1	TB-S5-231018-01	108
280-116044-6	TB-S5-231018-02	107
LCS 280-435717/3	Lab Control Sample	86
MB 280-435717/5	Method Blank	91

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-116044-2	V-S5-231018-467	114
280-116044-2 MS	V-S5-231018-467	111
280-116044-2 MSD	V-S5-231018-467	110
280-116044-4	V-S5-231058-467	111
280-116044-7	V-S5-231018-491	0 Q M D
280-116044-9	V-S5-231018-506	109 M
LCS 280-435369/2-A	Lab Control Sample	90 M
LCS 280-435369/2-A	Lab Control Sample	110
LCSD 280-435369/3-A	Lab Control Sample Dup	99
LCSD 280-435369/3-A	Lab Control Sample Dup	109
MB 280-435369/4-A	Method Blank	101
MB 280-435369/4-A	Method Blank	106

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-116044-3	P-S5-231018-467	71	91
280-116044-3 MS	P-S5-231018-467	67	84
280-116044-3 MS	P-S5-231018-467	85	100
280-116044-3 MSD	P-S5-231018-467	75	89
280-116044-3 MSD	P-S5-231018-467	80	97
280-116044-5	P-S5-231058-467	74	82
280-116044-8	P-S5-231018-491	69	80
280-116044-10	P-S5-231018-506	69	85
LCS 280-435639/2-A	Lab Control Sample	71	91
LCS 280-435639/3-A	Lab Control Sample	74	90

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
MB 280-435639/1-A	Method Blank	69	85								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436362/1-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436362

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/05/18 10:53	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/05/18 10:53	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/05/18 10:53	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/05/18 10:53	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/05/18 10:53	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/05/18 10:53	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/05/18 10:53	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/05/18 10:53	1
Acetone	24.3		20	13	5.4	ug/Kg		11/05/18 10:53	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/05/18 10:53	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/05/18 10:53	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/05/18 10:53	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/05/18 10:53	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/05/18 10:53	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/05/18 10:53	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/05/18 10:53	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/05/18 10:53	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/05/18 10:53	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/05/18 10:53	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/05/18 10:53	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/05/18 10:53	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/05/18 10:53	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/05/18 10:53	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/05/18 10:53	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/05/18 10:53	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/05/18 10:53	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		11/05/18 10:53	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/05/18 10:53	1
cis-1,2-Dichloroethene	1.6	U M	5.0	1.6	0.56	ug/Kg		11/05/18 10:53	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/05/18 10:53	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/05/18 10:53	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/05/18 10:53	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/05/18 10:53	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/05/18 10:53	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/05/18 10:53	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/05/18 10:53	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/05/18 10:53	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/05/18 10:53	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/05/18 10:53	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/05/18 10:53	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/05/18 10:53	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/05/18 10:53	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/05/18 10:53	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/05/18 10:53	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/05/18 10:53	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/05/18 10:53	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/05/18 10:53	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/05/18 10:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436362/1-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436362

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/05/18 10:53	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/05/18 10:53	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/05/18 10:53	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/05/18 10:53	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/05/18 10:53	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/05/18 10:53	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/05/18 10:53	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/05/18 10:53	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/05/18 10:53	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/05/18 10:53	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/05/18 10:53	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/05/18 10:53	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/05/18 10:53	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/05/18 10:53	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/05/18 10:53	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/05/18 10:53	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/05/18 10:53	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/05/18 10:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/05/18 07:00*	*11/05/18 10:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/05/18 07:00*	*11/05/18 10:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*11/05/18 07:00*	*11/05/18 10:53*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 119*	*11/05/18 07:00*	*11/05/18 10:53*	*1*

Lab Sample ID: LCS 280-436362/2-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	51.1		ug/Kg		102	61 - 132
2-Butanone (MEK)	200	230		ug/Kg		115	51 - 148
1,2-Dichlorobenzene	50.0	51.4		ug/Kg		103	78 - 121
1,3-Dichlorobenzene	50.0	52.9		ug/Kg		106	77 - 121
4-Chlorotoluene	50.0	56.0		ug/Kg		112	72 - 124
1,4-Dichlorobenzene	50.0	50.8		ug/Kg		102	75 - 120
1,1-Dichloroethane	50.0	52.2		ug/Kg		104	76 - 125
1,2-Dichloroethane	50.0	52.8		ug/Kg		106	73 - 128
Acetone	200	205		ug/Kg		103	36 - 164
1,1-Dichloroethene	50.0	46.2		ug/Kg		92	70 - 131
Benzene	50.0	52.4		ug/Kg		105	77 - 121
Bromobenzene	50.0	55.5		ug/Kg		111	78 - 121
Bromoform	50.0	56.0		ug/Kg		112	67 - 132
Bromomethane	50.0	53.0		ug/Kg		106	53 - 143
1,2-Dichloropropane	50.0	53.6		ug/Kg		107	76 - 123
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	53.3		ug/Kg		107	77 - 121
Carbon tetrachloride	50.0	49.1		ug/Kg		98	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436362/2-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	48.3		ug/Kg		97	67 - 133
Chlorobenzene	50.0	52.0		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	53.6		ug/Kg		107	76 - 125
Bromochloromethane	50.0	54.0		ug/Kg		108	78 - 125
Dibromochloromethane	50.0	56.6		ug/Kg		113	74 - 126
Chloroethane	50.0	44.3		ug/Kg		89	59 - 139
Chloroform	50.0	52.6		ug/Kg		105	78 - 123
2-Hexanone	200	224		ug/Kg		112	53 - 145
Chloromethane	50.0	47.2		ug/Kg		94	50 - 136
cis-1,2-Dichloroethene	50.0	54.7		ug/Kg		109	77 - 123
cis-1,3-Dichloropropene	50.0	60.5		ug/Kg		121	74 - 126
4-Isopropyltoluene	50.0	53.8		ug/Kg		108	73 - 127
Dibromomethane	50.0	52.3		ug/Kg		105	78 - 125
Bromodichloromethane	50.0	54.9		ug/Kg		110	75 - 127
4-Methyl-2-pentanone (MIBK)	200	222		ug/Kg		111	65 - 135
Dichlorodifluoromethane	50.0	47.1		ug/Kg		94	29 - 149
Ethylbenzene	50.0	54.4		ug/Kg		109	76 - 122
Ethylene Dibromide	50.0	53.8		ug/Kg		108	78 - 122
Hexachlorobutadiene	50.0	45.0		ug/Kg		90	61 - 135
Isopropylbenzene	50.0	54.5		ug/Kg		109	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.7		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	51.7		ug/Kg		103	73 - 125
1,1,2,2-Tetrachloroethane	50.0	53.3		ug/Kg		107	70 - 124
Methylene Chloride	50.0	51.9		ug/Kg		104	70 - 128
Naphthalene	50.0	55.8		ug/Kg		112	62 - 129
1,2,3-Trichlorobenzene	50.0	52.3		ug/Kg		105	66 - 130
n-Butylbenzene	50.0	51.5		ug/Kg		103	70 - 128
1,1,1-Trichloroethane	50.0	49.9		ug/Kg		100	73 - 130
N-Propylbenzene	50.0	54.6		ug/Kg		109	73 - 125
1,1,2-Trichloroethane	50.0	53.2		ug/Kg		106	78 - 121
sec-Butylbenzene	50.0	55.2		ug/Kg		110	73 - 126
Styrene	50.0	54.6		ug/Kg		109	76 - 124
1,2,4-Trichlorobenzene	50.0	54.4		ug/Kg		109	67 - 129
tert-Butylbenzene	50.0	53.7		ug/Kg		107	73 - 125
1,2,3-Trichloropropane	50.0	57.9		ug/Kg		116	73 - 125
Tetrachloroethene	50.0	52.2		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	53.2		ug/Kg		106	75 - 123
Toluene	50.0	53.0		ug/Kg		106	77 - 121
1,3,5-Trimethylbenzene	50.0	53.3		ug/Kg		107	73 - 124
trans-1,2-Dichloroethene	50.0	55.3		ug/Kg		111	74 - 125
trans-1,3-Dichloropropene	50.0	57.4		ug/Kg		115	71 - 130
o-Xylene	50.0	52.8		ug/Kg		106	77 - 123
Trichloroethene	50.0	53.7		ug/Kg		107	77 - 123
m-Xylene & p-Xylene	50.0	52.8		ug/Kg		106	77 - 124
Trichlorofluoromethane	50.0	45.3		ug/Kg		91	62 - 140
Vinyl chloride	50.0	47.1		ug/Kg		94	56 - 135
2-Chlorotoluene	50.0	56.4		ug/Kg		113	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436362/2-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436362

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*98*		*78 - 119*

Lab Sample ID: LCSD 280-436362/3-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436362

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	55.7		ug/Kg		111	61 - 132	9	20
2-Butanone (MEK)			200	237		ug/Kg		119	51 - 148	3	20
1,2-Dichlorobenzene			50.0	51.3		ug/Kg		103	78 - 121	0	20
1,3-Dichlorobenzene			50.0	52.2		ug/Kg		104	77 - 121	1	20
4-Chlorotoluene			50.0	53.5		ug/Kg		107	72 - 124	5	20
1,4-Dichlorobenzene			50.0	52.1		ug/Kg		104	75 - 120	2	20
1,1-Dichloroethane			50.0	51.1		ug/Kg		102	76 - 125	2	20
1,2-Dichloroethane			50.0	53.2		ug/Kg		106	73 - 128	1	20
Acetone			200	244		ug/Kg		122	36 - 164	17	20
1,1-Dichloroethene			50.0	58.9	Q	ug/Kg		118	70 - 131	24	20
Benzene			50.0	53.0		ug/Kg		106	77 - 121	1	20
Bromobenzene			50.0	54.0		ug/Kg		108	78 - 121	3	20
Bromoform			50.0	60.0		ug/Kg		120	67 - 132	7	20
Bromomethane			50.0	57.7		ug/Kg		115	53 - 143	9	20
1,2-Dichloropropane			50.0	54.2		ug/Kg		108	76 - 123	1	20
Carbon disulfide			50.0	57.3		ug/Kg		115	63 - 132	9	20
1,3-Dichloropropane			50.0	55.4		ug/Kg		111	77 - 121	4	20
Carbon tetrachloride			50.0	51.7		ug/Kg		103	70 - 135	5	20
2,2-Dichloropropane			50.0	51.9		ug/Kg		104	67 - 133	7	20
Chlorobenzene			50.0	52.6		ug/Kg		105	79 - 120	1	20
1,1-Dichloropropene			50.0	52.5		ug/Kg		105	76 - 125	2	20
Bromochloromethane			50.0	54.1		ug/Kg		108	78 - 125	0	20
Dibromochloromethane			50.0	58.9		ug/Kg		118	74 - 126	4	20
Chloroethane			50.0	50.5		ug/Kg		101	59 - 139	13	20
Chloroform			50.0	51.2		ug/Kg		102	78 - 123	3	20
2-Hexanone			200	234		ug/Kg		117	53 - 145	5	20
Chloromethane			50.0	52.6		ug/Kg		105	50 - 136	11	20
cis-1,2-Dichloroethene			50.0	53.5		ug/Kg		107	77 - 123	2	20
cis-1,3-Dichloropropene			50.0	62.1		ug/Kg		124	74 - 126	2	20
4-Isopropyltoluene			50.0	53.3		ug/Kg		107	73 - 127	1	20
Dibromomethane			50.0	53.2		ug/Kg		106	78 - 125	2	20
Bromodichloromethane			50.0	55.8		ug/Kg		112	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)			200	231		ug/Kg		116	65 - 135	4	20
Dichlorodifluoromethane			50.0	52.5		ug/Kg		105	29 - 149	11	20
Ethylbenzene			50.0	54.8		ug/Kg		110	76 - 122	1	20
Ethylene Dibromide			50.0	56.4		ug/Kg		113	78 - 122	5	20
Hexachlorobutadiene			50.0	50.0		ug/Kg		100	61 - 135	10	20
Isopropylbenzene			50.0	55.7		ug/Kg		111	68 - 134	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436362/3-A
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	54.9		ug/Kg		110	78 - 125	6	20
Methyl tert-butyl ether	50.0	55.9		ug/Kg		112	73 - 125	8	20
1,1,2,2-Tetrachloroethane	50.0	51.9		ug/Kg		104	70 - 124	3	20
Methylene Chloride	50.0	55.7		ug/Kg		111	70 - 128	7	20
Naphthalene	50.0	61.3		ug/Kg		123	62 - 129	9	20
1,2,3-Trichlorobenzene	50.0	56.7		ug/Kg		113	66 - 130	8	20
n-Butylbenzene	50.0	53.2		ug/Kg		106	70 - 128	3	20
1,1,1-Trichloroethane	50.0	52.9		ug/Kg		106	73 - 130	6	20
N-Propylbenzene	50.0	52.6		ug/Kg		105	73 - 125	4	20
1,1,2-Trichloroethane	50.0	55.7		ug/Kg		111	78 - 121	5	20
sec-Butylbenzene	50.0	56.5		ug/Kg		113	73 - 126	2	20
Styrene	50.0	56.4		ug/Kg		113	76 - 124	3	20
1,2,4-Trichlorobenzene	50.0	58.8		ug/Kg		118	67 - 129	8	20
tert-Butylbenzene	50.0	53.9		ug/Kg		108	73 - 125	0	20
1,2,3-Trichloropropane	50.0	57.7		ug/Kg		115	73 - 125	0	20
Tetrachloroethene	50.0	53.7		ug/Kg		107	73 - 128	3	20
1,2,4-Trimethylbenzene	50.0	52.0		ug/Kg		104	75 - 123	2	20
Toluene	50.0	53.3		ug/Kg		107	77 - 121	0	20
1,3,5-Trimethylbenzene	50.0	52.8		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene	50.0	54.7		ug/Kg		109	74 - 125	1	20
trans-1,3-Dichloropropene	50.0	58.5		ug/Kg		117	71 - 130	2	20
o-Xylene	50.0	56.7		ug/Kg		113	77 - 123	7	20
Trichloroethene	50.0	54.6		ug/Kg		109	77 - 123	2	20
m-Xylene & p-Xylene	50.0	54.7		ug/Kg		109	77 - 124	4	20
Trichlorofluoromethane	50.0	51.4		ug/Kg		103	62 - 140	13	20
Vinyl chloride	50.0	51.6		ug/Kg		103	56 - 135	9	20
2-Chlorotoluene	50.0	54.4		ug/Kg		109	75 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: 280-116044-2 MS
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: V-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	1.7	U	47.1	49.9		ug/Kg		106	78 - 125
1,1,1-Trichloroethane	1.7	U	47.1	46.3		ug/Kg		98	73 - 130
1,1,2,2-Tetrachloroethane	1.7	U M	47.1	49.3		ug/Kg		105	70 - 124
1,1,2-Trichloroethane	3.4	U	47.1	49.5		ug/Kg		105	78 - 121
1,1-Dichloroethane	0.85	U	47.1	47.1		ug/Kg		100	76 - 125
1,1-Dichloroethene	1.7	U Q	47.1	49.4		ug/Kg		105	70 - 131
1,1-Dichloropropene	1.7	U	47.1	45.2		ug/Kg		96	76 - 125
1,2,3-Trichlorobenzene	1.7	U	47.1	49.5		ug/Kg		105	66 - 130
1,2,3-Trichloropropane	3.4	U	47.1	50.9		ug/Kg		108	73 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116044-2 MS
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: V-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	1.7	U	47.1	50.6		ug/Kg		107	67 - 129
1,2,4-Trimethylbenzene	3.4	U	47.1	46.2		ug/Kg		98	75 - 123
1,2-Dibromo-3-Chloropropane	1.7	U	47.1	52.9		ug/Kg		113	61 - 132
1,2-Dichlorobenzene	1.7	U	47.1	47.0		ug/Kg		100	78 - 121
1,2-Dichloroethane	1.7	U	47.1	48.1		ug/Kg		102	73 - 128
1,2-Dichloropropane	1.7	U	47.1	48.3		ug/Kg		103	76 - 123
1,3,5-Trimethylbenzene	1.7	U	47.1	46.6		ug/Kg		99	73 - 124
1,3-Dichlorobenzene	1.7	U	47.1	45.8		ug/Kg		97	77 - 121
1,3-Dichloropropane	1.7	U	47.1	48.7		ug/Kg		104	77 - 121
1,4-Dichlorobenzene	1.7	U	47.1	45.1		ug/Kg		96	75 - 120
2,2-Dichloropropane	1.7	U	47.1	44.0		ug/Kg		93	67 - 133
2-Butanone (MEK)	6.8	U M	188	212		ug/Kg		113	51 - 148
2-Chlorotoluene	1.7	U	47.1	48.7		ug/Kg		103	75 - 122
2-Hexanone	14	U	188	211		ug/Kg		112	53 - 145
4-Chlorotoluene	1.7	U	47.1	48.2		ug/Kg		102	72 - 124
4-Isopropyltoluene	1.7	U	47.1	47.5		ug/Kg		101	73 - 127
4-Methyl-2-pentanone (MIBK)	14	U	188	211		ug/Kg		112	65 - 135
Acetone	20	J B	188	203		ug/Kg		97	36 - 164
Benzene	1.7	U	47.1	47.1		ug/Kg		100	77 - 121
Bromobenzene	1.7	U	47.1	47.7		ug/Kg		101	78 - 121
Bromoform	0.85	U	47.1	55.0		ug/Kg		117	67 - 132
Bromomethane	1.7	U	47.1	49.8		ug/Kg		106	53 - 143
Carbon disulfide	1.7	U	47.1	49.9		ug/Kg		106	63 - 132
Carbon tetrachloride	1.7	U	47.1	46.4		ug/Kg		99	70 - 135
Chlorobenzene	1.7	U	47.1	46.8		ug/Kg		99	79 - 120
Bromochloromethane	0.85	U	47.1	51.4		ug/Kg		109	78 - 125
Dibromochloromethane	1.7	U	47.1	52.8		ug/Kg		112	74 - 126
Chloroethane	3.4	U	47.1	45.1		ug/Kg		96	59 - 139
Chloroform	0.85	U	47.1	47.9		ug/Kg		102	78 - 123
Chloromethane	1.7	U	47.1	45.0		ug/Kg		96	50 - 136
cis-1,2-Dichloroethene	1.7	U M	47.1	50.3		ug/Kg		107	77 - 123
cis-1,3-Dichloropropene	3.4	U	47.1	54.1		ug/Kg		115	74 - 126
Dibromomethane	3.4	U	47.1	48.7		ug/Kg		103	78 - 125
Bromodichloromethane	0.85	U	47.1	50.6		ug/Kg		108	75 - 127
Dichlorodifluoromethane	1.7	U	47.1	39.1		ug/Kg		83	29 - 149
Ethylbenzene	1.7	U	47.1	47.8		ug/Kg		102	76 - 122
Ethylene Dibromide	1.7	U	47.1	51.4		ug/Kg		109	78 - 122
Hexachlorobutadiene	1.7	U	47.1	44.7		ug/Kg		95	61 - 135
Isopropylbenzene	1.7	U	47.1	46.3		ug/Kg		98	68 - 134
Methyl tert-butyl ether	0.85	U	47.1	51.1		ug/Kg		109	73 - 125
Methylene Chloride	3.4	U	47.1	50.7		ug/Kg		108	70 - 128
m-Xylene & p-Xylene	3.4	U	47.1	48.0		ug/Kg		102	77 - 124
Naphthalene	1.7	U	47.1	53.4		ug/Kg		113	62 - 129
n-Butylbenzene	1.7	U	47.1	46.2		ug/Kg		98	70 - 128
N-Propylbenzene	1.7	U	47.1	45.6		ug/Kg		97	73 - 125
o-Xylene	1.7	U	47.1	50.0		ug/Kg		106	77 - 123
sec-Butylbenzene	1.7	U	47.1	48.6		ug/Kg		103	73 - 126
Styrene	1.7	U	47.1	49.6		ug/Kg		105	76 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116044-2 MS
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: V-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butylbenzene	1.7	U	47.1	46.0		ug/Kg		98	73 - 125
Tetrachloroethene	1.7	U	47.1	44.4		ug/Kg		94	73 - 128
Toluene	0.94	J	47.1	48.7		ug/Kg		102	77 - 121
trans-1,2-Dichloroethene	0.85	U	47.1	50.3		ug/Kg		107	74 - 125
trans-1,3-Dichloropropene	1.7	U	47.1	53.4		ug/Kg		114	71 - 130
Trichloroethene	0.85	U	47.1	46.8		ug/Kg		100	77 - 123
Trichlorofluoromethane	3.4	U	47.1	42.6		ug/Kg		90	62 - 140
Vinyl chloride	3.4	U	47.1	43.4		ug/Kg		92	56 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: 280-116044-2 MSD
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: V-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	1.7	U	51.0	52.8		ug/Kg		104	78 - 125	6	20
1,1,1-Trichloroethane	1.7	U	51.0	50.4		ug/Kg		99	73 - 130	8	20
1,1,2,2-Tetrachloroethane	1.7	U M	51.0	51.8		ug/Kg		102	70 - 124	5	20
1,1,2-Trichloroethane	3.4	U	51.0	55.2		ug/Kg		108	78 - 121	11	20
1,1-Dichloroethane	0.85	U	51.0	50.7		ug/Kg		100	76 - 125	7	20
1,1-Dichloroethene	1.7	U Q	51.0	53.1		ug/Kg		104	70 - 131	7	20
1,1-Dichloropropene	1.7	U	51.0	50.0		ug/Kg		98	76 - 125	10	20
1,2,3-Trichlorobenzene	1.7	U	51.0	53.1		ug/Kg		104	66 - 130	7	20
1,2,3-Trichloropropane	3.4	U	51.0	57.3		ug/Kg		112	73 - 125	12	20
1,2,4-Trichlorobenzene	1.7	U	51.0	54.0		ug/Kg		106	67 - 129	7	20
1,2,4-Trimethylbenzene	3.4	U	51.0	50.2		ug/Kg		98	75 - 123	8	20
1,2-Dibromo-3-Chloropropane	1.7	U	51.0	56.5		ug/Kg		111	61 - 132	6	20
1,2-Dichlorobenzene	1.7	U	51.0	50.3		ug/Kg		99	78 - 121	7	20
1,2-Dichloroethane	1.7	U	51.0	52.7		ug/Kg		103	73 - 128	9	20
1,2-Dichloropropane	1.7	U	51.0	52.4		ug/Kg		103	76 - 123	8	20
1,3,5-Trimethylbenzene	1.7	U	51.0	50.5		ug/Kg		99	73 - 124	8	20
1,3-Dichlorobenzene	1.7	U	51.0	49.8		ug/Kg		98	77 - 121	8	20
1,3-Dichloropropane	1.7	U	51.0	52.8		ug/Kg		104	77 - 121	8	20
1,4-Dichlorobenzene	1.7	U	51.0	48.5		ug/Kg		95	75 - 120	7	20
2,2-Dichloropropane	1.7	U	51.0	47.8		ug/Kg		94	67 - 133	8	20
2-Butanone (MEK)	6.8	U M	204	235		ug/Kg		115	51 - 148	10	20
2-Chlorotoluene	1.7	U	51.0	52.4		ug/Kg		103	75 - 122	7	20
2-Hexanone	14	U	204	229		ug/Kg		112	53 - 145	8	20
4-Chlorotoluene	1.7	U	51.0	50.9		ug/Kg		100	72 - 124	6	20
4-Isopropyltoluene	1.7	U	51.0	50.6		ug/Kg		99	73 - 127	6	20
4-Methyl-2-pentanone (MIBK)	14	U	204	229		ug/Kg		112	65 - 135	8	20
Acetone	20	J B	204	222		ug/Kg		99	36 - 164	9	20
Benzene	1.7	U	51.0	52.1		ug/Kg		102	77 - 121	10	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116044-2 MSD
Matrix: Solid
Analysis Batch: 436293

Client Sample ID: V-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436362

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromobenzene	1.7	U	51.0	53.5		ug/Kg		105	78 - 121	11	20
Bromoform	0.85	U	51.0	59.9		ug/Kg		118	67 - 132	8	20
Bromomethane	1.7	U	51.0	48.8		ug/Kg		96	53 - 143	2	20
Carbon disulfide	1.7	U	51.0	51.2		ug/Kg		100	63 - 132	3	20
Carbon tetrachloride	1.7	U	51.0	49.4		ug/Kg		97	70 - 135	6	20
Chlorobenzene	1.7	U	51.0	50.7		ug/Kg		100	79 - 120	8	20
Bromochloromethane	0.85	U	51.0	55.8		ug/Kg		109	78 - 125	8	20
Dibromochloromethane	1.7	U	51.0	57.9		ug/Kg		114	74 - 126	9	20
Chloroethane	3.4	U	51.0	45.4		ug/Kg		89	59 - 139	1	20
Chloroform	0.85	U	51.0	51.2		ug/Kg		100	78 - 123	7	20
Chloromethane	1.7	U	51.0	38.7		ug/Kg		76	50 - 136	15	20
cis-1,2-Dichloroethene	1.7	U M	51.0	52.1		ug/Kg		102	77 - 123	3	20
cis-1,3-Dichloropropene	3.4	U	51.0	59.4		ug/Kg		116	74 - 126	9	20
Dibromomethane	3.4	U	51.0	52.6		ug/Kg		103	78 - 125	8	20
Bromodichloromethane	0.85	U	51.0	55.3		ug/Kg		108	75 - 127	9	20
Dichlorodifluoromethane	1.7	U	51.0	39.0		ug/Kg		77	29 - 149	0	20
Ethylbenzene	1.7	U	51.0	51.9		ug/Kg		102	76 - 122	8	20
Ethylene Dibromide	1.7	U	51.0	55.8		ug/Kg		110	78 - 122	8	20
Hexachlorobutadiene	1.7	U	51.0	48.0		ug/Kg		94	61 - 135	7	20
Isopropylbenzene	1.7	U	51.0	50.9		ug/Kg		100	68 - 134	9	20
Methyl tert-butyl ether	0.85	U	51.0	54.7		ug/Kg		107	73 - 125	7	20
Methylene Chloride	3.4	U	51.0	53.5		ug/Kg		105	70 - 128	5	20
m-Xylene & p-Xylene	3.4	U	51.0	51.6		ug/Kg		101	77 - 124	7	20
Naphthalene	1.7	U	51.0	58.4		ug/Kg		115	62 - 129	9	20
n-Butylbenzene	1.7	U	51.0	49.9		ug/Kg		98	70 - 128	8	20
N-Propylbenzene	1.7	U	51.0	50.6		ug/Kg		99	73 - 125	10	20
o-Xylene	1.7	U	51.0	54.9		ug/Kg		108	77 - 123	9	20
sec-Butylbenzene	1.7	U	51.0	51.7		ug/Kg		101	73 - 126	6	20
Styrene	1.7	U	51.0	54.3		ug/Kg		106	76 - 124	9	20
tert-Butylbenzene	1.7	U	51.0	51.6		ug/Kg		101	73 - 125	11	20
Tetrachloroethene	1.7	U	51.0	49.4		ug/Kg		97	73 - 128	11	20
Toluene	0.94	J	51.0	52.2		ug/Kg		101	77 - 121	7	20
trans-1,2-Dichloroethene	0.85	U	51.0	53.0		ug/Kg		104	74 - 125	5	20
trans-1,3-Dichloropropene	1.7	U	51.0	56.6		ug/Kg		111	71 - 130	6	20
Trichloroethene	0.85	U	51.0	51.7		ug/Kg		101	77 - 123	10	20
Trichlorofluoromethane	3.4	U	51.0	43.3		ug/Kg		85	62 - 140	2	20
Vinyl chloride	3.4	U	51.0	38.2		ug/Kg		75	56 - 135	13	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/05/18 20:31	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/05/18 20:31	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/05/18 20:31	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/05/18 20:31	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/05/18 20:31	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/05/18 20:31	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/05/18 20:31	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/05/18 20:31	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/05/18 20:31	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/05/18 20:31	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/05/18 20:31	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/05/18 20:31	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/05/18 20:31	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/05/18 20:31	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/05/18 20:31	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/05/18 20:31	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/05/18 20:31	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/05/18 20:31	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
Methylene Chloride	0.472	J	5.0	0.80	0.32	ug/L		11/05/18 20:31	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/05/18 20:31	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/05/18 20:31	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436409/4
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/05/18 20:31	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/05/18 20:31	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/05/18 20:31	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/05/18 20:31	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/05/18 20:31	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/05/18 20:31	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/05/18 20:31	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/05/18 20:31	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/05/18 20:31	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/05/18 20:31	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/05/18 20:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*89 - 112*		*11/05/18 20:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*81 - 118*		*11/05/18 20:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*11/05/18 20:31*	*1*
Dibromofluoromethane (Surr)	*117*		*80 - 119*		*11/05/18 20:31*	*1*

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.32		ug/L		106	62 - 128
2-Butanone (MEK)	20.0	19.8		ug/L		99	56 - 143
1,2-Dichlorobenzene	5.00	4.78		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.76		ug/L		95	80 - 119
4-Chlorotoluene	5.00	4.73		ug/L		95	78 - 122
1,4-Dichlorobenzene	5.00	4.77		ug/L		95	79 - 118
1,1-Dichloroethane	5.00	5.94		ug/L		119	77 - 125
1,2-Dichloroethane	5.00	5.76		ug/L		115	73 - 128
Acetone	20.0	21.7		ug/L		109	39 - 160
1,1-Dichloroethene	5.00	5.75		ug/L		115	71 - 131
Benzene	5.00	5.78		ug/L		116	79 - 120
Bromobenzene	5.00	4.73		ug/L		95	80 - 120
Bromoform	5.00	4.53		ug/L		91	66 - 130
Bromomethane	5.00	5.83		ug/L		117	53 - 141
1,2-Dichloropropane	5.00	6.33	Q	ug/L		127	78 - 122
Carbon disulfide	5.00	5.55		ug/L		111	64 - 133
1,3-Dichloropropane	5.00	5.33		ug/L		107	80 - 119
Carbon tetrachloride	5.00	5.49		ug/L		110	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.33		ug/L		107	60 - 139
Chlorobenzene	5.00	5.05		ug/L		101	82 - 118
1,1-Dichloropropene	5.00	5.64		ug/L		113	79 - 125
Bromochloromethane	5.00	5.80		ug/L		116	78 - 123
Dibromochloromethane	5.00	4.80		ug/L		96	74 - 126
Chloroethane	5.00	5.89		ug/L		118	60 - 138
Chloroform	5.00	5.86		ug/L		117	79 - 124
2-Hexanone	20.0	20.2		ug/L		101	57 - 139
Chloromethane	5.00	5.09		ug/L		102	50 - 139
cis-1,2-Dichloroethene	5.00	5.87		ug/L		117	78 - 123
cis-1,3-Dichloropropene	5.00	5.10		ug/L		102	75 - 124
4-Isopropyltoluene	5.00	4.80		ug/L		96	77 - 127
Dibromomethane	5.00	5.72		ug/L		114	79 - 123
Bromodichloromethane	5.00	5.77		ug/L		115	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130
Dichlorodifluoromethane	5.00	4.58		ug/L		92	32 - 152
Ethylbenzene	5.00	4.91		ug/L		98	79 - 121
Ethylene Dibromide	5.00	5.26		ug/L		105	77 - 121
Hexachlorobutadiene	5.00	4.55		ug/L		91	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.14		ug/L		103	78 - 124
Methyl tert-butyl ether	5.00	5.51		ug/L		110	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.24		ug/L		105	71 - 121
Methylene Chloride	5.00	5.74		ug/L		115	74 - 124
Naphthalene	5.00	4.95		ug/L		99	61 - 128
1,2,3-Trichlorobenzene	5.00	5.04		ug/L		101	69 - 129
n-Butylbenzene	5.00	4.74		ug/L		95	75 - 128
1,1,1-Trichloroethane	5.00	5.58		ug/L		112	74 - 131
N-Propylbenzene	5.00	4.84		ug/L		97	76 - 126
1,1,2-Trichloroethane	5.00	6.24	Q	ug/L		125	80 - 119
sec-Butylbenzene	5.00	4.80		ug/L		96	77 - 126
Styrene	5.00	5.06		ug/L		101	78 - 123
1,2,4-Trichlorobenzene	5.00	4.71		ug/L		94	69 - 130
tert-Butylbenzene	5.00	4.79		ug/L		96	78 - 124
1,2,3-Trichloropropane	5.00	5.19		ug/L		104	73 - 122
Tetrachloroethene	5.00	4.89		ug/L		98	74 - 129
1,2,4-Trimethylbenzene	5.00	4.70		ug/L		94	76 - 124
Toluene	5.00	5.95		ug/L		119	80 - 121
1,3,5-Trimethylbenzene	5.00	4.65		ug/L		93	75 - 124
trans-1,2-Dichloroethene	5.00	5.83		ug/L		117	75 - 124
trans-1,3-Dichloropropene	5.00	5.19		ug/L		104	73 - 127
o-Xylene	5.00	5.18		ug/L		104	78 - 122
Trichloroethene	5.00	5.57		ug/L		111	79 - 123
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	80 - 121
Trichlorofluoromethane	5.00	5.38		ug/L		108	65 - 141
Vinyl chloride	5.00	5.50		ug/L		110	58 - 137
2-Chlorotoluene	5.00	4.82		ug/L		96	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436409/5
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*89*		*85 - 114*
Dibromofluoromethane (Surr)	*114*		*80 - 119*

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			5.00	4.76	J	ug/L		95	62 - 128	11	20
2-Butanone (MEK)			20.0	18.2		ug/L		91	56 - 143	8	20
1,2-Dichlorobenzene			5.00	4.99		ug/L		100	80 - 119	4	20
1,3-Dichlorobenzene			5.00	4.86		ug/L		97	80 - 119	2	20
4-Chlorotoluene			5.00	5.04		ug/L		101	78 - 122	7	20
1,4-Dichlorobenzene			5.00	4.97		ug/L		99	79 - 118	4	20
1,1-Dichloroethane			5.00	5.93		ug/L		119	77 - 125	0	20
1,2-Dichloroethane			5.00	5.83		ug/L		117	73 - 128	1	20
Acetone			20.0	21.9		ug/L		109	39 - 160	1	20
1,1-Dichloroethene			5.00	5.98		ug/L		120	71 - 131	4	20
Benzene			5.00	5.93		ug/L		119	79 - 120	2	20
Bromobenzene			5.00	4.94		ug/L		99	80 - 120	4	20
Bromoform			5.00	5.06		ug/L		101	66 - 130	11	20
Bromomethane			5.00	6.15		ug/L		123	53 - 141	5	20
1,2-Dichloropropane			5.00	6.20	Q	ug/L		124	78 - 122	2	20
Carbon disulfide			5.00	5.83		ug/L		117	64 - 133	5	20
1,3-Dichloropropane			5.00	5.19		ug/L		104	80 - 119	3	20
Carbon tetrachloride			5.00	5.52		ug/L		110	72 - 136	1	20
2,2-Dichloropropane			5.00	5.23		ug/L		105	60 - 139	2	20
Chlorobenzene			5.00	5.07		ug/L		101	82 - 118	0	20
1,1-Dichloropropene			5.00	5.71		ug/L		114	79 - 125	1	20
Bromochloromethane			5.00	6.03		ug/L		121	78 - 123	4	20
Dibromochloromethane			5.00	4.73		ug/L		95	74 - 126	2	20
Chloroethane			5.00	6.16		ug/L		123	60 - 138	5	20
Chloroform			5.00	5.82		ug/L		116	79 - 124	1	20
2-Hexanone			20.0	18.6		ug/L		93	57 - 139	8	20
Chloromethane			5.00	5.32		ug/L		106	50 - 139	4	20
cis-1,2-Dichloroethene			5.00	5.70		ug/L		114	78 - 123	3	20
cis-1,3-Dichloropropene			5.00	5.17		ug/L		103	75 - 124	1	20
4-Isopropyltoluene			5.00	4.97		ug/L		99	77 - 127	3	20
Dibromomethane			5.00	5.92		ug/L		118	79 - 123	4	20
Bromodichloromethane			5.00	5.88		ug/L		118	79 - 125	2	20
4-Methyl-2-pentanone (MIBK)			20.0	23.8		ug/L		119	67 - 130	0	20
Dichlorodifluoromethane			5.00	5.32		ug/L		106	32 - 152	15	20
Ethylbenzene			5.00	5.01		ug/L		100	79 - 121	2	20
Ethylene Dibromide			5.00	5.32		ug/L		106	77 - 121	1	20
Hexachlorobutadiene			5.00	4.68		ug/L		94	66 - 134	3	20
Isopropylbenzene			5.00	4.84		ug/L		97	72 - 131	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436409/6
Matrix: Water
Analysis Batch: 436409

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	5.17		ug/L		103	78 - 124	1	20
Methyl tert-butyl ether	5.00	5.59		ug/L		112	71 - 124	1	20
1,1,2,2-Tetrachloroethane	5.00	5.24		ug/L		105	71 - 121	0	20
Methylene Chloride	5.00	5.57		ug/L		111	74 - 124	3	20
Naphthalene	5.00	4.75		ug/L		95	61 - 128	4	20
1,2,3-Trichlorobenzene	5.00	5.20		ug/L		104	69 - 129	3	20
n-Butylbenzene	5.00	4.96		ug/L		99	75 - 128	5	20
1,1,1-Trichloroethane	5.00	5.65		ug/L		113	74 - 131	1	20
N-Propylbenzene	5.00	4.95		ug/L		99	76 - 126	2	20
1,1,2-Trichloroethane	5.00	6.21	Q	ug/L		124	80 - 119	1	20
sec-Butylbenzene	5.00	5.02		ug/L		100	77 - 126	4	20
Styrene	5.00	4.97		ug/L		99	78 - 123	2	20
1,2,4-Trichlorobenzene	5.00	4.74		ug/L		95	69 - 130	1	20
tert-Butylbenzene	5.00	4.83		ug/L		97	78 - 124	1	20
1,2,3-Trichloropropane	5.00	5.12		ug/L		102	73 - 122	1	20
Tetrachloroethene	5.00	5.05		ug/L		101	74 - 129	3	20
1,2,4-Trimethylbenzene	5.00	4.83		ug/L		97	76 - 124	3	20
Toluene	5.00	5.88		ug/L		118	80 - 121	1	20
1,3,5-Trimethylbenzene	5.00	4.88		ug/L		98	75 - 124	5	20
trans-1,2-Dichloroethene	5.00	5.96		ug/L		119	75 - 124	2	20
trans-1,3-Dichloropropene	5.00	5.16		ug/L		103	73 - 127	0	20
o-Xylene	5.00	5.15		ug/L		103	78 - 122	1	20
Trichloroethene	5.00	5.62		ug/L		112	79 - 123	1	20
m-Xylene & p-Xylene	5.00	5.16		ug/L		103	80 - 121	1	20
Trichlorofluoromethane	5.00	5.82		ug/L		116	65 - 141	8	20
Vinyl chloride	5.00	5.68		ug/L		114	58 - 137	3	20
2-Chlorotoluene	5.00	4.92		ug/L		98	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*
4-Bromofluorobenzene (Surr)	*91*		*85 - 114*
Dibromofluoromethane (Surr)	*116*		*80 - 119*

Lab Sample ID: MB 280-436482/1-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436482

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		11/06/18 13:21	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		11/06/18 13:21	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		11/06/18 13:21	1
1,3-Dichlorobenzene	160	U M	250	160	41	ug/Kg		11/06/18 13:21	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		11/06/18 13:21	1
1,4-Dichlorobenzene	80	U M	250	80	25	ug/Kg		11/06/18 13:21	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		11/06/18 13:21	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		11/06/18 13:21	1
Acetone	1300	U	1500	1300	400	ug/Kg		11/06/18 13:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436482/1-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436482

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		11/06/18 13:21	1
Benzene	160	U	250	160	45	ug/Kg		11/06/18 13:21	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		11/06/18 13:21	1
Bromobenzene	40	U	250	40	19	ug/Kg		11/06/18 13:21	1
Bromoform	160	U	250	160	160	ug/Kg		11/06/18 13:21	1
Bromomethane	160	U	500	160	44	ug/Kg		11/06/18 13:21	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		11/06/18 13:21	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		11/06/18 13:21	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		11/06/18 13:21	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		11/06/18 13:21	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		11/06/18 13:21	1
Chlorobenzene	80	U	250	80	30	ug/Kg		11/06/18 13:21	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		11/06/18 13:21	1
Bromochloromethane	160	U	250	160	47	ug/Kg		11/06/18 13:21	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		11/06/18 13:21	1
Chloroethane	160	U	500	160	44	ug/Kg		11/06/18 13:21	1
Chloroform	160	U	250	160	46	ug/Kg		11/06/18 13:21	1
2-Hexanone	640	U	1000	640	220	ug/Kg		11/06/18 13:21	1
Chloromethane	160	U	500	160	50	ug/Kg		11/06/18 13:21	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		11/06/18 13:21	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		11/06/18 13:21	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		11/06/18 13:21	1
Dibromomethane	80	U	250	80	30	ug/Kg		11/06/18 13:21	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		11/06/18 13:21	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		11/06/18 13:21	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		11/06/18 13:21	1
Ethylbenzene	80	U M	250	80	34	ug/Kg		11/06/18 13:21	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		11/06/18 13:21	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		11/06/18 13:21	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		11/06/18 13:21	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		11/06/18 13:21	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		11/06/18 13:21	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		11/06/18 13:21	1
Methylene Chloride	160	U	250	160	69	ug/Kg		11/06/18 13:21	1
Naphthalene	80	U	500	80	38	ug/Kg		11/06/18 13:21	1
1,2,3-Trichlorobenzene	80	U M	250	80	35	ug/Kg		11/06/18 13:21	1
n-Butylbenzene	80	U M	250	80	32	ug/Kg		11/06/18 13:21	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		11/06/18 13:21	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		11/06/18 13:21	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		11/06/18 13:21	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		11/06/18 13:21	1
Styrene	80	U	250	80	26	ug/Kg		11/06/18 13:21	1
1,2,4-Trichlorobenzene	160	U M	250	160	47	ug/Kg		11/06/18 13:21	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		11/06/18 13:21	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		11/06/18 13:21	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		11/06/18 13:21	1
1,2,4-Trimethylbenzene	80	U M	250	80	31	ug/Kg		11/06/18 13:21	1
Toluene	80	U	250	80	39	ug/Kg		11/06/18 13:21	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436482/1-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436482

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		11/06/18 13:21	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		11/06/18 13:21	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		11/06/18 13:21	1
o-Xylene	80	U	130	80	35	ug/Kg		11/06/18 13:21	1
Trichloroethene	80	U	250	80	23	ug/Kg		11/06/18 13:21	1
m-Xylene & p-Xylene	160	U M	250	160	78	ug/Kg		11/06/18 13:21	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		11/06/18 13:21	1
Vinyl chloride	80	U	500	80	27	ug/Kg		11/06/18 13:21	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		11/06/18 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*11/06/18 10:32*	*11/06/18 13:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 136*	*11/06/18 10:32*	*11/06/18 13:21*	*1*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*	*11/06/18 10:32*	*11/06/18 13:21*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*11/06/18 10:32*	*11/06/18 13:21*	*1*

Lab Sample ID: LCS 280-436482/2-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436482

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1780		ug/Kg		89	61 - 132
2-Butanone (MEK)	8000	8320		ug/Kg		104	51 - 148
1,2-Dichlorobenzene	2000	1810		ug/Kg		91	78 - 121
1,3-Dichlorobenzene	2000	1750		ug/Kg		87	77 - 121
4-Chlorotoluene	2000	1720		ug/Kg		86	72 - 124
1,4-Dichlorobenzene	2000	1740		ug/Kg		87	75 - 120
1,1-Dichloroethane	2000	2150		ug/Kg		107	76 - 125
1,2-Dichloroethane	2000	2080		ug/Kg		104	73 - 128
Acetone	8000	7820		ug/Kg		98	36 - 164
1,1-Dichloroethene	2000	2110		ug/Kg		105	70 - 131
Benzene	2000	2070		ug/Kg		104	77 - 121
Bromobenzene	2000	1800		ug/Kg		90	78 - 121
Bromoform	2000	1720		ug/Kg		86	67 - 132
Bromomethane	2000	1950		ug/Kg		97	53 - 143
1,2-Dichloropropane	2000	2210		ug/Kg		111	76 - 123
Carbon disulfide	2000	2210		ug/Kg		111	63 - 132
1,3-Dichloropropane	2000	1980		ug/Kg		99	77 - 121
Carbon tetrachloride	2000	1990		ug/Kg		100	70 - 135
2,2-Dichloropropane	2000	2090		ug/Kg		105	67 - 133
Chlorobenzene	2000	1840		ug/Kg		92	79 - 120
1,1-Dichloropropene	2000	2010		ug/Kg		101	76 - 125
Bromochloromethane	2000	2150		ug/Kg		108	78 - 125
Dibromochloromethane	2000	2030		ug/Kg		101	74 - 126
Chloroethane	2000	1790		ug/Kg		89	59 - 139
Chloroform	2000	2090		ug/Kg		105	78 - 123
2-Hexanone	8000	8420		ug/Kg		105	53 - 145
Chloromethane	2000	1650		ug/Kg		82	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436482/2-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436482

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2000	2100		ug/Kg		105	77 - 123
cis-1,3-Dichloropropene	2000	2220		ug/Kg		111	74 - 126
4-Isopropyltoluene	2000	1720		ug/Kg		86	73 - 127
Dibromomethane	2000	2100		ug/Kg		105	78 - 125
Bromodichloromethane	2000	2200		ug/Kg		110	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	9180		ug/Kg		115	65 - 135
Dichlorodifluoromethane	2000	1600		ug/Kg		80	29 - 149
Ethylbenzene	2000	1810		ug/Kg		90	76 - 122
Ethylene Dibromide	2000	1950		ug/Kg		97	78 - 122
Hexachlorobutadiene	2000	1600		ug/Kg		80	61 - 135
Isopropylbenzene	2000	1750		ug/Kg		88	68 - 134
1,1,1,2-Tetrachloroethane	2000	2050		ug/Kg		103	78 - 125
Methyl tert-butyl ether	2000	2120		ug/Kg		106	73 - 125
1,1,2,2-Tetrachloroethane	2000	1870		ug/Kg		94	70 - 124
Methylene Chloride	2000	2250		ug/Kg		112	70 - 128
Naphthalene	2000	1910		ug/Kg		95	62 - 129
1,2,3-Trichlorobenzene	2000	1830		ug/Kg		91	66 - 130
n-Butylbenzene	2000	1700		ug/Kg		85	70 - 128
1,1,1-Trichloroethane	2000	2090		ug/Kg		105	73 - 130
N-Propylbenzene	2000	1730		ug/Kg		86	73 - 125
1,1,2-Trichloroethane	2000	2220		ug/Kg		111	78 - 121
sec-Butylbenzene	2000	1690		ug/Kg		85	73 - 126
Styrene	2000	1900		ug/Kg		95	76 - 124
1,2,4-Trichlorobenzene	2000	1750		ug/Kg		88	67 - 129
tert-Butylbenzene	2000	1710		ug/Kg		86	73 - 125
1,2,3-Trichloropropane	2000	1790		ug/Kg		89	73 - 125
Tetrachloroethene	2000	1760		ug/Kg		88	73 - 128
1,2,4-Trimethylbenzene	2000	1730		ug/Kg		86	75 - 123
Toluene	2000	2050		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	2000	1740		ug/Kg		87	73 - 124
trans-1,2-Dichloroethene	2000	2120		ug/Kg		106	74 - 125
trans-1,3-Dichloropropene	2000	2330		ug/Kg		117	71 - 130
o-Xylene	2000	1870		ug/Kg		93	77 - 123
Trichloroethene	2000	1970		ug/Kg		99	77 - 123
m-Xylene & p-Xylene	2000	1760		ug/Kg		88	77 - 124
Trichlorofluoromethane	2000	1910		ug/Kg		95	62 - 140
Vinyl chloride	2000	1660		ug/Kg		83	56 - 135
2-Chlorotoluene	2000	1750		ug/Kg		87	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*110*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436482/3-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436482

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	2190	Q	ug/Kg		110	61 - 132	21	20
2-Butanone (MEK)	8000	8810		ug/Kg		110	51 - 148	6	20
1,2-Dichlorobenzene	2000	1980		ug/Kg		99	78 - 121	9	20
1,3-Dichlorobenzene	2000	1860		ug/Kg		93	77 - 121	6	20
4-Chlorotoluene	2000	1860		ug/Kg		93	72 - 124	8	20
1,4-Dichlorobenzene	2000	1870		ug/Kg		93	75 - 120	7	20
1,1-Dichloroethane	2000	2230		ug/Kg		112	76 - 125	4	20
1,2-Dichloroethane	2000	2200		ug/Kg		110	73 - 128	5	20
Acetone	8000	9190		ug/Kg		115	36 - 164	16	20
1,1-Dichloroethene	2000	2200		ug/Kg		110	70 - 131	4	20
Benzene	2000	2180		ug/Kg		109	77 - 121	5	20
Bromobenzene	2000	1920		ug/Kg		96	78 - 121	6	20
Bromoform	2000	1810		ug/Kg		90	67 - 132	5	20
Bromomethane	2000	2190		ug/Kg		110	53 - 143	12	20
1,2-Dichloropropane	2000	2350		ug/Kg		118	76 - 123	6	20
Carbon disulfide	2000	2350		ug/Kg		117	63 - 132	6	20
1,3-Dichloropropane	2000	2060		ug/Kg		103	77 - 121	4	20
Carbon tetrachloride	2000	2110		ug/Kg		106	70 - 135	6	20
2,2-Dichloropropane	2000	2210		ug/Kg		110	67 - 133	6	20
Chlorobenzene	2000	1910		ug/Kg		96	79 - 120	4	20
1,1-Dichloropropene	2000	2090		ug/Kg		105	76 - 125	4	20
Bromochloromethane	2000	2330		ug/Kg		116	78 - 125	8	20
Dibromochloromethane	2000	2140		ug/Kg		107	74 - 126	5	20
Chloroethane	2000	2260	Q	ug/Kg		113	59 - 139	24	20
Chloroform	2000	2180		ug/Kg		109	78 - 123	4	20
2-Hexanone	8000	8750		ug/Kg		109	53 - 145	4	20
Chloromethane	2000	1800		ug/Kg		90	50 - 136	9	20
cis-1,2-Dichloroethene	2000	2230		ug/Kg		111	77 - 123	6	20
cis-1,3-Dichloropropene	2000	2320		ug/Kg		116	74 - 126	4	20
4-Isopropyltoluene	2000	1830		ug/Kg		92	73 - 127	7	20
Dibromomethane	2000	2250		ug/Kg		113	78 - 125	7	20
Bromodichloromethane	2000	2310		ug/Kg		115	75 - 127	5	20
4-Methyl-2-pentanone (MIBK)	8000	9730		ug/Kg		122	65 - 135	6	20
Dichlorodifluoromethane	2000	1600		ug/Kg		80	29 - 149	0	20
Ethylbenzene	2000	1880		ug/Kg		94	76 - 122	4	20
Ethylene Dibromide	2000	2120		ug/Kg		106	78 - 122	8	20
Hexachlorobutadiene	2000	1720		ug/Kg		86	61 - 135	7	20
Isopropylbenzene	2000	1840		ug/Kg		92	68 - 134	5	20
1,1,1,2-Tetrachloroethane	2000	2120		ug/Kg		106	78 - 125	3	20
Methyl tert-butyl ether	2000	2270		ug/Kg		114	73 - 125	7	20
1,1,2,2-Tetrachloroethane	2000	2080		ug/Kg		104	70 - 124	10	20
Methylene Chloride	2000	2400		ug/Kg		120	70 - 128	7	20
Naphthalene	2000	2110		ug/Kg		105	62 - 129	10	20
1,2,3-Trichlorobenzene	2000	1960		ug/Kg		98	66 - 130	7	20
n-Butylbenzene	2000	1800		ug/Kg		90	70 - 128	5	20
1,1,1-Trichloroethane	2000	2180		ug/Kg		109	73 - 130	4	20
N-Propylbenzene	2000	1840		ug/Kg		92	73 - 125	6	20
1,1,2-Trichloroethane	2000	2370		ug/Kg		118	78 - 121	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436482/3-A
Matrix: Solid
Analysis Batch: 436456

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436482

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			2000	1770		ug/Kg		89	73 - 126	5	20
Styrene			2000	1980		ug/Kg		99	76 - 124	4	20
1,2,4-Trichlorobenzene			2000	1930		ug/Kg		96	67 - 129	9	20
tert-Butylbenzene			2000	1830		ug/Kg		91	73 - 125	7	20
1,2,3-Trichloropropane			2000	2070		ug/Kg		103	73 - 125	14	20
Tetrachloroethene			2000	1840		ug/Kg		92	73 - 128	4	20
1,2,4-Trimethylbenzene			2000	1840		ug/Kg		92	75 - 123	6	20
Toluene			2000	2140		ug/Kg		107	77 - 121	4	20
1,3,5-Trimethylbenzene			2000	1870		ug/Kg		94	73 - 124	7	20
trans-1,2-Dichloroethene			2000	2250		ug/Kg		112	74 - 125	6	20
trans-1,3-Dichloropropene			2000	2560		ug/Kg		128	71 - 130	9	20
o-Xylene			2000	1970		ug/Kg		98	77 - 123	5	20
Trichloroethene			2000	2130		ug/Kg		106	77 - 123	7	20
m-Xylene & p-Xylene			2000	1840		ug/Kg		92	77 - 124	5	20
Trichlorofluoromethane			2000	2000		ug/Kg		100	62 - 140	5	20
Vinyl chloride			2000	1770		ug/Kg		89	56 - 135	7	20
2-Chlorotoluene			2000	1840		ug/Kg		92	75 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*108*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435717/5
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/31/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*10/31/18 12:07*	*1*

Lab Sample ID: LCS 280-435717/3
Matrix: Water
Analysis Batch: 435717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			101	94.4	M	ug/L		94	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*86*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-436090/14-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436090

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/05/18 00:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*11/02/18 15:14*	*11/05/18 00:43*	*1*

Lab Sample ID: LCS 280-436090/2-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	4.52		mg/Kg		82	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*

Lab Sample ID: 280-116044-3 MS
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436090

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	1.6	U J1	8.16	8.27		mg/Kg		101	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*

Lab Sample ID: 280-116044-3 MSD
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 436090

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.6	U J1	5.13	4.18	J1	mg/Kg		82	79 - 122	66	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435752

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		10/31/18 18:17	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435752

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	101		55 - 130	10/29/18 14:26	10/31/18 18:17	1

Lab Sample ID: MB 280-435369/4-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435369

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/01/18 21:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	106		55 - 130	10/29/18 14:26	11/01/18 21:10	1

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.749	M	ug/Kg		86	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	90	M	55 - 130

Lab Sample ID: LCS 280-435369/2-A
Matrix: Solid
Analysis Batch: 435949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.874		ug/Kg		100	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	110		55 - 130

Lab Sample ID: LCSD 280-435369/3-A
Matrix: Solid
Analysis Batch: 435752

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435369

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.727	M	ug/Kg		83	70 - 130	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	99		55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-435369/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435949 — **Prep Batch: 435369**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.855		ug/Kg		98	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Lab Sample ID: 280-116044-2 MS — **Client Sample ID: V-S5-231018-467**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435949 — **Prep Batch: 435369**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.039	U	0.874	0.769		ug/Kg		88	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*111*		*55 - 130*

Lab Sample ID: 280-116044-2 MSD — **Client Sample ID: V-S5-231018-467**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 435949 — **Prep Batch: 435369**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.039	U	0.875	0.827		ug/Kg		95	70 - 130	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-435639/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 437229 — **Prep Batch: 435639**

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.61	J	7.6	3.8	1.3	mg/Kg		11/12/18 17:27	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg		11/12/18 17:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*10/31/18 08:39*	*11/12/18 17:27*	*1*
n-Octacosane	*85*		*25 - 162*	*10/31/18 08:39*	*11/12/18 17:27*	*1*

Lab Sample ID: LCS 280-435639/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 437229 — **Prep Batch: 435639**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			120	105		mg/Kg		88	38 - 132		

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-435639/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435639

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	71		45 - 130
n-Octacosane	91		25 - 162

Lab Sample ID: LCS 280-435639/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435639

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			334	258		mg/Kg		77	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	74		45 - 130
n-Octacosane	90		25 - 162

Lab Sample ID: 280-116044-3 MS
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 435639

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	5.6	J	120	105		mg/Kg		83	38 - 132		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	67		45 - 130
n-Octacosane	84		25 - 162

Lab Sample ID: 280-116044-3 MS
Matrix: Solid
Analysis Batch: 437524

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 435639

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	22	U	315	276		mg/Kg		88	45 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	85		45 - 130
n-Octacosane	100		25 - 162

Lab Sample ID: 280-116044-3 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 435639

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	5.6	J	130	123		mg/Kg		90	38 - 132	15	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	75		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-116044-3 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 435639

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*89*		*25 - 162*

Lab Sample ID: 280-116044-3 MSD
Matrix: Solid
Analysis Batch: 437524

Client Sample ID: P-S5-231018-467
Prep Type: Total/NA
Prep Batch: 435639

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	22	U	299	246		mg/Kg		82	45 - 130	12	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*80*		*45 - 130*
n-Octacosane	*97*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-116044-8 DU
Matrix: Solid
Analysis Batch: 435590

Client Sample ID: P-S5-231018-491
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	18.3		13.1	J1	%		33	20

GC/MS VOA

Analysis Batch: 436293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-2	V-S5-231018-467	Total/NA	Solid	8260B	436362
280-116044-4	V-S5-231058-467	Total/NA	Solid	8260B	436362
280-116044-9	V-S5-231018-506	Total/NA	Solid	8260B	436362
MB 280-436362/1-A	Method Blank	Total/NA	Solid	8260B	436362
LCS 280-436362/2-A	Lab Control Sample	Total/NA	Solid	8260B	436362
LCSD 280-436362/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	436362
280-116044-2 MS	V-S5-231018-467	Total/NA	Solid	8260B	436362
280-116044-2 MSD	V-S5-231018-467	Total/NA	Solid	8260B	436362

Prep Batch: 436362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-2	V-S5-231018-467	Total/NA	Solid	5035	
280-116044-4	V-S5-231058-467	Total/NA	Solid	5035	
280-116044-9	V-S5-231018-506	Total/NA	Solid	5035	
MB 280-436362/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436362/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-436362/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
280-116044-2 MS	V-S5-231018-467	Total/NA	Solid	5035	
280-116044-2 MSD	V-S5-231018-467	Total/NA	Solid	5035	

Analysis Batch: 436409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-1	TB-S5-231018-01	Total/NA	Water	8260B	
MB 280-436409/4	Method Blank	Total/NA	Water	8260B	
LCS 280-436409/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-436409/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 436456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-7 - DL	V-S5-231018-491	Total/NA	Solid	8260B	436482
MB 280-436482/1-A	Method Blank	Total/NA	Solid	8260B	436482
LCS 280-436482/2-A	Lab Control Sample	Total/NA	Solid	8260B	436482
LCSD 280-436482/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	436482

Prep Batch: 436482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-7 - DL	V-S5-231018-491	Total/NA	Solid	5035	
MB 280-436482/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436482/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-436482/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA

Analysis Batch: 435717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-1	TB-S5-231018-01	Total/NA	Water	8015D GRO	
280-116044-6	TB-S5-231018-02	Total/NA	Water	8015D GRO	
MB 280-435717/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435717/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC VOA (Continued)

Prep Batch: 436090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-3	P-S5-231018-467	Total/NA	Solid	5035	
280-116044-5	P-S5-231058-467	Total/NA	Solid	5035	
280-116044-8	P-S5-231018-491	Total/NA	Solid	5035	
280-116044-10	P-S5-231018-506	Total/NA	Solid	5035	
MB 280-436090/14-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	5035	
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	5035	
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	5035	

Analysis Batch: 436343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-3	P-S5-231018-467	Total/NA	Solid	8015D GRO	436090
280-116044-5	P-S5-231058-467	Total/NA	Solid	8015D GRO	436090
280-116044-8	P-S5-231018-491	Total/NA	Solid	8015D GRO	436090
280-116044-10	P-S5-231018-506	Total/NA	Solid	8015D GRO	436090
MB 280-436090/14-A	Method Blank	Total/NA	Solid	8015D GRO	436090
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	436090
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	8015D GRO	436090
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	8015D GRO	436090

GC Semi VOA

Prep Batch: 435369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-2	V-S5-231018-467	Total/NA	Solid	8011	
280-116044-4	V-S5-231058-467	Total/NA	Solid	8011	
280-116044-7	V-S5-231018-491	Total/NA	Solid	8011	
280-116044-9	V-S5-231018-506	Total/NA	Solid	8011	
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-116044-2 MS	V-S5-231018-467	Total/NA	Solid	8011	
280-116044-2 MSD	V-S5-231018-467	Total/NA	Solid	8011	

Prep Batch: 435639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-3	P-S5-231018-467	Total/NA	Solid	3546	
280-116044-5	P-S5-231058-467	Total/NA	Solid	3546	
280-116044-8	P-S5-231018-491	Total/NA	Solid	3546	
280-116044-10	P-S5-231018-506	Total/NA	Solid	3546	
MB 280-435639/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-435639/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-435639/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	3546	
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	3546	
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	3546	
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Analysis Batch: 435752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369

Analysis Batch: 435949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-2	V-S5-231018-467	Total/NA	Solid	8011	435369
280-116044-4	V-S5-231058-467	Total/NA	Solid	8011	435369
280-116044-9	V-S5-231018-506	Total/NA	Solid	8011	435369
MB 280-435369/4-A	Method Blank	Total/NA	Solid	8011	435369
LCS 280-435369/2-A	Lab Control Sample	Total/NA	Solid	8011	435369
LCSD 280-435369/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	435369
280-116044-2 MS	V-S5-231018-467	Total/NA	Solid	8011	435369
280-116044-2 MSD	V-S5-231018-467	Total/NA	Solid	8011	435369

Analysis Batch: 436711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-7	V-S5-231018-491	Total/NA	Solid	8011	435369

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-3	P-S5-231018-467	Total/NA	Solid	8015D DRO	435639
MB 280-435639/1-A	Method Blank	Total/NA	Solid	8015D DRO	435639
LCS 280-435639/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	435639
LCS 280-435639/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	435639
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	8015D DRO	435639
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	8015D DRO	435639

Analysis Batch: 437524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-5	P-S5-231058-467	Total/NA	Solid	8015D DRO	435639
280-116044-8	P-S5-231018-491	Total/NA	Solid	8015D DRO	435639
280-116044-10	P-S5-231018-506	Total/NA	Solid	8015D DRO	435639
280-116044-3 MS	P-S5-231018-467	Total/NA	Solid	8015D DRO	435639
280-116044-3 MSD	P-S5-231018-467	Total/NA	Solid	8015D DRO	435639

General Chemistry

Analysis Batch: 435590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116044-2	V-S5-231018-467	Total/NA	Solid	Moisture	
280-116044-3	P-S5-231018-467	Total/NA	Solid	Moisture	
280-116044-4	V-S5-231058-467	Total/NA	Solid	Moisture	
280-116044-5	P-S5-231058-467	Total/NA	Solid	Moisture	
280-116044-7	V-S5-231018-491	Total/NA	Solid	Moisture	
280-116044-8	P-S5-231018-491	Total/NA	Solid	Moisture	
280-116044-9	V-S5-231018-506	Total/NA	Solid	Moisture	
280-116044-10	P-S5-231018-506	Total/NA	Solid	Moisture	
280-116044-8 DU	P-S5-231018-491	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Client Sample ID: TB-S5-231018-01
Date Collected: 10/23/18 15:00
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436409	11/06/18 04:54	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 22:17	GPM	TAL DEN

Client Sample ID: V-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: V-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-2
Matrix: Solid
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.899 g	5 mL	436362	10/23/18 08:40	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436293	11/05/18 15:44	JLS	TAL DEN
Total/NA	Prep	8011			10.05 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/02/18 01:43	MJS	TAL DEN

Client Sample ID: P-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: P-S5-231018-467
Date Collected: 10/23/18 08:40
Date Received: 10/24/18 09:45

Lab Sample ID: 280-116044-3
Matrix: Solid
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.748 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	436343	11/06/18 02:45	GPM	TAL DEN
Total/NA	Prep	3546			16.6 g	1 mL	435639	10/31/18 08:39	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/12/18 18:32	CSM	TAL DEN

Client Sample ID: V-S5-231058-467 — **Lab Sample ID: 280-116044-4**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: V-S5-231058-467 — **Lab Sample ID: 280-116044-4**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 95.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.916 g	5 mL	436362	10/23/18 08:40	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436293	11/05/18 16:45	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/02/18 02:41	MJS	TAL DEN

Client Sample ID: P-S5-231058-467 — **Lab Sample ID: 280-116044-5**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: P-S5-231058-467 — **Lab Sample ID: 280-116044-5**
Date Collected: 10/23/18 08:40 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 96.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.452 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	436343	11/06/18 03:58	GPM	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	435639	10/31/18 08:39	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			437524	11/14/18 22:36	CSM	TAL DEN

Client Sample ID: TB-S5-231018-02 — **Lab Sample ID: 280-116044-6**
Date Collected: 10/23/18 16:00 — **Matrix: Water**
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435717	10/31/18 22:42	GPM	TAL DEN

Client Sample ID: V-S5-231018-491 — **Lab Sample ID: 280-116044-7**
Date Collected: 10/23/18 13:31 — **Matrix: Solid**
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: V-S5-231018-491

Lab Sample ID: 280-116044-7
Date Collected: 10/23/18 13:31
Matrix: Solid
Date Received: 10/24/18 09:45
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		6.685 g	1000 mL	436482	10/23/18 13:31	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	436456	11/06/18 15:12	JLS	TAL DEN
Total/NA	Prep	8011			10.01 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		20			436711	11/07/18 17:28	JLW	TAL DEN

Client Sample ID: P-S5-231018-491

Lab Sample ID: 280-116044-8
Date Collected: 10/23/18 13:31
Matrix: Solid
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: P-S5-231018-491

Lab Sample ID: 280-116044-8
Date Collected: 10/23/18 13:31
Matrix: Solid
Date Received: 10/24/18 09:45
Percent Solids: 81.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.088 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		20	0.1 mL	5 mL	436343	11/06/18 04:22	GPM	TAL DEN
Total/NA	Prep	3546			16.1 g	1 mL	435639	10/31/18 08:39	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			437524	11/14/18 22:58	CSM	TAL DEN

Client Sample ID: V-S5-231018-506

Lab Sample ID: 280-116044-9
Date Collected: 10/23/18 16:45
Matrix: Solid
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: V-S5-231018-506

Lab Sample ID: 280-116044-9
Date Collected: 10/23/18 16:45
Matrix: Solid
Date Received: 10/24/18 09:45
Percent Solids: 86.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.267 g	5 mL	436362	10/23/18 16:45	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436293	11/05/18 17:05	JLS	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	435369	10/29/18 14:26	SU	TAL DEN
Total/NA	Analysis	8011		1			435949	11/02/18 03:20	MJS	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Client Sample ID: P-S5-231018-506 — **Lab Sample ID: 280-116044-10**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			435590	10/30/18 15:57	LMD	TAL DEN

Client Sample ID: P-S5-231018-506 — **Lab Sample ID: 280-116044-10**
Date Collected: 10/23/18 16:45 — **Matrix: Solid**
Date Received: 10/24/18 09:45 — **Percent Solids: 91.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.208 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	436343	11/06/18 04:46	GPM	TAL DEN
Total/NA	Prep	3546			16.5 g	1 mL	435639	10/31/18 08:39	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			437524	11/14/18 23:20	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116044-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443373397 8310	COC No: COC1-55-TA-20810823
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 2
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-55-231018-01	10/23/18	1500	G	W	N	N	—	—	—	—	—	X	—	X	—		—
V-55-231018-467	10/23/18	0840	G	S	N	N	X	X	X	—	—	—	—	—	—		MS/MSD
P-55-231018-467	10/23/18	0840	G	S	N	N	—	—	—	X	X	—	—	—	—		MS/MSD
V-55-231058-467	10/23/18	0840	G	S	N	N	X	X	X	—	—	—	—	—	—		Dup
P-55-231058-467	10/23/18	0840	G	S	N	N	—	—	—	X	X	—	—	—	—		Dup

280-116044 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than ...)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by: Kevin McKeage	Date/Time: 10/23/18 1800	Company: EA	Received by:	Date/Time: 10/24/18 0945	Company: TADEN
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.6, 2.2 IR 9 (1+0.7 x Kw 3r 10/24/18

Ver: 08/04/2016

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 8321	COC No: COC2-55-JA-20181023
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 2 of 2
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-55-231018-02	10/23/18	1600	G	W	N	N	—					X	—	X			
V-55-231018-4899	10/23/18	1331	G	S	N	N	X	X	X								
P-55-231018-4899	10/23/18	1331	G	S	N	N	—	—		X	X						
V-55-231018-506	10/23/18	1645	G	S	N	N	X	X	X								
P-55-231018-506	10/23/18	1645	G	S	N	N	—	—		X	X						

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kevin McKeage	10/23/18 1800			10/24/18 0945	TAEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116044-1

Login Number: 116044
List Number: 1
Creator: Lujan, Jacob P

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116206-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/30/2018 3:16:37 PM

Darlene Bandy, Project Manager I
(303)736-0188
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116206-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116206-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 10/26/2018 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

Receipt Exceptions

One of Three Sodium Thiosulfate VOA vials for sample ID RB-S5-251018-01 was received broken at receipt. Sufficient volume remained to proceed with analysis.

Client requested to cancel sample TB-S5-251018-01 (280-116206-1) on 11/5/2018, indicating that trip blanks did not need to be analyzed with rinse blank samples.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples RB-S5-251018-01 (280-116206-2) and RB-S5-251018-02 (280-116206-3) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/09/2018.

The following samples in analytical batch 280-436917 were analyzed outside of analytical holding time due to backlog capacity issues: RB-S5-251018-01 (280-116206-2) and RB-S5-251018-02 (280-116206-3). The client associated with job 280-116246-1 was notified and instructed the laboratory to report the results and narrate the anomaly.

following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-436917: Dichlorodifluoromethane at -24.4%D. This analyte is considered a poor performer and is allowed up to 30%D, therefore the data has been reported. The following samples are impacted: RB-S5-251018-01 (280-116206-2), RB-S5-251018-02 (280-116206-3) and (CCV 280-436917/2). Method 8260B

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples RB-S5-251018-01 (280-116206-2) and RB-S5-251018-02 (280-116206-3) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/06/2018 and analyzed on 11/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-116206-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

GASOLINE RANGE ORGANICS (GRO)

Samples RB-S5-251018-01 (280-116206-2) and RB-S5-251018-02 (280-116206-3) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 10/27/2018 and 11/07/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples RB-S5-251018-01 (280-116206-2) and RB-S5-251018-02 (280-116206-3) were analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 10/29/2018 and analyzed on 10/31/2018.

Due to analyst error, the RRO LCSD was concentrated and 30 mL of Elga water and 5 mL of 37% Potassium Hydroxide were added to the concentrated LCSD. In order to correct this error, the pH was then neutralized with 1:1 Sulfuric Acid. The sample was transfered into a separatory funnel and spun 3 times for 3 minutes each. The methylene chloride was collected, and was concentrated down to 1 mL. As the LCSD recovered within control limits, this appears to have had little if any effect.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 280-435316.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Client Sample ID: RB-S5-251018-01 — Lab Sample ID: 280-116206-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.55	J H	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	11	J	25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.086	J	0.25	0.12	0.033	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.075	J	0.51	0.13	0.057	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S5-251018-02 — Lab Sample ID: 280-116206-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	0.10	J	0.24	0.11	0.031	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.10	J	0.47	0.12	0.053	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116206-2	RB-S5-251018-01	Water	10/25/18 07:45	10/26/18 09:25
280-116206-3	RB-S5-251018-02	Water	10/25/18 08:00	10/26/18 09:25

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S5-251018-01
Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M H	10	6.4	1.9	ug/L		11/09/18 04:08	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		11/09/18 04:08	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:08	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		11/09/18 04:08	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		11/09/18 04:08	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		11/09/18 04:08	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		11/09/18 04:08	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		11/09/18 04:08	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		11/09/18 04:08	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		11/09/18 04:08	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:08	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		11/09/18 04:08	1
Dichlorodifluoromethane	0.80	U H Q	2.0	0.80	0.31	ug/L		11/09/18 04:08	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:08	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:08	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		11/09/18 04:08	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:08	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		11/09/18 04:08	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		11/09/18 04:08	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		11/09/18 04:08	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:08	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:08	1
1,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:08	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:08	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:08	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:08	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:08	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		11/09/18 04:08	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		11/09/18 04:08	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:08	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		11/09/18 04:08	1
Methylene Chloride	**0.55**	**J H**	5.0	0.80	0.32	ug/L		11/09/18 04:08	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		11/09/18 04:08	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		11/09/18 04:08	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:08	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S5-251018-01
Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25
Lab Sample ID: 280-116206-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:08	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:08	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		11/09/18 04:08	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:08	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
1,1,2-Trichloroethane	0.80	U H	1.0	0.80	0.27	ug/L		11/09/18 04:08	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		11/09/18 04:08	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:08	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		11/09/18 04:08	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:08	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:08	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		11/09/18 04:08	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:08	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		11/09/18 04:08	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/09/18 04:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*11/09/18 04:08*	*1*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*		*11/09/18 04:08*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 119*		*11/09/18 04:08*	*1*

Client Sample ID: RB-S5-251018-02
Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25
Lab Sample ID: 280-116206-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H	10	6.4	1.9	ug/L		11/09/18 04:28	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		11/09/18 04:28	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:28	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		11/09/18 04:28	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		11/09/18 04:28	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		11/09/18 04:28	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		11/09/18 04:28	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		11/09/18 04:28	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		11/09/18 04:28	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		11/09/18 04:28	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:28	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		11/09/18 04:28	1
Dichlorodifluoromethane	0.80	U H Q	2.0	0.80	0.31	ug/L		11/09/18 04:28	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S5-251018-02
Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:28	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:28	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		11/09/18 04:28	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:28	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		11/09/18 04:28	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		11/09/18 04:28	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		11/09/18 04:28	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:28	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:28	1
1,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:28	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:28	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		11/09/18 04:28	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:28	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:28	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		11/09/18 04:28	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		11/09/18 04:28	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:28	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		11/09/18 04:28	1
Methylene Chloride	0.80	U H	5.0	0.80	0.32	ug/L		11/09/18 04:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		11/09/18 04:28	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		11/09/18 04:28	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		11/09/18 04:28	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:28	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:28	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		11/09/18 04:28	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:28	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
1,1,2-Trichloroethane	0.80	U H	1.0	0.80	0.27	ug/L		11/09/18 04:28	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		11/09/18 04:28	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		11/09/18 04:28	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		11/09/18 04:28	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		11/09/18 04:28	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		11/09/18 04:28	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		11/09/18 04:28	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		11/09/18 04:28	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		11/09/18 04:28	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		11/09/18 04:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*89 - 112*		*11/09/18 04:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*81 - 118*		*11/09/18 04:28*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*11/09/18 04:28*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 119*		*11/09/18 04:28*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S5-251018-01
Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	11	J	25	25	10	ug/L		10/27/18 22:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*89*		*82 - 110*		*10/27/18 22:08*	*1*

Client Sample ID: RB-S5-251018-02
Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/07/18 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*82 - 110*		*11/07/18 17:49*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S5-251018-01
Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		11/19/18 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*		*70 - 130*	*11/06/18 14:15*	*11/19/18 14:30*	*1*

Client Sample ID: RB-S5-251018-02
Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/19/18 14:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*105*		*70 - 130*	*11/06/18 14:15*	*11/19/18 14:50*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S5-251018-01
Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.086	J	0.25	0.12	0.033	mg/L		10/31/18 15:55	1
Motor Oil (C20-C38)	0.075	J	0.51	0.13	0.057	mg/L		10/31/18 15:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*56 - 125*	*10/29/18 11:30*	*10/31/18 15:55*	*1*
n-Octacosane	*78*		*60 - 142*	*10/29/18 11:30*	*10/31/18 15:55*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S5-251018-02
Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.10	J	0.24	0.11	0.031	mg/L		10/31/18 16:15	1
Motor Oil (C20-C38)	0.10	J	0.47	0.12	0.053	mg/L		10/31/18 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*56 - 125*	*10/29/18 11:30*	*10/31/18 16:15*	*1*
n-Octacosane	*80*		*60 - 142*	*10/29/18 11:30*	*10/31/18 16:15*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116206-2	RB-S5-251018-01	97	102	102	103
280-116206-3	RB-S5-251018-02	96	109	100	103
LCS 280-436917/5	Lab Control Sample	103	103	97	102
MB 280-436917/4	Method Blank	97	97	94	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116206-2	RB-S5-251018-01	89
280-116206-3	RB-S5-251018-02	95
LCS 280-435210/3	Lab Control Sample	87
LCS 280-436687/3	Lab Control Sample	96
LCSD 280-436687/4	Lab Control Sample Dup	98
MB 280-435210/5	Method Blank	87
MB 280-436687/5	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-116206-2	RB-S5-251018-01	103
280-116206-3	RB-S5-251018-02	105
LCS 280-436520/2-A	Lab Control Sample	106
LCSD 280-436520/3-A	Lab Control Sample Dup	109
MB 280-436520/4-A	Method Blank	105

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-116206-2	RB-S5-251018-01	71	78

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
280-116206-3	RB-S5-251018-02	71	80								
LCS 280-435316/14-A	Lab Control Sample	65	75								
LCS 280-435316/2-A	Lab Control Sample	69	71								
LCSD 280-435316/15-A	Lab Control Sample Dup	66	81								
LCSD 280-435316/3-A	Lab Control Sample Dup	72	75								
MB 280-435316/1-A	Method Blank	64	72								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436917/4
Matrix: Water
Analysis Batch: 436917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/08/18 22:24	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/08/18 22:24	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/08/18 22:24	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/08/18 22:24	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/08/18 22:24	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/08/18 22:24	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/08/18 22:24	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/08/18 22:24	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/08/18 22:24	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/08/18 22:24	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/08/18 22:24	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/08/18 22:24	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/08/18 22:24	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/08/18 22:24	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/08/18 22:24	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/08/18 22:24	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/08/18 22:24	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/08/18 22:24	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/08/18 22:24	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/08/18 22:24	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/08/18 22:24	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/08/18 22:24	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/08/18 22:24	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/08/18 22:24	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/08/18 22:24	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/08/18 22:24	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/08/18 22:24	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/08/18 22:24	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/08/18 22:24	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/08/18 22:24	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/08/18 22:24	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/08/18 22:24	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/08/18 22:24	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/08/18 22:24	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/08/18 22:24	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436917/4
Matrix: Water
Analysis Batch: 436917

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/08/18 22:24	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/08/18 22:24	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/08/18 22:24	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/08/18 22:24	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/08/18 22:24	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/08/18 22:24	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/08/18 22:24	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/08/18 22:24	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/08/18 22:24	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/08/18 22:24	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/08/18 22:24	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/08/18 22:24	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/08/18 22:24	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/08/18 22:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/08/18 22:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*		*11/08/18 22:24*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*11/08/18 22:24*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*11/08/18 22:24*	*1*

Lab Sample ID: LCS 280-436917/5
Matrix: Water
Analysis Batch: 436917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.6		ug/L		108	39 - 160
Benzene	5.00	5.47		ug/L		109	79 - 120
Bromobenzene	5.00	5.28		ug/L		106	80 - 120
Bromochloromethane	5.00	5.32		ug/L		106	78 - 123
Bromodichloromethane	5.00	5.44		ug/L		109	79 - 125
Bromoform	5.00	5.53		ug/L		111	66 - 130
Bromomethane	5.00	4.90		ug/L		98	53 - 141
2-Butanone (MEK)	20.0	23.7		ug/L		118	56 - 143
n-Butylbenzene	5.00	5.24		ug/L		105	75 - 128
sec-Butylbenzene	5.00	5.37		ug/L		107	77 - 126
tert-Butylbenzene	5.00	5.47		ug/L		109	78 - 124
Carbon disulfide	5.00	5.23		ug/L		105	64 - 133
Carbon tetrachloride	5.00	5.49		ug/L		110	72 - 136
Chlorobenzene	5.00	5.39		ug/L		108	82 - 118
Chloroethane	5.00	5.04		ug/L		101	60 - 138
Chloroform	5.00	5.53		ug/L		111	79 - 124
Chloromethane	5.00	4.80		ug/L		96	50 - 139
4-Chlorotoluene	5.00	5.36		ug/L		107	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436917/5
Matrix: Water
Analysis Batch: 436917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.49		ug/L		110	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.52		ug/L		110	62 - 128
Dichlorodifluoromethane	5.00	4.20		ug/L		84	32 - 152
Dibromomethane	5.00	5.42		ug/L		108	79 - 123
Ethylene Dibromide	5.00	5.47		ug/L		109	77 - 121
1,2-Dichlorobenzene	5.00	5.47		ug/L		109	80 - 119
1,3-Dichlorobenzene	5.00	5.32		ug/L		106	80 - 119
1,4-Dichlorobenzene	5.00	5.04		ug/L		101	79 - 118
1,1-Dichloroethane	5.00	5.52		ug/L		110	77 - 125
1,2-Dichloroethane	5.00	5.53		ug/L		111	73 - 128
1,1-Dichloroethene	5.00	5.40		ug/L		108	71 - 131
cis-1,2-Dichloroethene	5.00	5.43		ug/L		109	78 - 123
trans-1,2-Dichloroethene	5.00	5.50		ug/L		110	75 - 124
1,2-Dichloropropane	5.00	5.72		ug/L		114	78 - 122
1,3-Dichloropropane	5.00	5.45		ug/L		109	80 - 119
2,2-Dichloropropane	5.00	5.44		ug/L		109	60 - 139
1,1-Dichloropropene	5.00	5.36		ug/L		107	79 - 125
cis-1,3-Dichloropropene	5.00	5.83		ug/L		117	75 - 124
trans-1,3-Dichloropropene	5.00	5.61		ug/L		112	73 - 127
Ethylbenzene	5.00	5.55		ug/L		111	79 - 121
2-Hexanone	20.0	22.5		ug/L		112	57 - 139
Hexachlorobutadiene	5.00	5.26		ug/L		105	66 - 134
Isopropylbenzene	5.00	5.37		ug/L		107	72 - 131
4-Isopropyltoluene	5.00	5.39		ug/L		108	77 - 127
Methylene Chloride	5.00	5.24		ug/L		105	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	23.0		ug/L		115	67 - 130
Methyl tert-butyl ether	5.00	5.62		ug/L		112	71 - 124
Naphthalene	5.00	5.76		ug/L		115	61 - 128
N-Propylbenzene	5.00	5.54		ug/L		111	76 - 126
Styrene	5.00	5.79		ug/L		116	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.41		ug/L		108	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.39		ug/L		108	71 - 121
Tetrachloroethene	5.00	5.45		ug/L		109	74 - 129
Toluene	5.00	5.50		ug/L		110	80 - 121
1,2,3-Trichlorobenzene	5.00	5.26		ug/L		105	69 - 129
1,1,1-Trichloroethane	5.00	5.43		ug/L		109	74 - 131
1,1,2-Trichloroethane	5.00	5.70		ug/L		114	80 - 119
Trichloroethene	5.00	5.36		ug/L		107	79 - 123
Trichlorofluoromethane	5.00	4.90		ug/L		98	65 - 141
1,2,4-Trichlorobenzene	5.00	5.43		ug/L		109	69 - 130
1,2,3-Trichloropropane	5.00	5.48		ug/L		110	73 - 122
1,2,4-Trimethylbenzene	5.00	5.22		ug/L		104	76 - 124
1,3,5-Trimethylbenzene	5.00	5.24		ug/L		105	75 - 124
Vinyl chloride	5.00	4.93		ug/L		99	58 - 137
o-Xylene	5.00	5.66		ug/L		113	78 - 122
m-Xylene & p-Xylene	5.00	5.67		ug/L		113	80 - 121
2-Chlorotoluene	5.00	5.23		ug/L		105	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436917/5
Matrix: Water
Analysis Batch: 436917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	103		89 - 112
1,2-Dichloroethane-d4 (Surr)	103		81 - 118
4-Bromofluorobenzene (Surr)	97		85 - 114
Dibromofluoromethane (Surr)	102		80 - 119

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-435210/5
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		10/27/18 14:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	87		82 - 110		10/27/18 14:06	1

Lab Sample ID: LCS 280-435210/3
Matrix: Water
Analysis Batch: 435210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	89.8	M	ug/L		89	78 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	87		82 - 110

Lab Sample ID: MB 280-436687/5
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/07/18 14:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	95		82 - 110		11/07/18 14:39	1

Lab Sample ID: LCS 280-436687/3
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	90.0		ug/L		89	78 - 122

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-436687/3
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	96		82 - 110

Lab Sample ID: LCSD 280-436687/4
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			101	94.1		ug/L		93	78 - 122	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	98		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-436520/4-A
Matrix: Water
Analysis Batch: 436801

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436520

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/08/18 11:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	105		70 - 130	11/06/18 14:15	11/08/18 11:23	1

Lab Sample ID: LCS 280-436520/2-A
Matrix: Water
Analysis Batch: 436801

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436520

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.223		ug/L		89	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	106		70 - 130

Lab Sample ID: LCSD 280-436520/3-A
Matrix: Water
Analysis Batch: 436801

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436520

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.227		ug/L		91	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	109		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-435316/1-A
Matrix: Water
Analysis Batch: 435692

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 435316

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		10/31/18 12:36	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		10/31/18 12:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*64*		*56 - 125*	*10/29/18 11:30*	*10/31/18 12:36*	*1*
n-Octacosane	*72*		*60 - 142*	*10/29/18 11:30*	*10/31/18 12:36*	*1*

Lab Sample ID: LCS 280-435316/14-A
Matrix: Water
Analysis Batch: 435692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435316

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	5.02	4.30		mg/L		86	41 - 113

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*65*		*56 - 125*
n-Octacosane	*75*		*60 - 142*

Lab Sample ID: LCS 280-435316/2-A
Matrix: Water
Analysis Batch: 435692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 435316

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.00	1.48		mg/L		74	36 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*56 - 125*
n-Octacosane	*71*		*60 - 142*

Lab Sample ID: LCSD 280-435316/15-A
Matrix: Water
Analysis Batch: 435692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435316

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	5.02	4.41		mg/L		88	41 - 113	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*66*		*56 - 125*
n-Octacosane	*81*		*60 - 142*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 280-435316/3-A
Matrix: Water
Analysis Batch: 435692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 435316

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.52		mg/L		76	36 - 132	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*72*		*56 - 125*
n-Octacosane	*75*		*60 - 142*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

GC/MS VOA

Analysis Batch: 436917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	8260B	
280-116206-3	RB-S5-251018-02	Total/NA	Water	8260B	
MB 280-436917/4	Method Blank	Total/NA	Water	8260B	
LCS 280-436917/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 435210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	8015D GRO	
MB 280-435210/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-435210/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 436687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-3	RB-S5-251018-02	Total/NA	Water	8015D GRO	
MB 280-436687/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-436687/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-436687/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 435316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	3510C	
280-116206-3	RB-S5-251018-02	Total/NA	Water	3510C	
MB 280-435316/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-435316/14-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-435316/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-435316/15-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-435316/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 435692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	8015D DRO	435316
280-116206-3	RB-S5-251018-02	Total/NA	Water	8015D DRO	435316
MB 280-435316/1-A	Method Blank	Total/NA	Water	8015D DRO	435316
LCS 280-435316/14-A	Lab Control Sample	Total/NA	Water	8015D DRO	435316
LCS 280-435316/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	435316
LCSD 280-435316/15-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	435316
LCSD 280-435316/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	435316

Prep Batch: 436520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	8011	
280-116206-3	RB-S5-251018-02	Total/NA	Water	8011	
MB 280-436520/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-436520/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-436520/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

GC Semi VOA (Continued)

Analysis Batch: 436801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-436520/4-A	Method Blank	Total/NA	Water	8011	436520
LCS 280-436520/2-A	Lab Control Sample	Total/NA	Water	8011	436520
LCSD 280-436520/3-A	Lab Control Sample Dup	Total/NA	Water	8011	436520

Analysis Batch: 438123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116206-2	RB-S5-251018-01	Total/NA	Water	8011	436520
280-116206-3	RB-S5-251018-02	Total/NA	Water	8011	436520

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Client Sample ID: RB-S5-251018-01

Date Collected: 10/25/18 07:45
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436917	11/09/18 04:08	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	435210	10/27/18 22:08	GPM	TAL DEN
Total/NA	Prep	8011			34.1 mL	35 mL	436520	11/06/18 14:15	SU	TAL DEN
Total/NA	Analysis	8011		1			438123	11/19/18 14:30	JLW	TAL DEN
Total/NA	Prep	3510C			980.7 mL	1 mL	435316	10/29/18 11:30	AAG	TAL DEN
Total/NA	Analysis	8015D DRO		1			435692	10/31/18 15:55	CSM	TAL DEN

Client Sample ID: RB-S5-251018-02

Date Collected: 10/25/18 08:00
Date Received: 10/26/18 09:25

Lab Sample ID: 280-116206-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	436917	11/09/18 04:28	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	436687	11/07/18 17:49	GPM	TAL DEN
Total/NA	Prep	8011			34.4 mL	35 mL	436520	11/06/18 14:15	SU	TAL DEN
Total/NA	Analysis	8011		1			438123	11/19/18 14:50	JLW	TAL DEN
Total/NA	Prep	3510C			1052.9 mL	1 mL	435316	10/29/18 11:30	AAG	TAL DEN
Total/NA	Analysis	8015D DRO		1			435692	10/31/18 16:15	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116206-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Denise Wilt	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4434 0830 8760	COC No: COC1-55-TA-20181025
Client Contact: Pamela Moss	Phone: 717-781-5600	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1of1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A		
TB-55-251018-01	10/25/18	1459	G	W	N	N						X	X	-	X	4	
RB-55-251018-01	0745 10/25/18		G	W	N	N						X	X	X	X	10	RB-
RB-55-251018-02	0800 10/26/18		G	W	N	N						X	X	X	X	10	RB-

280-116206 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kevin Rebeor	10/25/18 1700	EA	Fedex		
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	10/26/18 0925	TA Den

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: -0.1 @ 10.1 by DP 10/26/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116206-1

Login Number: 116206
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116409-1
Client Project/Site: Kirtland BFF Vadose Zone Coring
Revision: 1

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
12/19/2018 5:06:50 PM

Darlene Bandy, Project Manager I
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116409-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116409-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1 - 12/13/2018
Revision 1 was created in order to add the missing Benzene 8260B result to sample V-S9-301018-501 (280-116409-4) and the missing MEK 8260B result to sample V-S9-301018-496 (280-116409-2).

RECEIPT
The samples were received on 11/1/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-S9-301018-496 (280-116409-2) and V-S9-301018-501 (280-116409-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 10/30/2018 and 11/08/2018 and analyzed on 11/08/2018.

Surrogate recovery for the following samples was outside control limits: V-S9-301018-496 (280-116409-2) and V-S9-301018-501 (280-116409-4). Evidence of matrix interference is present as evident in the chromatogram; therefore, re-extraction and/or re-analysis was not performed

Naphthalene was detected in method blank MB 280-436847/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

cis-1,3-Dichloropropene failed the recovery criteria high for LCSD 280-436841/3-A (31%D, limits 74-126%D). All associated results have

Job ID: 280-116409-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

been flagged "Q". Refer to the QC report for details. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260B: The matrix spike duplicate (MSD) precision for preparation batch 280-436847 and analytical batch 280-436800 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) precision was within acceptance limits.

The continuing calibration verification (CCV) associated with batch 280-436800 recovered above the upper control limit for 2-Chloroethyl vinyl ether and Vinyl acetate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

2-Chloroethyl vinyl ether +70.4%D Vinyl acetate +20.1%D

The following compound was outside control limits in the continuing calibration verification (CCV) associated with batch 280-436800: Dichlorodifluoromethane (-22.3%D). Associated results have been flagged "Q". This compound is not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. The associated samples were non-detect for the affected analyte.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S9-311018-01 (280-116409-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/14/2018.

Toluene-d8 (Surr) failed the surrogate recovery criteria high for TB-S9-311018-01 (280-116409-1). Associated results have been flagged "Q". Refer to the QC report for details. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

1,1,2-Trichloroethane failed the recovery criteria high for LCS 280-437515/5. Associated results have been flagged "Q". Refer to the QC report for details. This is not indicative of a systematic control problem because this was a random marginal exceedance (ME). The data have been qualified and reported.

1,1,2-Trichloroethane 121%D (80-119)%D (ME 65-135%D).

The continuing calibration verification (CCV) associated with batch 280-437515 recovered above the upper control limit for < Dichlorodifluoromethane>. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Dichlorodifluoromethane +29.6%D

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S9-301018-496 (280-116409-2) and V-S9-301018-501 (280-116409-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/09/2018 and analyzed on 11/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S9-311018-01 (280-116409-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 11/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S9-301018-496 (280-116409-3) and P-S9-301018-501 (280-116409-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/02/2018 and analyzed on 11/06/2018.

Job ID: 280-116409-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Sample P-S9-301018-496 (280-116409-3)[10X] required dilution prior to analysis due to the abundance of target analytes. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S9-301018-496 (280-116409-3). Associated results have been flagged "Q". Refer to the QC report for details. Due to the required dilution, the surrogates were diluted beyond the ability to reliably calculate recoveries.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S9-311018-01 (280-116409-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S9-301018-496 (280-116409-3) and P-S9-301018-501 (280-116409-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/07/2018 and analyzed on 11/13/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-436699/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S9-301018-496 (280-116409-2), P-S9-301018-496 (280-116409-3), V-S9-301018-501 (280-116409-4) and P-S9-301018-501 (280-116409-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/02/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Client Sample ID: TB-S9-311018-01 — Lab Sample ID: 280-116409-1

No Detections.

Client Sample ID: V-S9-301018-496 — Lab Sample ID: 280-116409-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	0.71	J Q	3.1	0.98	0.26	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	50	Q	3.1	0.98	0.39	ug/Kg	1	☼	8260B	Total/NA
Benzene - DL	1900		240	160	44	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene - DL	870		240	78	31	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene - DL	1100		240	78	37	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene - DL	3700		240	78	33	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene - DL	960		240	78	28	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene - DL	480		240	78	31	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene - DL	1600		240	160	40	ug/Kg	1	☼	8260B	Total/NA
Toluene - DL	9900		240	78	38	ug/Kg	1	☼	8260B	Total/NA
1,2,4-Trimethylbenzene - DL	5300		240	78	30	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene - DL	2200		240	78	38	ug/Kg	1	☼	8260B	Total/NA
o-Xylene - DL	3900		120	78	34	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	9900		240	160	76	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	0.77	M	0.11	0.043	0.017	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S9-301018-496 — Lab Sample ID: 280-116409-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	480	D Q	14	13	3.8	mg/Kg	10	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	210		8.4	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	19	J	25	25	8.2	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S9-301018-501 — Lab Sample ID: 280-116409-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trimethylbenzene	82	Q	2.9	0.91	0.33	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	19	Q	2.9	0.91	0.28	ug/Kg	1	☼	8260B	Total/NA
Acetone	20		11	7.3	3.1	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	2.6	J Q	2.9	0.91	0.30	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	43	Q	2.9	0.91	0.34	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	38	Q	2.9	0.91	0.36	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	30	Q	2.9	0.91	0.32	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	68	Q	2.9	0.91	0.33	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	45	Q	2.9	0.91	0.44	ug/Kg	1	☼	8260B	Total/NA
Benzene - DL	180	J	260	170	48	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene - DL	300		260	84	36	ug/Kg	1	☼	8260B	Total/NA
Toluene - DL	960		260	84	41	ug/Kg	1	☼	8260B	Total/NA
1,2,4-Trimethylbenzene - DL	450		260	84	33	ug/Kg	1	☼	8260B	Total/NA
o-Xylene - DL	310		130	84	37	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	870		260	170	82	ug/Kg	1	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Client Sample ID: P-S9-301018-501

Lab Sample ID: 280-116409-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	18		1.5	1.4	0.41	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	5.2	J	8.5	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116409-1	TB-S9-311018-01	Water	10/31/18 09:00	11/01/18 09:30
280-116409-2	V-S9-301018-496	Solid	10/30/18 15:10	11/01/18 09:30
280-116409-3	P-S9-301018-496	Solid	10/30/18 15:10	11/01/18 09:30
280-116409-4	V-S9-301018-501	Solid	10/30/18 15:10	11/01/18 09:30
280-116409-5	P-S9-301018-501	Solid	10/30/18 15:10	11/01/18 09:30

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S9-311018-01
Date Collected: 10/31/18 09:00
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/14/18 11:10	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/14/18 11:10	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
Bromoform	0.40	U Q	1.0	0.40	0.19	ug/L		11/14/18 11:10	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/14/18 11:10	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/14/18 11:10	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/14/18 11:10	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/14/18 11:10	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/14/18 11:10	1
Chlorobenzene	0.40	U Q	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/14/18 11:10	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/14/18 11:10	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:10	1
Dibromochloromethane	0.40	U Q	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/14/18 11:10	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		11/14/18 11:10	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
Ethylene Dibromide	0.40	U Q	1.0	0.40	0.18	ug/L		11/14/18 11:10	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:10	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/14/18 11:10	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/14/18 11:10	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/14/18 11:10	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/14/18 11:10	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/14/18 11:10	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:10	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:10	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/14/18 11:10	1
1,3-Dichloropropane	0.80	U Q	1.0	0.80	0.22	ug/L		11/14/18 11:10	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/14/18 11:10	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:10	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:10	1
Ethylbenzene	0.40	U Q	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
2-Hexanone	4.0	U Q	5.0	4.0	1.7	ug/L		11/14/18 11:10	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/14/18 11:10	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:10	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/14/18 11:10	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		11/14/18 11:10	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/14/18 11:10	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/14/18 11:10	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/14/18 11:10	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Styrene	0.40	U Q	1.0	0.40	0.17	ug/L		11/14/18 11:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S9-311018-01
Date Collected: 10/31/18 09:00
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U Q	1.0	0.80	0.21	ug/L		11/14/18 11:10	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:10	1
Tetrachloroethene	0.40	U Q	1.0	0.40	0.20	ug/L		11/14/18 11:10	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:10	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		11/14/18 11:10	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/14/18 11:10	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:10	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/14/18 11:10	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:10	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:10	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/14/18 11:10	1
o-Xylene	0.40	U Q	1.0	0.40	0.19	ug/L		11/14/18 11:10	1
m-Xylene & p-Xylene	0.80	U Q	2.0	0.80	0.34	ug/L		11/14/18 11:10	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*116*	*Q*	*89 - 112*		*11/14/18 11:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*11/14/18 11:10*	*1*
4-Bromofluorobenzene (Surr)	*113*		*85 - 114*		*11/14/18 11:10*	*1*
Dibromofluoromethane (Surr)	*110*		*80 - 119*		*11/14/18 11:10*	*1*

Client Sample ID: V-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-2
Matrix: Solid
Percent Solids: 87.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.98	U Q	3.1	0.98	0.34	ug/Kg	☼	11/08/18 13:08	1
1,1,1-Trichloroethane	0.98	U Q	3.1	0.98	0.32	ug/Kg	☼	11/08/18 13:08	1
1,1,2,2-Tetrachloroethane	0.98	U M Q	3.1	0.98	0.37	ug/Kg	☼	11/08/18 13:08	1
1,1,2-Trichloroethane	2.0	U M Q	3.1	2.0	0.54	ug/Kg	☼	11/08/18 13:08	1
1,1-Dichloroethane	0.49	U M Q	3.1	0.49	0.13	ug/Kg	☼	11/08/18 13:08	1
1,1-Dichloroethene	0.98	U Q	3.1	0.98	0.36	ug/Kg	☼	11/08/18 13:08	1
1,1-Dichloropropene	0.98	U Q	3.1	0.98	0.33	ug/Kg	☼	11/08/18 13:08	1
1,2,3-Trichlorobenzene	0.98	U Q	3.1	0.98	0.46	ug/Kg	☼	11/08/18 13:08	1
1,2,3-Trichloropropane	2.0	U M Q	3.1	2.0	0.50	ug/Kg	☼	11/08/18 13:08	1
1,2,4-Trichlorobenzene	0.98	U Q	3.1	0.98	0.45	ug/Kg	☼	11/08/18 13:08	1
1,2-Dibromo-3-Chloropropane	0.98	U Q	6.1	0.98	0.37	ug/Kg	☼	11/08/18 13:08	1
1,2-Dichlorobenzene	0.98	U Q	3.1	0.98	0.28	ug/Kg	☼	11/08/18 13:08	1
1,2-Dichloroethane	0.98	U M Q	3.1	0.98	0.43	ug/Kg	☼	11/08/18 13:08	1
1,2-Dichloroethene, Total	0.98	U	3.1	0.98	0.24	ug/Kg	☼	11/08/18 13:08	1
1,2-Dichloropropane	0.98	U M Q	3.1	0.98	0.34	ug/Kg	☼	11/08/18 13:08	1
1,3-Dichlorobenzene	0.98	U Q	3.1	0.98	0.29	ug/Kg	☼	11/08/18 13:08	1
1,3-Dichloropropane	0.98	U M Q	3.1	0.98	0.31	ug/Kg	☼	11/08/18 13:08	1
1,4-Dichlorobenzene	0.98	U Q	3.1	0.98	0.48	ug/Kg	☼	11/08/18 13:08	1
2,2-Dichloropropane	0.98	U Q	3.1	0.98	0.27	ug/Kg	☼	11/08/18 13:08	1
2-Chlorotoluene	0.98	U M Q	3.1	0.98	0.31	ug/Kg	☼	11/08/18 13:08	1
2-Hexanone	7.8	U M Q	12	7.8	3.0	ug/Kg	☼	11/08/18 13:08	1
4-Chlorotoluene	0.98	U M Q	3.1	0.98	0.48	ug/Kg	☼	11/08/18 13:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-2
Matrix: Solid
Percent Solids: 87.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	7.8	U M Q	12	7.8	2.7	ug/Kg	☼	11/08/18 13:08	1
Acetone	7.8	U M Q	12	7.8	3.3	ug/Kg	☼	11/08/18 13:08	1
Bromobenzene	0.98	U Q	3.1	0.98	0.30	ug/Kg	☼	11/08/18 13:08	1
Bromoform	0.49	U Q	3.1	0.49	0.14	ug/Kg	☼	11/08/18 13:08	1
Bromomethane	0.98	U Q	6.1	0.98	0.31	ug/Kg	☼	11/08/18 13:08	1
Carbon disulfide	**0.71**	**J Q**	3.1	0.98	0.26	ug/Kg	☼	11/08/18 13:08	1
Carbon tetrachloride	0.98	U Q	3.1	0.98	0.39	ug/Kg	☼	11/08/18 13:08	1
Chlorobenzene	0.98	U M Q	3.1	0.98	0.33	ug/Kg	☼	11/08/18 13:08	1
Bromochloromethane	0.49	U Q	3.1	0.49	0.18	ug/Kg	☼	11/08/18 13:08	1
Dibromochloromethane	0.98	U Q	3.1	0.98	0.35	ug/Kg	☼	11/08/18 13:08	1
Chloroethane	2.0	U Q	6.1	2.0	0.54	ug/Kg	☼	11/08/18 13:08	1
Chloroform	0.49	U Q	6.1	0.49	0.18	ug/Kg	☼	11/08/18 13:08	1
Chloromethane	0.98	U Q	6.1	0.98	0.47	ug/Kg	☼	11/08/18 13:08	1
cis-1,2-Dichloroethene	0.98	U Q	3.1	0.98	0.34	ug/Kg	☼	11/08/18 13:08	1
cis-1,3-Dichloropropene	2.0	U M Q	3.1	2.0	0.79	ug/Kg	☼	11/08/18 13:08	1
Dibromomethane	2.0	U Q	3.1	2.0	0.51	ug/Kg	☼	11/08/18 13:08	1
Bromodichloromethane	0.49	U Q	3.1	0.49	0.13	ug/Kg	☼	11/08/18 13:08	1
Dichlorodifluoromethane	0.98	U Q	6.1	0.98	0.32	ug/Kg	☼	11/08/18 13:08	1
Ethylene Dibromide	0.98	U M Q	3.1	0.98	0.32	ug/Kg	☼	11/08/18 13:08	1
Hexachlorobutadiene	0.98	U Q	3.1	0.98	0.34	ug/Kg	☼	11/08/18 13:08	1
Methyl tert-butyl ether	0.49	U M Q	12	0.49	0.21	ug/Kg	☼	11/08/18 13:08	1
Methylene Chloride	2.0	U Q	3.1	2.0	0.98	ug/Kg	☼	11/08/18 13:08	1
Naphthalene	**50**	**Q**	3.1	0.98	0.39	ug/Kg	☼	11/08/18 13:08	1
Styrene	0.98	U M Q	3.1	0.98	0.39	ug/Kg	☼	11/08/18 13:08	1
tert-Butylbenzene	0.98	U M Q	3.1	0.98	0.31	ug/Kg	☼	11/08/18 13:08	1
Tetrachloroethene	0.98	U Q	3.1	0.98	0.36	ug/Kg	☼	11/08/18 13:08	1
trans-1,2-Dichloroethene	0.49	U Q	3.1	0.49	0.24	ug/Kg	☼	11/08/18 13:08	1
trans-1,3-Dichloropropene	0.98	U Q	3.1	0.98	0.41	ug/Kg	☼	11/08/18 13:08	1
Trichloroethene	0.49	U Q	3.1	0.49	0.14	ug/Kg	☼	11/08/18 13:08	1
Trichlorofluoromethane	2.0	U Q	6.1	2.0	0.64	ug/Kg	☼	11/08/18 13:08	1
Vinyl chloride	2.0	U Q	3.1	2.0	0.82	ug/Kg	☼	11/08/18 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*352*	*Q*	*85 - 116*	*10/30/18 15:10*	*11/08/18 13:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*191*	*Q*	*71 - 136*	*10/30/18 15:10*	*11/08/18 13:08*	*1*
4-Bromofluorobenzene (Surr)	*695*	*Q*	*79 - 119*	*10/30/18 15:10*	*11/08/18 13:08*	*1*
Dibromofluoromethane (Surr)	*141*	*Q*	*78 - 119*	*10/30/18 15:10*	*11/08/18 13:08*	*1*

Client Sample ID: V-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.91	U Q	2.9	0.91	0.32	ug/Kg	☼	11/08/18 13:28	1
1,1,1-Trichloroethane	0.91	U	2.9	0.91	0.30	ug/Kg	☼	11/08/18 13:28	1
1,1,2,2-Tetrachloroethane	0.91	U M Q	2.9	0.91	0.35	ug/Kg	☼	11/08/18 13:28	1
1,1,2-Trichloroethane	1.8	U M	2.9	1.8	0.50	ug/Kg	☼	11/08/18 13:28	1
1,1-Dichloroethane	0.46	U	2.9	0.46	0.12	ug/Kg	☼	11/08/18 13:28	1
1,1-Dichloroethene	0.91	U	2.9	0.91	0.34	ug/Kg	☼	11/08/18 13:28	1
1,1-Dichloropropene	0.91	U	2.9	0.91	0.31	ug/Kg	☼	11/08/18 13:28	1
1,2,3-Trichlorobenzene	0.91	U M Q	2.9	0.91	0.43	ug/Kg	☼	11/08/18 13:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,3-Trichloropropane	1.8	U M Q	2.9	1.8	0.46	ug/Kg	☼	11/08/18 13:28	1
1,2,4-Trichlorobenzene	0.91	U M Q	2.9	0.91	0.42	ug/Kg	☼	11/08/18 13:28	1
1,2-Dibromo-3-Chloropropane	0.91	U Q	5.7	0.91	0.34	ug/Kg	☼	11/08/18 13:28	1
1,2-Dichlorobenzene	0.91	U Q	2.9	0.91	0.26	ug/Kg	☼	11/08/18 13:28	1
1,2-Dichloroethane	0.91	U M	2.9	0.91	0.40	ug/Kg	☼	11/08/18 13:28	1
1,2-Dichloroethene, Total	0.91	U	2.9	0.91	0.22	ug/Kg	☼	11/08/18 13:28	1
1,2-Dichloropropane	0.91	U M	2.9	0.91	0.31	ug/Kg	☼	11/08/18 13:28	1
1,3,5-Trimethylbenzene	**82**	**Q**	2.9	0.91	0.33	ug/Kg	☼	11/08/18 13:28	1
1,3-Dichlorobenzene	0.91	U Q	2.9	0.91	0.27	ug/Kg	☼	11/08/18 13:28	1
1,3-Dichloropropane	0.91	U Q	2.9	0.91	0.29	ug/Kg	☼	11/08/18 13:28	1
1,4-Dichlorobenzene	0.91	U Q	2.9	0.91	0.45	ug/Kg	☼	11/08/18 13:28	1
2,2-Dichloropropane	0.91	U	2.9	0.91	0.25	ug/Kg	☼	11/08/18 13:28	1
2-Butanone (MEK)	3.7	U M	11	3.7	1.0	ug/Kg	☼	11/08/18 13:28	1
2-Chlorotoluene	0.91	U M Q	2.9	0.91	0.29	ug/Kg	☼	11/08/18 13:28	1
2-Hexanone	7.3	U M Q	11	7.3	2.8	ug/Kg	☼	11/08/18 13:28	1
4-Chlorotoluene	0.91	U M Q	2.9	0.91	0.45	ug/Kg	☼	11/08/18 13:28	1
4-Isopropyltoluene	**19**	**Q**	2.9	0.91	0.28	ug/Kg	☼	11/08/18 13:28	1
4-Methyl-2-pentanone (MIBK)	7.3	U M	11	7.3	2.5	ug/Kg	☼	11/08/18 13:28	1
Acetone	**20**		11	7.3	3.1	ug/Kg	☼	11/08/18 13:28	1
Bromobenzene	0.91	U Q	2.9	0.91	0.28	ug/Kg	☼	11/08/18 13:28	1
Bromoform	0.46	U Q	2.9	0.46	0.13	ug/Kg	☼	11/08/18 13:28	1
Bromomethane	0.91	U	5.7	0.91	0.29	ug/Kg	☼	11/08/18 13:28	1
Carbon disulfide	0.91	U	2.9	0.91	0.24	ug/Kg	☼	11/08/18 13:28	1
Carbon tetrachloride	0.91	U	2.9	0.91	0.36	ug/Kg	☼	11/08/18 13:28	1
Chlorobenzene	0.91	U Q	2.9	0.91	0.31	ug/Kg	☼	11/08/18 13:28	1
Bromochloromethane	0.46	U	2.9	0.46	0.17	ug/Kg	☼	11/08/18 13:28	1
Dibromochloromethane	0.91	U Q	2.9	0.91	0.33	ug/Kg	☼	11/08/18 13:28	1
Chloroethane	1.8	U	5.7	1.8	0.51	ug/Kg	☼	11/08/18 13:28	1
Chloroform	0.46	U	5.7	0.46	0.17	ug/Kg	☼	11/08/18 13:28	1
Chloromethane	0.91	U	5.7	0.91	0.44	ug/Kg	☼	11/08/18 13:28	1
cis-1,2-Dichloroethene	0.91	U	2.9	0.91	0.32	ug/Kg	☼	11/08/18 13:28	1
cis-1,3-Dichloropropene	1.8	U	2.9	1.8	0.74	ug/Kg	☼	11/08/18 13:28	1
Dibromomethane	1.8	U	2.9	1.8	0.48	ug/Kg	☼	11/08/18 13:28	1
Bromodichloromethane	0.46	U M	2.9	0.46	0.13	ug/Kg	☼	11/08/18 13:28	1
Dichlorodifluoromethane	0.91	U Q	5.7	0.91	0.30	ug/Kg	☼	11/08/18 13:28	1
Ethylene Dibromide	**2.6**	**J Q**	2.9	0.91	0.30	ug/Kg	☼	11/08/18 13:28	1
Hexachlorobutadiene	0.91	U Q	2.9	0.91	0.31	ug/Kg	☼	11/08/18 13:28	1
Isopropylbenzene	**43**	**Q**	2.9	0.91	0.34	ug/Kg	☼	11/08/18 13:28	1
Methyl tert-butyl ether	0.46	U	11	0.46	0.19	ug/Kg	☼	11/08/18 13:28	1
Methylene Chloride	1.8	U	2.9	1.8	0.91	ug/Kg	☼	11/08/18 13:28	1
Naphthalene	**38**	**Q**	2.9	0.91	0.36	ug/Kg	☼	11/08/18 13:28	1
n-Butylbenzene	**30**	**Q**	2.9	0.91	0.32	ug/Kg	☼	11/08/18 13:28	1
N-Propylbenzene	**68**	**Q**	2.9	0.91	0.33	ug/Kg	☼	11/08/18 13:28	1
sec-Butylbenzene	**45**	**Q**	2.9	0.91	0.44	ug/Kg	☼	11/08/18 13:28	1
Styrene	0.91	U M Q	2.9	0.91	0.36	ug/Kg	☼	11/08/18 13:28	1
tert-Butylbenzene	0.91	U M Q	2.9	0.91	0.29	ug/Kg	☼	11/08/18 13:28	1
Tetrachloroethene	0.91	U Q	2.9	0.91	0.34	ug/Kg	☼	11/08/18 13:28	1
trans-1,2-Dichloroethene	0.46	U	2.9	0.46	0.22	ug/Kg	☼	11/08/18 13:28	1
trans-1,3-Dichloropropene	0.91	U M	2.9	0.91	0.38	ug/Kg	☼	11/08/18 13:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S9-301018-501 — **Lab Sample ID: 280-116409-4**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30 — **Percent Solids: 87.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichloroethene	0.46	U	2.9	0.46	0.13	ug/Kg	☼	11/08/18 13:28	1
Trichlorofluoromethane	1.8	U	5.7	1.8	0.59	ug/Kg	☼	11/08/18 13:28	1
Vinyl chloride	1.8	U	2.9	1.8	0.77	ug/Kg	☼	11/08/18 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*153*	*Q*	*85 - 116*	*10/30/18 15:10*	*11/08/18 13:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*10/30/18 15:10*	*11/08/18 13:28*	*1*
4-Bromofluorobenzene (Surr)	*136*	*Q*	*79 - 119*	*10/30/18 15:10*	*11/08/18 13:28*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*10/30/18 15:10*	*11/08/18 13:28*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S9-301018-496 — **Lab Sample ID: 280-116409-2**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30 — **Percent Solids: 87.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	**1900**		240	160	44	ug/Kg	☼	11/08/18 16:01	1
2-Butanone (MEK)	630	U	980	630	290	ug/Kg	☼	11/08/18 16:01	1
n-Butylbenzene	**870**		240	78	31	ug/Kg	☼	11/08/18 16:01	1
sec-Butylbenzene	**1100**		240	78	37	ug/Kg	☼	11/08/18 16:01	1
Ethylbenzene	**3700**		240	78	33	ug/Kg	☼	11/08/18 16:01	1
Isopropylbenzene	**960**		240	78	28	ug/Kg	☼	11/08/18 16:01	1
4-Isopropyltoluene	**480**		240	78	31	ug/Kg	☼	11/08/18 16:01	1
N-Propylbenzene	**1600**		240	160	40	ug/Kg	☼	11/08/18 16:01	1
Toluene	**9900**		240	78	38	ug/Kg	☼	11/08/18 16:01	1
1,2,4-Trimethylbenzene	**5300**		240	78	30	ug/Kg	☼	11/08/18 16:01	1
1,3,5-Trimethylbenzene	**2200**		240	78	38	ug/Kg	☼	11/08/18 16:01	1
o-Xylene	**3900**		120	78	34	ug/Kg	☼	11/08/18 16:01	1
m-Xylene & p-Xylene	**9900**		240	160	76	ug/Kg	☼	11/08/18 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*11/08/18 15:24*	*11/08/18 16:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*	*11/08/18 15:24*	*11/08/18 16:01*	*1*
4-Bromofluorobenzene (Surr)	*110*		*79 - 119*	*11/08/18 15:24*	*11/08/18 16:01*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 119*	*11/08/18 15:24*	*11/08/18 16:01*	*1*

Client Sample ID: V-S9-301018-501 — **Lab Sample ID: 280-116409-4**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30 — **Percent Solids: 87.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	**180**	**J**	260	170	48	ug/Kg	☼	11/08/18 16:20	1
Ethylbenzene	**300**		260	84	36	ug/Kg	☼	11/08/18 16:20	1
Toluene	**960**		260	84	41	ug/Kg	☼	11/08/18 16:20	1
1,2,4-Trimethylbenzene	**450**		260	84	33	ug/Kg	☼	11/08/18 16:20	1
o-Xylene	**310**		130	84	37	ug/Kg	☼	11/08/18 16:20	1
m-Xylene & p-Xylene	**870**		260	170	82	ug/Kg	☼	11/08/18 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*90*		*85 - 116*	*11/08/18 15:24*	*11/08/18 16:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*11/08/18 15:24*	*11/08/18 16:20*	*1*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*	*11/08/18 15:24*	*11/08/18 16:20*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: V-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-4
Matrix: Solid
Percent Solids: 87.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	85		78 - 119	11/08/18 15:24	11/08/18 16:20	1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S9-311018-01
Date Collected: 10/31/18 09:00
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/08/18 11:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	92		82 - 110		11/08/18 11:52	1

Client Sample ID: P-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-3
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	480	D Q	14	13	3.8	mg/Kg	☼	11/06/18 05:10	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	1238	Q	77 - 123	11/02/18 13:20	11/06/18 05:10	10

Client Sample ID: P-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-5
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	18		1.5	1.4	0.41	mg/Kg	☼	11/06/18 05:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	109		77 - 123	11/02/18 13:20	11/06/18 05:34	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S9-311018-01
Date Collected: 10/31/18 09:00
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/13/18 22:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	105		70 - 130	11/13/18 11:42	11/13/18 22:26	1

Client Sample ID: V-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30
Lab Sample ID: 280-116409-2
Matrix: Solid
Percent Solids: 87.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.77	M	0.11	0.043	0.017	ug/Kg	☼	11/15/18 23:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	93	M	55 - 130	11/09/18 14:56	11/15/18 23:07	1

Client Sample ID: V-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	11/15/18 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*	*M*	*55 - 130*	*11/09/18 14:56*	*11/15/18 23:26*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-3
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**210**		8.4	4.2	1.4	mg/Kg	☼	11/13/18 00:41	1
Motor Oil (C20-C38)	**19**	**J**	25	25	8.2	mg/Kg	☼	11/13/18 00:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*11/07/18 16:21*	*11/13/18 00:41*	*1*
n-Octacosane	*86*		*25 - 162*	*11/07/18 16:21*	*11/13/18 00:41*	*1*

Client Sample ID: P-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-5
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.2**	**J**	8.5	4.2	1.4	mg/Kg	☼	11/13/18 01:02	1
Motor Oil (C20-C38)	25	U	25	25	8.3	mg/Kg	☼	11/13/18 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*45 - 130*	*11/07/18 16:21*	*11/13/18 01:02*	*1*
n-Octacosane	*93*		*25 - 162*	*11/07/18 16:21*	*11/13/18 01:02*	*1*

General Chemistry

Client Sample ID: V-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-2
Matrix: Solid
Percent Solids: 87.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**12.3**		0.1	0.05	0.1	%		11/02/18 11:58	1

Client Sample ID: P-S9-301018-496
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-3
Matrix: Solid
Percent Solids: 90.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.9**		0.1	0.05	0.1	%		11/02/18 11:58	1

Client Sample ID: V-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**12.7**		0.1	0.05	0.1	%		11/02/18 11:58	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

General Chemistry

Client Sample ID: P-S9-301018-501
Date Collected: 10/30/18 15:10
Date Received: 11/01/18 09:30

Lab Sample ID: 280-116409-5
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.5		0.1	0.05	0.1	%		11/02/18 11:58	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-116409-2 - DL	V-S9-301018-496	103	85	110	83
280-116409-2	V-S9-301018-496	352 Q	191 Q	695 Q	141 Q
280-116409-4 - DL	V-S9-301018-501	90	80	89	85
280-116409-4	V-S9-301018-501	153 Q	99	136 Q	99
LCS 280-436841/2-A	Lab Control Sample	100	94	100	95
LCS 280-436847/2-A	Lab Control Sample	101	94	96	103
LCSD 280-436841/3-A	Lab Control Sample Dup	109	103	108	105
MB 280-436841/1-A	Method Blank	105	95	99	96
MB 280-436847/1-A	Method Blank	103	101	95	105

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116409-1	TB-S9-311018-01	116 Q	102	113	110
LCS 280-437515/5	Lab Control Sample	104	112	102	112
MB 280-437515/4	Method Blank	99	101	98	103

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116409-3	P-S9-301018-496	1238 Q
280-116409-5	P-S9-301018-501	109
LCS 280-436090/2-A	Lab Control Sample	88
MB 280-436090/14-A	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-116409-1	TB-S9-311018-01	92
LCS 280-436687/3	Lab Control Sample	96
LCSD 280-436687/4	Lab Control Sample Dup	98
MB 280-436687/5	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-116409-2	V-S9-301018-496	93 M
280-116409-4	V-S9-301018-501	97 M
LCS 280-437059/2-A	Lab Control Sample	108
LCSD 280-437059/3-A	Lab Control Sample Dup	109
MB 280-437059/4-A	Method Blank	97 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-116409-1	TB-S9-311018-01	105
LCS 280-437393/2-A	Lab Control Sample	109 M
LCSD 280-437393/3-A	Lab Control Sample Dup	108
MB 280-437393/4-A	Method Blank	100

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-116409-3	P-S9-301018-496	69	86
280-116409-5	P-S9-301018-501	73	93
LCS 280-436699/2-A	Lab Control Sample	69	82
LCS 280-436699/3-A	Lab Control Sample	78	104
MB 280-436699/1-A	Method Blank	70	92

Surrogate Legend

OTPH = o-Terphenyl (Surr)

OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-436841/1-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436841

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		11/08/18 12:34	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		11/08/18 12:34	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		11/08/18 12:34	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		11/08/18 12:34	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		11/08/18 12:34	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		11/08/18 12:34	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		11/08/18 12:34	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		11/08/18 12:34	1
Acetone	1300	U M	1500	1300	400	ug/Kg		11/08/18 12:34	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		11/08/18 12:34	1
Benzene	160	U	250	160	45	ug/Kg		11/08/18 12:34	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		11/08/18 12:34	1
Bromobenzene	40	U	250	40	19	ug/Kg		11/08/18 12:34	1
Bromoform	160	U	250	160	160	ug/Kg		11/08/18 12:34	1
Bromomethane	160	U	500	160	44	ug/Kg		11/08/18 12:34	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		11/08/18 12:34	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		11/08/18 12:34	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		11/08/18 12:34	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		11/08/18 12:34	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		11/08/18 12:34	1
Chlorobenzene	80	U	250	80	30	ug/Kg		11/08/18 12:34	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		11/08/18 12:34	1
Bromochloromethane	160	U	250	160	47	ug/Kg		11/08/18 12:34	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		11/08/18 12:34	1
Chloroethane	160	U	500	160	44	ug/Kg		11/08/18 12:34	1
Chloroform	160	U	250	160	46	ug/Kg		11/08/18 12:34	1
2-Hexanone	640	U	1000	640	220	ug/Kg		11/08/18 12:34	1
Chloromethane	160	U	500	160	50	ug/Kg		11/08/18 12:34	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		11/08/18 12:34	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		11/08/18 12:34	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		11/08/18 12:34	1
Dibromomethane	80	U	250	80	30	ug/Kg		11/08/18 12:34	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		11/08/18 12:34	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		11/08/18 12:34	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		11/08/18 12:34	1
Ethylbenzene	80	U M	250	80	34	ug/Kg		11/08/18 12:34	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		11/08/18 12:34	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		11/08/18 12:34	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		11/08/18 12:34	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		11/08/18 12:34	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		11/08/18 12:34	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		11/08/18 12:34	1
Methylene Chloride	160	U	250	160	69	ug/Kg		11/08/18 12:34	1
Naphthalene	80	U	500	80	38	ug/Kg		11/08/18 12:34	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		11/08/18 12:34	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		11/08/18 12:34	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		11/08/18 12:34	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		11/08/18 12:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436841/1-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436841

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		11/08/18 12:34	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		11/08/18 12:34	1
Styrene	80	U	250	80	26	ug/Kg		11/08/18 12:34	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		11/08/18 12:34	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		11/08/18 12:34	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		11/08/18 12:34	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		11/08/18 12:34	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		11/08/18 12:34	1
Toluene	80	U	250	80	39	ug/Kg		11/08/18 12:34	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		11/08/18 12:34	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		11/08/18 12:34	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		11/08/18 12:34	1
o-Xylene	80	U	130	80	35	ug/Kg		11/08/18 12:34	1
Trichloroethene	80	U	250	80	23	ug/Kg		11/08/18 12:34	1
m-Xylene & p-Xylene	160	U M	250	160	78	ug/Kg		11/08/18 12:34	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		11/08/18 12:34	1
Vinyl chloride	80	U	500	80	27	ug/Kg		11/08/18 12:34	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		11/08/18 12:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*11/08/18 11:23*	*11/08/18 12:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/08/18 11:23*	*11/08/18 12:34*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*11/08/18 11:23*	*11/08/18 12:34*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/08/18 11:23*	*11/08/18 12:34*	*1*

Lab Sample ID: LCS 280-436841/2-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	2180		ug/Kg		109	61 - 132
2-Butanone (MEK)	8000	6830		ug/Kg		85	51 - 148
1,2-Dichlorobenzene	2000	2100		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	2000	2080		ug/Kg		104	77 - 121
4-Chlorotoluene	2000	2070		ug/Kg		103	72 - 124
1,4-Dichlorobenzene	2000	2000		ug/Kg		100	75 - 120
1,1-Dichloroethane	2000	1860		ug/Kg		93	76 - 125
1,2-Dichloroethane	2000	1890		ug/Kg		95	73 - 128
Acetone	8000	6910		ug/Kg		86	36 - 164
1,1-Dichloroethene	2000	1850		ug/Kg		92	70 - 131
Benzene	2000	1860		ug/Kg		93	77 - 121
Bromobenzene	2000	2090		ug/Kg		105	78 - 121
Bromoform	2000	1800		ug/Kg		90	67 - 132
Bromomethane	2000	1750		ug/Kg		87	53 - 143
1,2-Dichloropropane	2000	2000		ug/Kg		100	76 - 123
Carbon disulfide	2000	1960		ug/Kg		98	63 - 132
1,3-Dichloropropane	2000	1990		ug/Kg		100	77 - 121
Carbon tetrachloride	2000	1810		ug/Kg		91	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436841/2-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	2000	1850		ug/Kg		92	67 - 133
Chlorobenzene	2000	1950		ug/Kg		98	79 - 120
1,1-Dichloropropene	2000	1840		ug/Kg		92	76 - 125
Bromochloromethane	2000	1930		ug/Kg		97	78 - 125
Dibromochloromethane	2000	2140		ug/Kg		107	74 - 126
Chloroethane	2000	1660		ug/Kg		83	59 - 139
Chloroform	2000	1890		ug/Kg		94	78 - 123
2-Hexanone	8000	8080		ug/Kg		101	53 - 145
Chloromethane	2000	1390		ug/Kg		69	50 - 136
cis-1,2-Dichloroethene	2000	1900		ug/Kg		95	77 - 123
cis-1,3-Dichloropropene	2000	2270		ug/Kg		114	74 - 126
4-Isopropyltoluene	2000	2100		ug/Kg		105	73 - 127
Dibromomethane	2000	1950		ug/Kg		98	78 - 125
Bromodichloromethane	2000	2020		ug/Kg		101	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	7990		ug/Kg		100	65 - 135
Dichlorodifluoromethane	2000	1270		ug/Kg		63	29 - 149
Ethylbenzene	2000	1920		ug/Kg		96	76 - 122
Ethylene Dibromide	2000	2120		ug/Kg		106	78 - 122
Hexachlorobutadiene	2000	2000		ug/Kg		100	61 - 135
Isopropylbenzene	2000	2050		ug/Kg		103	68 - 134
1,1,1,2-Tetrachloroethane	2000	2130		ug/Kg		107	78 - 125
Methyl tert-butyl ether	2000	1860		ug/Kg		93	73 - 125
1,1,2,2-Tetrachloroethane	2000	2010		ug/Kg		100	70 - 124
Methylene Chloride	2000	2000		ug/Kg		100	70 - 128
Naphthalene	2000	2120		ug/Kg		106	62 - 129
1,2,3-Trichlorobenzene	2000	2130		ug/Kg		106	66 - 130
n-Butylbenzene	2000	2100		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	2000	1840		ug/Kg		92	73 - 130
N-Propylbenzene	2000	2090		ug/Kg		104	73 - 125
1,1,2-Trichloroethane	2000	2030		ug/Kg		101	78 - 121
sec-Butylbenzene	2000	2040		ug/Kg		102	73 - 126
Styrene	2000	2080		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	2000	2140		ug/Kg		107	67 - 129
tert-Butylbenzene	2000	2050		ug/Kg		102	73 - 125
1,2,3-Trichloropropane	2000	1960		ug/Kg		98	73 - 125
Tetrachloroethene	2000	1890		ug/Kg		94	73 - 128
1,2,4-Trimethylbenzene	2000	2040		ug/Kg		102	75 - 123
Toluene	2000	1900		ug/Kg		95	77 - 121
1,3,5-Trimethylbenzene	2000	2060		ug/Kg		103	73 - 124
trans-1,2-Dichloroethene	2000	1930		ug/Kg		96	74 - 125
trans-1,3-Dichloropropene	2000	2200		ug/Kg		110	71 - 130
o-Xylene	2000	2020		ug/Kg		101	77 - 123
Trichloroethene	2000	1830		ug/Kg		92	77 - 123
m-Xylene & p-Xylene	2000	1920		ug/Kg		96	77 - 124
Trichlorofluoromethane	2000	1680		ug/Kg		84	62 - 140
Vinyl chloride	2000	1460		ug/Kg		73	56 - 135
2-Chlorotoluene	2000	2050		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436841/2-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436841

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: LCSD 280-436841/3-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436841

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			2000	2290		ug/Kg		114	61 - 132	5	20
2-Butanone (MEK)			8000	7840		ug/Kg		98	51 - 148	14	20
1,2-Dichlorobenzene			2000	2260		ug/Kg		113	78 - 121	7	20
1,3-Dichlorobenzene			2000	2260		ug/Kg		113	77 - 121	8	20
4-Chlorotoluene			2000	2220		ug/Kg		111	72 - 124	7	20
1,4-Dichlorobenzene			2000	2220		ug/Kg		111	75 - 120	11	20
1,1-Dichloroethane			2000	2040		ug/Kg		102	76 - 125	9	20
1,2-Dichloroethane			2000	2070		ug/Kg		103	73 - 128	9	20
Acetone			8000	7810		ug/Kg		98	36 - 164	12	20
1,1-Dichloroethene			2000	2040		ug/Kg		102	70 - 131	10	20
Benzene			2000	2050		ug/Kg		102	77 - 121	9	20
Bromobenzene			2000	2280		ug/Kg		114	78 - 121	9	20
Bromoform			2000	2100		ug/Kg		105	67 - 132	15	20
Bromomethane			2000	1850		ug/Kg		93	53 - 143	6	20
1,2-Dichloropropane			2000	2160		ug/Kg		108	76 - 123	8	20
Carbon disulfide			2000	2130		ug/Kg		106	63 - 132	8	20
1,3-Dichloropropane			2000	2250		ug/Kg		112	77 - 121	12	20
Carbon tetrachloride			2000	2010		ug/Kg		100	70 - 135	10	20
2,2-Dichloropropane			2000	2060		ug/Kg		103	67 - 133	11	20
Chlorobenzene			2000	2200		ug/Kg		110	79 - 120	12	20
1,1-Dichloropropene			2000	2010		ug/Kg		101	76 - 125	9	20
Bromochloromethane			2000	2200		ug/Kg		110	78 - 125	13	20
Dibromochloromethane			2000	2500		ug/Kg		125	74 - 126	15	20
Chloroethane			2000	1880		ug/Kg		94	59 - 139	13	20
Chloroform			2000	2080		ug/Kg		104	78 - 123	10	20
2-Hexanone			8000	9040		ug/Kg		113	53 - 145	11	20
Chloromethane			2000	1500		ug/Kg		75	50 - 136	8	20
cis-1,2-Dichloroethene			2000	2100		ug/Kg		105	77 - 123	10	20
cis-1,3-Dichloropropene			2000	2610	Q	ug/Kg		131	74 - 126	14	20
4-Isopropyltoluene			2000	2260		ug/Kg		113	73 - 127	8	20
Dibromomethane			2000	2150		ug/Kg		108	78 - 125	10	20
Bromodichloromethane			2000	2230		ug/Kg		111	75 - 127	10	20
4-Methyl-2-pentanone (MIBK)			8000	8530		ug/Kg		107	65 - 135	7	20
Dichlorodifluoromethane			2000	1290		ug/Kg		64	29 - 149	2	20
Ethylbenzene			2000	2190		ug/Kg		110	76 - 122	13	20
Ethylene Dibromide			2000	2280		ug/Kg		114	78 - 122	7	20
Hexachlorobutadiene			2000	2170		ug/Kg		108	61 - 135	8	20
Isopropylbenzene			2000	2200		ug/Kg		110	68 - 134	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-436841/3-A
Matrix: Solid
Analysis Batch: 436797

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436841

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	2000	2440		ug/Kg		122	78 - 125	13	20
Methyl tert-butyl ether	2000	2110		ug/Kg		105	73 - 125	13	20
1,1,2,2-Tetrachloroethane	2000	2210		ug/Kg		111	70 - 124	10	20
Methylene Chloride	2000	2180		ug/Kg		109	70 - 128	8	20
Naphthalene	2000	2300		ug/Kg		115	62 - 129	8	20
1,2,3-Trichlorobenzene	2000	2290		ug/Kg		114	66 - 130	7	20
n-Butylbenzene	2000	2240		ug/Kg		112	70 - 128	6	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	12	20
N-Propylbenzene	2000	2250		ug/Kg		112	73 - 125	7	20
1,1,2-Trichloroethane	2000	2270		ug/Kg		113	78 - 121	11	20
sec-Butylbenzene	2000	2230		ug/Kg		111	73 - 126	9	20
Styrene	2000	2330		ug/Kg		117	76 - 124	11	20
1,2,4-Trichlorobenzene	2000	2230		ug/Kg		112	67 - 129	4	20
tert-Butylbenzene	2000	2220		ug/Kg		111	73 - 125	8	20
1,2,3-Trichloropropane	2000	2150		ug/Kg		108	73 - 125	10	20
Tetrachloroethene	2000	2080		ug/Kg		104	73 - 128	10	20
1,2,4-Trimethylbenzene	2000	2230		ug/Kg		112	75 - 123	9	20
Toluene	2000	2110		ug/Kg		105	77 - 121	11	20
1,3,5-Trimethylbenzene	2000	2250		ug/Kg		113	73 - 124	9	20
trans-1,2-Dichloroethene	2000	2110		ug/Kg		106	74 - 125	9	20
trans-1,3-Dichloropropene	2000	2430		ug/Kg		121	71 - 130	10	20
o-Xylene	2000	2290		ug/Kg		115	77 - 123	13	20
Trichloroethene	2000	2040		ug/Kg		102	77 - 123	11	20
m-Xylene & p-Xylene	2000	2150		ug/Kg		108	77 - 124	11	20
Trichlorofluoromethane	2000	1800		ug/Kg		90	62 - 140	7	20
Vinyl chloride	2000	1620		ug/Kg		81	56 - 135	11	20
2-Chlorotoluene	2000	2230		ug/Kg		111	75 - 122	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*109*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 136*
4-Bromofluorobenzene (Surr)	*108*		*79 - 119*
Dibromofluoromethane (Surr)	*105*		*78 - 119*

Lab Sample ID: MB 280-436847/1-A
Matrix: Solid
Analysis Batch: 436800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436847

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/08/18 12:07	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/08/18 12:07	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/08/18 12:07	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/08/18 12:07	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/08/18 12:07	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/08/18 12:07	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/08/18 12:07	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/08/18 12:07	1
Acetone	13	U M	20	13	5.4	ug/Kg		11/08/18 12:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436847/1-A
Matrix: Solid
Analysis Batch: 436800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436847

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/08/18 12:07	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/08/18 12:07	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/08/18 12:07	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/08/18 12:07	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/08/18 12:07	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/08/18 12:07	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/08/18 12:07	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/08/18 12:07	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/08/18 12:07	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/08/18 12:07	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/08/18 12:07	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/08/18 12:07	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/08/18 12:07	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/08/18 12:07	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/08/18 12:07	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/08/18 12:07	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/08/18 12:07	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		11/08/18 12:07	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/08/18 12:07	1
cis-1,2-Dichloroethene	1.6	U M	5.0	1.6	0.56	ug/Kg		11/08/18 12:07	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/08/18 12:07	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/08/18 12:07	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/08/18 12:07	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/08/18 12:07	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/08/18 12:07	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/08/18 12:07	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/08/18 12:07	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/08/18 12:07	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/08/18 12:07	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/08/18 12:07	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/08/18 12:07	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/08/18 12:07	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/08/18 12:07	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/08/18 12:07	1
Naphthalene	1.07	J	5.0	1.6	0.63	ug/Kg		11/08/18 12:07	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/08/18 12:07	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/08/18 12:07	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/08/18 12:07	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/08/18 12:07	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/08/18 12:07	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/08/18 12:07	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/08/18 12:07	1
1,2,4-Trichlorobenzene	1.6	U M	5.0	1.6	0.73	ug/Kg		11/08/18 12:07	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/08/18 12:07	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/08/18 12:07	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/08/18 12:07	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/08/18 12:07	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/08/18 12:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-436847/1-A
Matrix: Solid
Analysis Batch: 436800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436847

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/08/18 12:07	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/08/18 12:07	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/08/18 12:07	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/08/18 12:07	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/08/18 12:07	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/08/18 12:07	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/08/18 12:07	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/08/18 12:07	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/08/18 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*11/08/18 07:00*	*11/08/18 12:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*11/08/18 07:00*	*11/08/18 12:07*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*11/08/18 07:00*	*11/08/18 12:07*	*1*
Dibromofluoromethane (Surr)	*105*		*78 - 119*	*11/08/18 07:00*	*11/08/18 12:07*	*1*

Lab Sample ID: LCS 280-436847/2-A
Matrix: Solid
Analysis Batch: 436800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	53.2		ug/Kg		106	61 - 132
2-Butanone (MEK)	200	243		ug/Kg		121	51 - 148
1,2-Dichlorobenzene	50.0	51.4		ug/Kg		103	78 - 121
1,3-Dichlorobenzene	50.0	50.2		ug/Kg		100	77 - 121
4-Chlorotoluene	50.0	52.6		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	50.8		ug/Kg		102	75 - 120
1,1-Dichloroethane	50.0	51.6		ug/Kg		103	76 - 125
1,2-Dichloroethane	50.0	51.9		ug/Kg		104	73 - 128
Acetone	200	249		ug/Kg		125	36 - 164
1,1-Dichloroethene	50.0	55.4		ug/Kg		111	70 - 131
Benzene	50.0	51.6		ug/Kg		103	77 - 121
Bromobenzene	50.0	51.9		ug/Kg		104	78 - 121
Bromoform	50.0	60.6		ug/Kg		121	67 - 132
Bromomethane	50.0	49.7		ug/Kg		99	53 - 143
1,2-Dichloropropane	50.0	52.6		ug/Kg		105	76 - 123
Carbon disulfide	50.0	53.4		ug/Kg		107	63 - 132
1,3-Dichloropropane	50.0	51.6		ug/Kg		103	77 - 121
Carbon tetrachloride	50.0	52.5		ug/Kg		105	70 - 135
2,2-Dichloropropane	50.0	51.0		ug/Kg		102	67 - 133
Chlorobenzene	50.0	50.0		ug/Kg		100	79 - 120
1,1-Dichloropropene	50.0	51.8		ug/Kg		104	76 - 125
Bromochloromethane	50.0	55.0		ug/Kg		110	78 - 125
Dibromochloromethane	50.0	57.3		ug/Kg		115	74 - 126
Chloroethane	50.0	44.1		ug/Kg		88	59 - 139
Chloroform	50.0	52.6		ug/Kg		105	78 - 123
2-Hexanone	200	231		ug/Kg		115	53 - 145
Chloromethane	50.0	47.4		ug/Kg		95	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-436847/2-A
Matrix: Solid
Analysis Batch: 436800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	50.0	54.3		ug/Kg		109	77 - 123
cis-1,3-Dichloropropene	50.0	58.0		ug/Kg		116	74 - 126
4-Isopropyltoluene	50.0	53.0		ug/Kg		106	73 - 127
Dibromomethane	50.0	52.9		ug/Kg		106	78 - 125
Bromodichloromethane	50.0	54.8		ug/Kg		110	75 - 127
4-Methyl-2-pentanone (MIBK)	200	235		ug/Kg		117	65 - 135
Dichlorodifluoromethane	50.0	42.5		ug/Kg		85	29 - 149
Ethylbenzene	50.0	51.9		ug/Kg		104	76 - 122
Ethylene Dibromide	50.0	55.5		ug/Kg		111	78 - 122
Hexachlorobutadiene	50.0	47.6		ug/Kg		95	61 - 135
Isopropylbenzene	50.0	52.4		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	52.5		ug/Kg		105	78 - 125
Methyl tert-butyl ether	50.0	55.4		ug/Kg		111	73 - 125
1,1,2,2-Tetrachloroethane	50.0	51.1		ug/Kg		102	70 - 124
Methylene Chloride	50.0	54.6		ug/Kg		109	70 - 128
Naphthalene	50.0	55.4		ug/Kg		111	62 - 129
1,2,3-Trichlorobenzene	50.0	52.0		ug/Kg		104	66 - 130
n-Butylbenzene	50.0	50.8		ug/Kg		102	70 - 128
1,1,1-Trichloroethane	50.0	52.3		ug/Kg		105	73 - 130
N-Propylbenzene	50.0	50.8		ug/Kg		102	73 - 125
1,1,2-Trichloroethane	50.0	55.9		ug/Kg		112	78 - 121
sec-Butylbenzene	50.0	52.2		ug/Kg		104	73 - 126
Styrene	50.0	54.4		ug/Kg		109	76 - 124
1,2,4-Trichlorobenzene	50.0	54.1		ug/Kg		108	67 - 129
tert-Butylbenzene	50.0	51.4		ug/Kg		103	73 - 125
1,2,3-Trichloropropane	50.0	55.3		ug/Kg		111	73 - 125
Tetrachloroethene	50.0	49.5		ug/Kg		99	73 - 128
1,2,4-Trimethylbenzene	50.0	50.1		ug/Kg		100	75 - 123
Toluene	50.0	52.4		ug/Kg		105	77 - 121
1,3,5-Trimethylbenzene	50.0	50.9		ug/Kg		102	73 - 124
trans-1,2-Dichloroethene	50.0	54.0		ug/Kg		108	74 - 125
trans-1,3-Dichloropropene	50.0	58.6		ug/Kg		117	71 - 130
o-Xylene	50.0	53.8		ug/Kg		108	77 - 123
Trichloroethene	50.0	53.6		ug/Kg		107	77 - 123
m-Xylene & p-Xylene	50.0	51.0		ug/Kg		102	77 - 124
Trichlorofluoromethane	50.0	46.9		ug/Kg		94	62 - 140
Vinyl chloride	50.0	44.4		ug/Kg		89	56 - 135
2-Chlorotoluene	50.0	51.8		ug/Kg		104	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437515/4
Matrix: Water
Analysis Batch: 437515

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/14/18 11:28	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/14/18 11:28	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:28	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/14/18 11:28	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:28	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/14/18 11:28	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/14/18 11:28	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/14/18 11:28	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/14/18 11:28	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/14/18 11:28	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:28	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/14/18 11:28	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/14/18 11:28	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/14/18 11:28	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/14/18 11:28	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/14/18 11:28	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/14/18 11:28	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:28	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/14/18 11:28	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/14/18 11:28	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/14/18 11:28	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/14/18 11:28	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:28	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/14/18 11:28	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/14/18 11:28	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/14/18 11:28	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/14/18 11:28	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/14/18 11:28	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:28	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:28	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/14/18 11:28	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:28	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/14/18 11:28	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/14/18 11:28	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:28	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/14/18 11:28	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437515/4
Matrix: Water
Analysis Batch: 437515

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/14/18 11:28	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/14/18 11:28	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/14/18 11:28	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/14/18 11:28	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:28	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/14/18 11:28	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:28	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/14/18 11:28	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/14/18 11:28	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/14/18 11:28	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/14/18 11:28	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/14/18 11:28	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/14/18 11:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*11/14/18 11:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*11/14/18 11:28*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*11/14/18 11:28*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 119*		*11/14/18 11:28*	*1*

Lab Sample ID: LCS 280-437515/5
Matrix: Water
Analysis Batch: 437515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.16		ug/L		103	62 - 128
2-Butanone (MEK)	20.0	17.6		ug/L		88	56 - 143
1,2-Dichlorobenzene	5.00	5.31		ug/L		106	80 - 119
1,3-Dichlorobenzene	5.00	5.16		ug/L		103	80 - 119
4-Chlorotoluene	5.00	5.22		ug/L		104	78 - 122
1,4-Dichlorobenzene	5.00	5.16		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.67		ug/L		113	77 - 125
1,2-Dichloroethane	5.00	5.52		ug/L		110	73 - 128
Acetone	20.0	20.5		ug/L		102	39 - 160
1,1-Dichloroethene	5.00	5.49		ug/L		110	71 - 131
Benzene	5.00	5.61		ug/L		112	79 - 120
Bromobenzene	5.00	5.38		ug/L		108	80 - 120
Bromoform	5.00	4.92		ug/L		98	66 - 130
Bromomethane	5.00	5.30		ug/L		106	53 - 141
1,2-Dichloropropane	5.00	5.73		ug/L		115	78 - 122
Carbon disulfide	5.00	5.33		ug/L		107	64 - 133
1,3-Dichloropropane	5.00	5.35		ug/L		107	80 - 119
Carbon tetrachloride	5.00	5.35		ug/L		107	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437515/5
Matrix: Water
Analysis Batch: 437515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.23		ug/L		105	60 - 139
Chlorobenzene	5.00	5.35		ug/L		107	82 - 118
1,1-Dichloropropene	5.00	5.48		ug/L		110	79 - 125
Bromochloromethane	5.00	5.74		ug/L		115	78 - 123
Dibromochloromethane	5.00	5.22		ug/L		104	74 - 126
Chloroethane	5.00	5.36		ug/L		107	60 - 138
Chloroform	5.00	5.65		ug/L		113	79 - 124
2-Hexanone	20.0	19.7		ug/L		99	57 - 139
Chloromethane	5.00	4.76		ug/L		95	50 - 139
cis-1,2-Dichloroethene	5.00	5.69		ug/L		114	78 - 123
cis-1,3-Dichloropropene	5.00	5.60		ug/L		112	75 - 124
4-Isopropyltoluene	5.00	5.07		ug/L		101	77 - 127
Dibromomethane	5.00	5.45		ug/L		109	79 - 123
Bromodichloromethane	5.00	5.63		ug/L		113	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	22.7		ug/L		113	67 - 130
Dichlorodifluoromethane	5.00	4.07		ug/L		81	32 - 152
Ethylbenzene	5.00	5.15		ug/L		103	79 - 121
Ethylene Dibromide	5.00	5.54		ug/L		111	77 - 121
Hexachlorobutadiene	5.00	4.55		ug/L		91	66 - 134
Isopropylbenzene	5.00	5.17		ug/L		103	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.42		ug/L		108	78 - 124
Methyl tert-butyl ether	5.00	5.41		ug/L		108	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.71		ug/L		114	71 - 121
Methylene Chloride	5.00	5.39		ug/L		108	74 - 124
Naphthalene	5.00	5.04		ug/L		101	61 - 128
1,2,3-Trichlorobenzene	5.00	5.37		ug/L		107	69 - 129
n-Butylbenzene	5.00	5.08		ug/L		102	75 - 128
1,1,1-Trichloroethane	5.00	5.45		ug/L		109	74 - 131
N-Propylbenzene	5.00	5.25		ug/L		105	76 - 126
1,1,2-Trichloroethane	5.00	6.06	Q	ug/L		121	80 - 119
sec-Butylbenzene	5.00	5.13		ug/L		103	77 - 126
Styrene	5.00	5.32		ug/L		106	78 - 123
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 130
tert-Butylbenzene	5.00	5.14		ug/L		103	78 - 124
1,2,3-Trichloropropane	5.00	5.54		ug/L		111	73 - 122
Tetrachloroethene	5.00	5.12		ug/L		102	74 - 129
1,2,4-Trimethylbenzene	5.00	5.09		ug/L		102	76 - 124
Toluene	5.00	5.55		ug/L		111	80 - 121
1,3,5-Trimethylbenzene	5.00	5.16		ug/L		103	75 - 124
trans-1,2-Dichloroethene	5.00	5.60		ug/L		112	75 - 124
trans-1,3-Dichloropropene	5.00	5.16		ug/L		103	73 - 127
o-Xylene	5.00	5.46		ug/L		109	78 - 122
Trichloroethene	5.00	5.32		ug/L		106	79 - 123
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	5.09		ug/L		102	65 - 141
Vinyl chloride	5.00	5.19		ug/L		104	58 - 137
2-Chlorotoluene	5.00	5.22		ug/L		104	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437515/5
Matrix: Water
Analysis Batch: 437515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*112*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*112*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-436090/14-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436090

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/05/18 00:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*11/02/18 15:14*	*11/05/18 00:43*	*1*

Lab Sample ID: LCS 280-436090/2-A
Matrix: Solid
Analysis Batch: 436343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	4.52		mg/Kg		82	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*88*		*77 - 123*

Lab Sample ID: MB 280-436687/5
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/07/18 14:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*82 - 110*		*11/07/18 14:39*	*1*

Lab Sample ID: LCS 280-436687/3
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	90.0		ug/L		89	78 - 122

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-436687/3
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: LCSD 280-436687/4
Matrix: Water
Analysis Batch: 436687

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			101	94.1		ug/L		93	78 - 122	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437059/4-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437059

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/15/18 21:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*	*M*	*55 - 130*	*11/09/18 14:56*	*11/15/18 21:33*	*1*

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.763		ug/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*108*		*55 - 130*

Lab Sample ID: LCSD 280-437059/3-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437059

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.740	M	ug/Kg		85	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-437393/4-A
Matrix: Water
Analysis Batch: 437437

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437393

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/13/18 18:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*100*		*70 - 130*	*11/13/18 11:42*	*11/13/18 18:38*	*1*

Lab Sample ID: LCS 280-437393/2-A
Matrix: Water
Analysis Batch: 437437

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437393

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.211	M	ug/L		85	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*109*	*M*	*70 - 130*

Lab Sample ID: LCSD 280-437393/3-A
Matrix: Water
Analysis Batch: 437437

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437393

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.217	M	ug/L		87	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*108*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436699/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436699

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.49	J	7.6	3.8	1.3	mg/Kg		11/12/18 23:35	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg		11/12/18 23:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*11/07/18 16:21*	*11/12/18 23:35*	*1*
n-Octacosane	*92*		*25 - 162*	*11/07/18 16:21*	*11/12/18 23:35*	*1*

Lab Sample ID: LCS 280-436699/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	121	96.1		mg/Kg		79	38 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-436699/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*82*		*25 - 162*

Lab Sample ID: LCS 280-436699/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	317	273		mg/Kg		86	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*104*		*25 - 162*

GC/MS VOA

Analysis Batch: 436797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2 - DL	V-S9-301018-496	Total/NA	Solid	8260B	436841
280-116409-4 - DL	V-S9-301018-501	Total/NA	Solid	8260B	436841
MB 280-436841/1-A	Method Blank	Total/NA	Solid	8260B	436841
LCS 280-436841/2-A	Lab Control Sample	Total/NA	Solid	8260B	436841
LCSD 280-436841/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	436841

Analysis Batch: 436800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2	V-S9-301018-496	Total/NA	Solid	8260B	436847
280-116409-4	V-S9-301018-501	Total/NA	Solid	8260B	436847
MB 280-436847/1-A	Method Blank	Total/NA	Solid	8260B	436847
LCS 280-436847/2-A	Lab Control Sample	Total/NA	Solid	8260B	436847

Prep Batch: 436841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2 - DL	V-S9-301018-496	Total/NA	Solid	5035	
280-116409-4 - DL	V-S9-301018-501	Total/NA	Solid	5035	
MB 280-436841/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436841/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-436841/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 436847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2	V-S9-301018-496	Total/NA	Solid	5035	
280-116409-4	V-S9-301018-501	Total/NA	Solid	5035	
MB 280-436847/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436847/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-1	TB-S9-311018-01	Total/NA	Water	8260B	
MB 280-437515/4	Method Blank	Total/NA	Water	8260B	
LCS 280-437515/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 436090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-3	P-S9-301018-496	Total/NA	Solid	5035	
280-116409-5	P-S9-301018-501	Total/NA	Solid	5035	
MB 280-436090/14-A	Method Blank	Total/NA	Solid	5035	
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 436343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-3	P-S9-301018-496	Total/NA	Solid	8015D GRO	436090
280-116409-5	P-S9-301018-501	Total/NA	Solid	8015D GRO	436090
MB 280-436090/14-A	Method Blank	Total/NA	Solid	8015D GRO	436090
LCS 280-436090/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	436090

GC VOA (Continued)

Analysis Batch: 436687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-1	TB-S9-311018-01	Total/NA	Water	8015D GRO	
MB 280-436687/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-436687/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-436687/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 436699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-3	P-S9-301018-496	Total/NA	Solid	3546	
280-116409-5	P-S9-301018-501	Total/NA	Solid	3546	
MB 280-436699/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 437059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2	V-S9-301018-496	Total/NA	Solid	8011	
280-116409-4	V-S9-301018-501	Total/NA	Solid	8011	
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-3	P-S9-301018-496	Total/NA	Solid	8015D DRO	436699
280-116409-5	P-S9-301018-501	Total/NA	Solid	8015D DRO	436699
MB 280-436699/1-A	Method Blank	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699

Prep Batch: 437393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-1	TB-S9-311018-01	Total/NA	Water	8011	
MB 280-437393/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437393/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437393/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 437437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-1	TB-S9-311018-01	Total/NA	Water	8011	437393
MB 280-437393/4-A	Method Blank	Total/NA	Water	8011	437393
LCS 280-437393/2-A	Lab Control Sample	Total/NA	Water	8011	437393
LCSD 280-437393/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437393

Analysis Batch: 437819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2	V-S9-301018-496	Total/NA	Solid	8011	437059
280-116409-4	V-S9-301018-501	Total/NA	Solid	8011	437059
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	437059

GC Semi VOA (Continued)

Analysis Batch: 437819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	437059
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	437059

General Chemistry

Analysis Batch: 436068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116409-2	V-S9-301018-496	Total/NA	Solid	Moisture	
280-116409-3	P-S9-301018-496	Total/NA	Solid	Moisture	
280-116409-4	V-S9-301018-501	Total/NA	Solid	Moisture	
280-116409-5	P-S9-301018-501	Total/NA	Solid	Moisture	

Client Sample ID: TB-S9-311018-01

Lab Sample ID: 280-116409-1

Date Collected: 10/31/18 09:00

Matrix: Water

Date Received: 11/01/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437515	11/14/18 11:10	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	436687	11/08/18 11:52	GPM	TAL DEN
Total/NA	Prep	8011			34.5 mL	35 mL	437393	11/13/18 11:42	SU	TAL DEN
Total/NA	Analysis	8011		1			437437	11/13/18 22:26	JLW	TAL DEN

Client Sample ID: V-S9-301018-496

Lab Sample ID: 280-116409-2

Date Collected: 10/30/18 15:10

Matrix: Solid

Date Received: 11/01/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436068	11/02/18 11:58	LMD	TAL DEN

Client Sample ID: V-S9-301018-496

Lab Sample ID: 280-116409-2

Date Collected: 10/30/18 15:10

Matrix: Solid

Date Received: 11/01/18 09:30

Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.327 g	5 mL	436847	10/30/18 15:10	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436800	11/08/18 13:08	JLS	TAL DEN
Total/NA	Prep	5035	DL		5.827 g	1000 mL	436841	11/08/18 15:24	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	1	20 mL	20 mL	436797	11/08/18 16:01	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/15/18 23:07	JLW	TAL DEN

Client Sample ID: P-S9-301018-496

Lab Sample ID: 280-116409-3

Date Collected: 10/30/18 15:10

Matrix: Solid

Date Received: 11/01/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436068	11/02/18 11:58	LMD	TAL DEN

Client Sample ID: P-S9-301018-496

Lab Sample ID: 280-116409-3

Date Collected: 10/30/18 15:10

Matrix: Solid

Date Received: 11/01/18 09:30

Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.272 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		10	0.1 mL	5 mL	436343	11/06/18 05:10	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 00:41	CSM	TAL DEN

Client Sample ID: V-S9-301018-501 — **Lab Sample ID: 280-116409-4**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436068	11/02/18 11:58	LMD	TAL DEN

Client Sample ID: V-S9-301018-501 — **Lab Sample ID: 280-116409-4**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30 — **Percent Solids: 87.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			10.018 g	5 mL	436847	10/30/18 15:10	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	436800	11/08/18 13:28	JLS	TAL DEN
Total/NA	Prep	5035	DL		5.435 g	1000 mL	436841	11/08/18 15:24	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	1	20 mL	20 mL	436797	11/08/18 16:20	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/15/18 23:26	JLW	TAL DEN

Client Sample ID: P-S9-301018-501 — **Lab Sample ID: 280-116409-5**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436068	11/02/18 11:58	LMD	TAL DEN

Client Sample ID: P-S9-301018-501 — **Lab Sample ID: 280-116409-5**
Date Collected: 10/30/18 15:10 — **Matrix: Solid**
Date Received: 11/01/18 09:30 — **Percent Solids: 87.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.183 g	5 mL	436090	11/02/18 13:20	CAS	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	436343	11/06/18 05:34	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 01:02	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116409-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7704	COC No: COC1-59-TA-20810[illegible]
Client Contact: Pamela Moss	Phone: 96-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#: —	

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-59-311018-01	10/31/18	0900	G	W	N	N						X	X	-	X		6	
V-59-301018-496	10/30/18	1510	G	S	N	N	X	X	X	X	X							VOCs, EDB, Moisture
P-59-301018-496	10/30/18	1510	G	S	N	N				X	X							
V-59-301018-501	10/30/18	1510	G	S	N	N	X	X	X									
P-59-301018-501	10/30/18	1510	G	S	N	N				X	X							

280-116409 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: Kevin McKeage	31OCT18 1700	EA		1/1/18 0930	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.4°C IR#1

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116409-1

Login Number: 116409
List Number: 1
Creator: Gomez, Alyssa I

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116535-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/26/2018 1:21:34 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116535-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116535-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 11/3/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-S4-021118-416 (280-116535-3) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/02/2018 and analyzed on 11/14/2018.

The continuing calibration verification (CCV) associated with batch 280-437516 recovered above the upper control limit for n-Butylbenzene (+20.5%D). Associated data have been flagged "Q". The bias was high and the samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S4-021118-01 (280-116535-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/15/2018.

The continuing calibration verification (CCV) associated with batch 280-437713 recovered above the upper control limit for Dichlorodifluoromethane (+26.9%D). Associated data have been flagged "Q". The bias was high and the samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Sample V-S4-021118-416 (280-116535-3) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/09/2018 and analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water
Sample TB-S4-021118-01 (280-116535-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on

Job ID: 280-116535-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

11/15/2018 and analyzed on 11/16/2018.

Compound 1,2-Dibromopropane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following samples and CCV: (CCV 280-438082/31). This retention time shift was taken into account when reviewing the samples for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S4-011118-366 (280-116535-2) and P-S4-021118-416 (280-116535-4) were analyzed for Gasoline Range Organics (GRO) in accordance with EPA SW-846 Method 8015D - GRO. The samples were analyzed on 11/15/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S4-021118-01 (280-116535-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S4-011118-366 (280-116535-2) and P-S4-021118-416 (280-116535-4) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/06/2018 and analyzed on 11/12/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-436526/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-S4-011118-366 (280-116535-2), V-S4-021118-416 (280-116535-3) and P-S4-021118-416 (280-116535-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Client Sample ID: TB-S4-021118-01 — Lab Sample ID: 280-116535-1

No Detections.

Client Sample ID: P-S4-011118-366 — Lab Sample ID: 280-116535-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.4	J	7.4	3.7	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S4-021118-416 — Lab Sample ID: 280-116535-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.9	J	5.5	3.5	1.8	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S4-021118-416 — Lab Sample ID: 280-116535-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.0	J	7.5	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116535-1	TB-S4-021118-01	Water	11/02/18 13:50	11/03/18 09:00
280-116535-2	P-S4-011118-366	Solid	11/01/18 14:40	11/03/18 09:00
280-116535-3	V-S4-021118-416	Solid	11/02/18 15:43	11/03/18 09:00
280-116535-4	P-S4-021118-416	Solid	11/02/18 15:43	11/03/18 09:00

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S4-021118-01
Date Collected: 11/02/18 13:50
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/15/18 17:22	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/15/18 17:22	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 17:22	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/15/18 17:22	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/15/18 17:22	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/15/18 17:22	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/15/18 17:22	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/15/18 17:22	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/15/18 17:22	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/15/18 17:22	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 17:22	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/15/18 17:22	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		11/15/18 17:22	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 17:22	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 17:22	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 17:22	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 17:22	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 17:22	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/15/18 17:22	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/15/18 17:22	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 17:22	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 17:22	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 17:22	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 17:22	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 17:22	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 17:22	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 17:22	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/15/18 17:22	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/15/18 17:22	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 17:22	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 17:22	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/15/18 17:22	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/15/18 17:22	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/15/18 17:22	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 17:22	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S4-021118-01
Date Collected: 11/02/18 13:50
Date Received: 11/03/18 09:00
Lab Sample ID: 280-116535-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 17:22	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 17:22	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 17:22	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 17:22	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/15/18 17:22	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/15/18 17:22	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 17:22	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/15/18 17:22	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 17:22	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 17:22	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/15/18 17:22	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 17:22	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/15/18 17:22	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*90*		*89 - 112*		*11/15/18 17:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*		*11/15/18 17:22*	*1*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*		*11/15/18 17:22*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*11/15/18 17:22*	*1*

Client Sample ID: V-S4-021118-416
Date Collected: 11/02/18 15:43
Date Received: 11/03/18 09:00
Lab Sample ID: 280-116535-3
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.5	1.8	0.62	ug/Kg	☼	11/14/18 11:38	1
1,1,1-Trichloroethane	1.8	U	5.5	1.8	0.57	ug/Kg	☼	11/14/18 11:38	1
1,1,2,2-Tetrachloroethane	1.8	U	5.5	1.8	0.67	ug/Kg	☼	11/14/18 11:38	1
1,1,2-Trichloroethane	3.5	U	5.5	3.5	0.97	ug/Kg	☼	11/14/18 11:38	1
1,1-Dichloroethane	0.88	U	5.5	0.88	0.23	ug/Kg	☼	11/14/18 11:38	1
1,1-Dichloroethene	1.8	U	5.5	1.8	0.65	ug/Kg	☼	11/14/18 11:38	1
1,1-Dichloropropene	1.8	U	5.5	1.8	0.59	ug/Kg	☼	11/14/18 11:38	1
1,2,3-Trichlorobenzene	1.8	U	5.5	1.8	0.82	ug/Kg	☼	11/14/18 11:38	1
1,2,3-Trichloropropane	3.5	U	5.5	3.5	0.89	ug/Kg	☼	11/14/18 11:38	1
1,2,4-Trichlorobenzene	1.8	U	5.5	1.8	0.80	ug/Kg	☼	11/14/18 11:38	1
1,2,4-Trimethylbenzene	3.5	U	5.5	3.5	0.64	ug/Kg	☼	11/14/18 11:38	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.66	ug/Kg	☼	11/14/18 11:38	1
1,2-Dichlorobenzene	1.8	U	5.5	1.8	0.49	ug/Kg	☼	11/14/18 11:38	1
1,2-Dichloroethane	1.8	U	5.5	1.8	0.77	ug/Kg	☼	11/14/18 11:38	1
1,2-Dichloroethene, Total	1.8	U	5.5	1.8	0.43	ug/Kg	☼	11/14/18 11:38	1
1,2-Dichloropropane	1.8	U	5.5	1.8	0.60	ug/Kg	☼	11/14/18 11:38	1
1,3,5-Trimethylbenzene	1.8	U	5.5	1.8	0.63	ug/Kg	☼	11/14/18 11:38	1
1,3-Dichlorobenzene	1.8	U	5.5	1.8	0.53	ug/Kg	☼	11/14/18 11:38	1
1,3-Dichloropropane	1.8	U	5.5	1.8	0.56	ug/Kg	☼	11/14/18 11:38	1
1,4-Dichlorobenzene	1.8	U	5.5	1.8	0.86	ug/Kg	☼	11/14/18 11:38	1
2,2-Dichloropropane	1.8	U	5.5	1.8	0.48	ug/Kg	☼	11/14/18 11:38	1
2-Butanone (MEK)	7.0	U	22	7.0	2.0	ug/Kg	☼	11/14/18 11:38	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-021118-416
Date Collected: 11/02/18 15:43
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-3
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.8	U	5.5	1.8	0.56	ug/Kg	☼	11/14/18 11:38	1
2-Hexanone	14	U	22	14	5.4	ug/Kg	☼	11/14/18 11:38	1
4-Chlorotoluene	1.8	U	5.5	1.8	0.86	ug/Kg	☼	11/14/18 11:38	1
4-Isopropyltoluene	1.8	U	5.5	1.8	0.54	ug/Kg	☼	11/14/18 11:38	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.8	ug/Kg	☼	11/14/18 11:38	1
Acetone	14	U	22	14	5.9	ug/Kg	☼	11/14/18 11:38	1
Benzene	1.8	U	5.5	1.8	0.52	ug/Kg	☼	11/14/18 11:38	1
Bromobenzene	1.8	U	5.5	1.8	0.54	ug/Kg	☼	11/14/18 11:38	1
Bromoform	0.88	U	5.5	0.88	0.25	ug/Kg	☼	11/14/18 11:38	1
Bromomethane	1.8	U	11	1.8	0.55	ug/Kg	☼	11/14/18 11:38	1
Carbon disulfide	1.8	U	5.5	1.8	0.46	ug/Kg	☼	11/14/18 11:38	1
Carbon tetrachloride	1.8	U	5.5	1.8	0.69	ug/Kg	☼	11/14/18 11:38	1
Chlorobenzene	1.8	U	5.5	1.8	0.59	ug/Kg	☼	11/14/18 11:38	1
Bromochloromethane	0.88	U	5.5	0.88	0.33	ug/Kg	☼	11/14/18 11:38	1
Dibromochloromethane	1.8	U	5.5	1.8	0.63	ug/Kg	☼	11/14/18 11:38	1
Chloroethane	3.5	U	11	3.5	0.98	ug/Kg	☼	11/14/18 11:38	1
Chloroform	0.88	U	11	0.88	0.32	ug/Kg	☼	11/14/18 11:38	1
Chloromethane	1.8	U	11	1.8	0.85	ug/Kg	☼	11/14/18 11:38	1
cis-1,2-Dichloroethene	1.8	U	5.5	1.8	0.62	ug/Kg	☼	11/14/18 11:38	1
cis-1,3-Dichloropropene	3.5	U	5.5	3.5	1.4	ug/Kg	☼	11/14/18 11:38	1
Dibromomethane	3.5	U	5.5	3.5	0.92	ug/Kg	☼	11/14/18 11:38	1
Bromodichloromethane	0.88	U	5.5	0.88	0.24	ug/Kg	☼	11/14/18 11:38	1
Dichlorodifluoromethane	1.8	U	11	1.8	0.57	ug/Kg	☼	11/14/18 11:38	1
Ethylbenzene	1.8	U	5.5	1.8	0.74	ug/Kg	☼	11/14/18 11:38	1
Ethylene Dibromide	1.8	U	5.5	1.8	0.57	ug/Kg	☼	11/14/18 11:38	1
Hexachlorobutadiene	1.8	U	5.5	1.8	0.60	ug/Kg	☼	11/14/18 11:38	1
Isopropylbenzene	1.8	U	5.5	1.8	0.65	ug/Kg	☼	11/14/18 11:38	1
Methyl tert-butyl ether	0.88	U	22	0.88	0.37	ug/Kg	☼	11/14/18 11:38	1
Methylene Chloride	**3.9**	**J**	5.5	3.5	1.8	ug/Kg	☼	11/14/18 11:38	1
m-Xylene & p-Xylene	3.5	U M	3.5	3.5	1.1	ug/Kg	☼	11/14/18 11:38	1
Naphthalene	1.8	U	5.5	1.8	0.69	ug/Kg	☼	11/14/18 11:38	1
n-Butylbenzene	1.8	U Q	5.5	1.8	0.62	ug/Kg	☼	11/14/18 11:38	1
N-Propylbenzene	1.8	U	5.5	1.8	0.64	ug/Kg	☼	11/14/18 11:38	1
o-Xylene	1.8	U	5.5	1.8	0.67	ug/Kg	☼	11/14/18 11:38	1
sec-Butylbenzene	1.8	U	5.5	1.8	0.85	ug/Kg	☼	11/14/18 11:38	1
Styrene	1.8	U	5.5	1.8	0.69	ug/Kg	☼	11/14/18 11:38	1
tert-Butylbenzene	1.8	U	5.5	1.8	0.55	ug/Kg	☼	11/14/18 11:38	1
Tetrachloroethene	1.8	U	5.5	1.8	0.65	ug/Kg	☼	11/14/18 11:38	1
Toluene	1.8	U	5.5	1.8	0.76	ug/Kg	☼	11/14/18 11:38	1
trans-1,2-Dichloroethene	0.88	U	5.5	0.88	0.43	ug/Kg	☼	11/14/18 11:38	1
trans-1,3-Dichloropropene	1.8	U	5.5	1.8	0.74	ug/Kg	☼	11/14/18 11:38	1
Trichloroethene	0.88	U	5.5	0.88	0.25	ug/Kg	☼	11/14/18 11:38	1
Trichlorofluoromethane	3.5	U	11	3.5	1.1	ug/Kg	☼	11/14/18 11:38	1
Vinyl chloride	3.5	U	5.5	3.5	1.5	ug/Kg	☼	11/14/18 11:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/02/18 15:43*	*11/14/18 11:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/02/18 15:43*	*11/14/18 11:38*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*11/02/18 15:43*	*11/14/18 11:38*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*11/02/18 15:43*	*11/14/18 11:38*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S4-021118-01
Date Collected: 11/02/18 13:50
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/14/18 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*11/14/18 18:09*	*1*

Client Sample ID: P-S4-011118-366
Date Collected: 11/01/18 14:40
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-2
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.35	mg/Kg		11/15/18 16:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*11/01/18 14:40*	*11/15/18 16:57*	*1*

Client Sample ID: P-S4-021118-416
Date Collected: 11/02/18 15:43
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-4
Matrix: Solid
Percent Solids: 98.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.36	mg/Kg		11/15/18 17:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*104*		*77 - 123*	*11/02/18 15:43*	*11/15/18 17:21*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S4-021118-01
Date Collected: 11/02/18 13:50
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/16/18 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*117*		*70 - 130*	*11/15/18 11:36*	*11/16/18 21:25*	*1*

Client Sample ID: V-S4-021118-416
Date Collected: 11/02/18 15:43
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-3
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.015	ug/Kg	☼	11/16/18 00:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*55 - 130*	*11/09/18 14:56*	*11/16/18 00:41*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S4-011118-366
Date Collected: 11/01/18 14:40
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116535-2
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.4**	**J**	7.4	3.7	1.3	mg/Kg	☼	11/12/18 20:42	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg	☼	11/12/18 20:42	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	71		45 - 130	11/06/18 15:48	11/12/18 20:42	1
n-Octacosane	90		25 - 162	11/06/18 15:48	11/12/18 20:42	1

Client Sample ID: P-S4-021118-416 — **Lab Sample ID: 280-116535-4**
Date Collected: 11/02/18 15:43 — **Matrix: Solid**
Date Received: 11/03/18 09:00 — **Percent Solids: 98.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.0**	**J**	7.5	3.8	1.3	mg/Kg	☼	11/12/18 23:13	1
Motor Oil (C20-C38)	22	U	23	22	7.3	mg/Kg	☼	11/12/18 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	65		45 - 130	11/06/18 15:48	11/12/18 23:13	1
n-Octacosane	85		25 - 162	11/06/18 15:48	11/12/18 23:13	1

General Chemistry

Client Sample ID: P-S4-011118-366 — **Lab Sample ID: 280-116535-2**
Date Collected: 11/01/18 14:40 — **Matrix: Solid**
Date Received: 11/03/18 09:00 — **Percent Solids: 96.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.5**		0.1	0.05	0.1	%		11/06/18 16:30	1

Client Sample ID: V-S4-021118-416 — **Lab Sample ID: 280-116535-3**
Date Collected: 11/02/18 15:43 — **Matrix: Solid**
Date Received: 11/03/18 09:00 — **Percent Solids: 97.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**2.7**		0.1	0.05	0.1	%		11/06/18 16:30	1

Client Sample ID: P-S4-021118-416 — **Lab Sample ID: 280-116535-4**
Date Collected: 11/02/18 15:43 — **Matrix: Solid**
Date Received: 11/03/18 09:00 — **Percent Solids: 98.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**1.9**		0.1	0.05	0.1	%		11/06/18 16:30	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-116535-3	V-S4-021118-416	101	95	96	101
LCS 280-437582/2-A	Lab Control Sample	103	91	96	100
MB 280-437582/1-A	Method Blank	99	93	101	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116535-1	TB-S4-021118-01	90	99	90	102
LCS 280-437713/5	Lab Control Sample	93	101	90	101
MB 280-437713/4	Method Blank	97	102	96	106

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116535-2	P-S4-011118-366	95
280-116535-4	P-S4-021118-416	104
LCS 280-437770/1-A	Lab Control Sample	99
MB 280-437770/2-A	Method Blank	101

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116535-1	TB-S4-021118-01	94
LCS 280-437546/3	Lab Control Sample	100
MB 280-437546/5	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-116535-3	V-S4-021118-416	106
LCS 280-437059/2-A	Lab Control Sample	108
LCSD 280-437059/3-A	Lab Control Sample Dup	109
MB 280-437059/4-A	Method Blank	97 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-116535-1	TB-S4-021118-01	117
LCS 280-437762/2-A	Lab Control Sample	121
LCSD 280-437762/3-A	Lab Control Sample Dup	116
MB 280-437762/4-A	Method Blank	115

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-116535-2	P-S4-011118-366	71	90
280-116535-2 MS	P-S4-011118-366	73	88
280-116535-2 MS	P-S4-011118-366	74	99
280-116535-2 MSD	P-S4-011118-366	77	91
280-116535-2 MSD	P-S4-011118-366	75	102
280-116535-4	P-S4-021118-416	65	85
LCS 280-436526/2-A	Lab Control Sample	73	92
LCS 280-436526/3-A	Lab Control Sample	87	102
MB 280-436526/1-A	Method Blank	73	89

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/14/18 10:37	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/14/18 10:37	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/14/18 10:37	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/14/18 10:37	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/14/18 10:37	1
Acetone	13	U	20	13	5.4	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/14/18 10:37	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/14/18 10:37	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/14/18 10:37	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/14/18 10:37	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/14/18 10:37	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/14/18 10:37	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		11/14/18 10:37	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/14/18 10:37	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/14/18 10:37	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/14/18 10:37	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/14/18 10:37	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/14/18 10:37	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/14/18 10:37	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/14/18 10:37	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/14/18 10:37	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/14/18 10:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/14/18 10:37	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/14/18 10:37	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/14/18 10:37	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/14/18 10:37	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/14/18 10:37	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/14/18 10:37	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/14/18 10:37	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/14/18 10:37	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/14/18 10:37	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	48.4		ug/Kg		97	61 - 132
2-Butanone (MEK)	200	190		ug/Kg		95	51 - 148
1,2-Dichlorobenzene	50.0	48.4		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	50.0	47.0		ug/Kg		94	77 - 121
4-Chlorotoluene	50.0	48.4		ug/Kg		97	72 - 124
1,4-Dichlorobenzene	50.0	46.9		ug/Kg		94	75 - 120
1,1-Dichloroethane	50.0	41.6		ug/Kg		83	76 - 125
1,2-Dichloroethane	50.0	48.7		ug/Kg		97	73 - 128
Acetone	200	193		ug/Kg		97	36 - 164
1,1-Dichloroethene	50.0	47.0		ug/Kg		94	70 - 131
Benzene	50.0	46.7		ug/Kg		93	77 - 121
Bromobenzene	50.0	49.1		ug/Kg		98	78 - 121
Bromoform	50.0	54.4		ug/Kg		109	67 - 132
Bromomethane	50.0	52.2		ug/Kg		104	53 - 143
1,2-Dichloropropane	50.0	48.4		ug/Kg		97	76 - 123
Carbon disulfide	50.0	45.4		ug/Kg		91	63 - 132
1,3-Dichloropropane	50.0	49.0		ug/Kg		98	77 - 121
Carbon tetrachloride	50.0	46.4		ug/Kg		93	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	45.1		ug/Kg		90	67 - 133
Chlorobenzene	50.0	47.0		ug/Kg		94	79 - 120
1,1-Dichloropropene	50.0	45.8		ug/Kg		92	76 - 125
Bromochloromethane	50.0	49.5		ug/Kg		99	78 - 125
Dibromochloromethane	50.0	52.6		ug/Kg		105	74 - 126
Chloroethane	50.0	44.0		ug/Kg		88	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	213		ug/Kg		107	53 - 145
Chloromethane	50.0	44.0		ug/Kg		88	50 - 136
cis-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	77 - 123
cis-1,3-Dichloropropene	50.0	53.4		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	48.8		ug/Kg		98	73 - 127
Dibromomethane	50.0	47.7		ug/Kg		95	78 - 125
Bromodichloromethane	50.0	50.0		ug/Kg		100	75 - 127
4-Methyl-2-pentanone (MIBK)	200	215		ug/Kg		107	65 - 135
Dichlorodifluoromethane	50.0	38.9		ug/Kg		78	29 - 149
Ethylbenzene	50.0	48.6		ug/Kg		97	76 - 122
Ethylene Dibromide	50.0	51.1		ug/Kg		102	78 - 122
Hexachlorobutadiene	50.0	45.8		ug/Kg		92	61 - 135
Isopropylbenzene	50.0	48.1		ug/Kg		96	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.4		ug/Kg		99	78 - 125
Methyl tert-butyl ether	50.0	45.4		ug/Kg		91	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.0		ug/Kg		100	70 - 124
Methylene Chloride	50.0	45.8		ug/Kg		92	70 - 128
Naphthalene	50.0	54.6		ug/Kg		109	62 - 129
1,2,3-Trichlorobenzene	50.0	50.7		ug/Kg		101	66 - 130
n-Butylbenzene	50.0	49.7		ug/Kg		99	70 - 128
1,1,1-Trichloroethane	50.0	48.9		ug/Kg		98	73 - 130
N-Propylbenzene	50.0	46.5		ug/Kg		93	73 - 125
1,1,2-Trichloroethane	50.0	49.6		ug/Kg		99	78 - 121
sec-Butylbenzene	50.0	51.6		ug/Kg		103	73 - 126
Styrene	50.0	50.0		ug/Kg		100	76 - 124
1,2,4-Trichlorobenzene	50.0	51.2		ug/Kg		102	67 - 129
tert-Butylbenzene	50.0	47.8		ug/Kg		96	73 - 125
1,2,3-Trichloropropane	50.0	52.0		ug/Kg		104	73 - 125
Tetrachloroethene	50.0	44.9		ug/Kg		90	73 - 128
1,2,4-Trimethylbenzene	50.0	47.6		ug/Kg		95	75 - 123
Toluene	50.0	48.2		ug/Kg		96	77 - 121
1,3,5-Trimethylbenzene	50.0	48.1		ug/Kg		96	73 - 124
trans-1,2-Dichloroethene	50.0	44.2		ug/Kg		88	74 - 125
trans-1,3-Dichloropropene	50.0	53.1		ug/Kg		106	71 - 130
o-Xylene	50.0	50.1		ug/Kg		100	77 - 123
Trichloroethene	50.0	47.5		ug/Kg		95	77 - 123
m-Xylene & p-Xylene	50.0	47.6		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	42.8		ug/Kg		86	62 - 140
Vinyl chloride	50.0	45.0		ug/Kg		90	56 - 135
2-Chlorotoluene	50.0	48.2		ug/Kg		96	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: MB 280-437713/4
Matrix: Water
Analysis Batch: 437713

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/15/18 10:29	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/15/18 10:29	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:29	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 10:29	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:29	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 10:29	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 10:29	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/15/18 10:29	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/15/18 10:29	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/15/18 10:29	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:29	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/15/18 10:29	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:29	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/15/18 10:29	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 10:29	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/15/18 10:29	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:29	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:29	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/15/18 10:29	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/15/18 10:29	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/15/18 10:29	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/15/18 10:29	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:29	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 10:29	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/15/18 10:29	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		11/15/18 10:29	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:29	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/15/18 10:29	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437713/4
Matrix: Water
Analysis Batch: 437713

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:29	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:29	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/15/18 10:29	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:29	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/15/18 10:29	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 10:29	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:29	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/15/18 10:29	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/15/18 10:29	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:29	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/15/18 10:29	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 10:29	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:29	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:29	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:29	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:29	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:29	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/15/18 10:29	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/15/18 10:29	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/15/18 10:29	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/15/18 10:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*11/15/18 10:29*	*1*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*11/15/18 10:29*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*11/15/18 10:29*	*1*

Lab Sample ID: LCS 280-437713/5
Matrix: Water
Analysis Batch: 437713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.98	J	ug/L		100	62 - 128
2-Butanone (MEK)	20.0	17.8		ug/L		89	56 - 143
1,2-Dichlorobenzene	5.00	5.22		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	5.01		ug/L		100	80 - 119
4-Chlorotoluene	5.00	5.31		ug/L		106	78 - 122
1,4-Dichlorobenzene	5.00	5.03		ug/L		101	79 - 118
1,1-Dichloroethane	5.00	5.60		ug/L		112	77 - 125
1,2-Dichloroethane	5.00	5.51		ug/L		110	73 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437713/5
Matrix: Water
Analysis Batch: 437713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.1		ug/L		106	39 - 160
1,1-Dichloroethene	5.00	5.41		ug/L		108	71 - 131
Benzene	5.00	5.50		ug/L		110	79 - 120
Bromobenzene	5.00	5.17		ug/L		103	80 - 120
Bromoform	5.00	4.82		ug/L		96	66 - 130
Bromomethane	5.00	5.21		ug/L		104	53 - 141
1,2-Dichloropropane	5.00	5.56		ug/L		111	78 - 122
Carbon disulfide	5.00	5.36		ug/L		107	64 - 133
1,3-Dichloropropane	5.00	5.27		ug/L		105	80 - 119
Carbon tetrachloride	5.00	5.45		ug/L		109	72 - 136
2,2-Dichloropropane	5.00	5.55		ug/L		111	60 - 139
Chlorobenzene	5.00	5.28		ug/L		106	82 - 118
1,1-Dichloropropene	5.00	5.40		ug/L		108	79 - 125
Bromochloromethane	5.00	5.55		ug/L		111	78 - 123
Dibromochloromethane	5.00	5.18		ug/L		104	74 - 126
Chloroethane	5.00	5.23		ug/L		105	60 - 138
Chloroform	5.00	5.55		ug/L		111	79 - 124
2-Hexanone	20.0	19.2		ug/L		96	57 - 139
Chloromethane	5.00	4.47		ug/L		89	50 - 139
cis-1,2-Dichloroethene	5.00	5.53		ug/L		111	78 - 123
cis-1,3-Dichloropropene	5.00	5.51		ug/L		110	75 - 124
4-Isopropyltoluene	5.00	5.12		ug/L		102	77 - 127
Dibromomethane	5.00	5.39		ug/L		108	79 - 123
Bromodichloromethane	5.00	5.54		ug/L		111	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	22.2		ug/L		111	67 - 130
Dichlorodifluoromethane	5.00	3.99	Q	ug/L		80	32 - 152
Ethylbenzene	5.00	5.14		ug/L		103	79 - 121
Ethylene Dibromide	5.00	5.47		ug/L		109	77 - 121
Hexachlorobutadiene	5.00	4.75		ug/L		95	66 - 134
Isopropylbenzene	5.00	5.19		ug/L		104	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.33		ug/L		107	78 - 124
Methyl tert-butyl ether	5.00	5.39		ug/L		108	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.51		ug/L		110	71 - 121
Methylene Chloride	5.00	5.28		ug/L		106	74 - 124
Naphthalene	5.00	5.01		ug/L		100	61 - 128
1,2,3-Trichlorobenzene	5.00	5.24		ug/L		105	69 - 129
n-Butylbenzene	5.00	5.15		ug/L		103	75 - 128
1,1,1-Trichloroethane	5.00	5.50		ug/L		110	74 - 131
N-Propylbenzene	5.00	5.16		ug/L		103	76 - 126
1,1,2-Trichloroethane	5.00	5.79		ug/L		116	80 - 119
sec-Butylbenzene	5.00	5.22		ug/L		104	77 - 126
Styrene	5.00	5.30		ug/L		106	78 - 123
1,2,4-Trichlorobenzene	5.00	4.90		ug/L		98	69 - 130
tert-Butylbenzene	5.00	5.07		ug/L		101	78 - 124
1,2,3-Trichloropropane	5.00	5.27		ug/L		105	73 - 122
Tetrachloroethene	5.00	5.03		ug/L		101	74 - 129
1,2,4-Trimethylbenzene	5.00	5.08		ug/L		102	76 - 124
Toluene	5.00	5.53		ug/L		111	80 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437713/5
Matrix: Water
Analysis Batch: 437713

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	5.00	5.11		ug/L		102	75 - 124
trans-1,2-Dichloroethene	5.00	5.63		ug/L		113	75 - 124
trans-1,3-Dichloropropene	5.00	5.17		ug/L		103	73 - 127
o-Xylene	5.00	5.34		ug/L		107	78 - 122
Trichloroethene	5.00	5.25		ug/L		105	79 - 123
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	5.27		ug/L		105	65 - 141
Vinyl chloride	5.00	4.99		ug/L		100	58 - 137
2-Chlorotoluene	5.00	5.17		ug/L		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437546/5
Matrix: Water
Analysis Batch: 437546

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/14/18 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*82 - 110*		*11/14/18 12:14*	*1*

Lab Sample ID: LCS 280-437546/3
Matrix: Water
Analysis Batch: 437546

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	86.7		ug/L		86	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*100*		*82 - 110*

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/15/18 15:57	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	101		77 - 123	11/15/18 12:57	11/15/18 15:57	1

Lab Sample ID: LCS 280-437770/1-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.32		mg/Kg		97	79 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	99		77 - 123

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437059/4-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437059

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/15/18 21:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	97	M	55 - 130	11/09/18 14:56	11/15/18 21:33	1

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.763		ug/Kg		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	108		55 - 130

Lab Sample ID: LCSD 280-437059/3-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.740	M	ug/Kg		85	70 - 130	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	109		55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-437762/4-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437762

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/16/18 18:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*115*		*70 - 130*	*11/15/18 11:36*	*11/16/18 18:15*	*1*

Lab Sample ID: LCS 280-437762/2-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.230	M	ug/L		92	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*121*		*70 - 130*

Lab Sample ID: LCSD 280-437762/3-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.235	M	ug/L		94	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*116*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436526/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436526

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.84	J	7.4	3.7	1.3	mg/Kg		11/12/18 19:37	1
Motor Oil (C20-C38)	22	U	22	22	7.2	mg/Kg		11/12/18 19:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*45 - 130*	*11/06/18 15:48*	*11/12/18 19:37*	*1*
n-Octacosane	*89*		*25 - 162*	*11/06/18 15:48*	*11/12/18 19:37*	*1*

Lab Sample ID: LCS 280-436526/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	130	115		mg/Kg		89	38 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-436526/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436526

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	73		45 - 130
n-Octacosane	92		25 - 162

Lab Sample ID: LCS 280-436526/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436526

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			321	288		mg/Kg		90	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130
n-Octacosane	102		25 - 162

Lab Sample ID: 280-116535-2 MS
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-011118-366
Prep Type: Total/NA
Prep Batch: 436526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	2.4	J	129	104		mg/Kg	☼	79	38 - 132		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	73		45 - 130
n-Octacosane	88		25 - 162

Lab Sample ID: 280-116535-2 MS
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-011118-366
Prep Type: Total/NA
Prep Batch: 436526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	22	U	331	271		mg/Kg	☼	82	45 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	74		45 - 130
n-Octacosane	99		25 - 162

Lab Sample ID: 280-116535-2 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-011118-366
Prep Type: Total/NA
Prep Batch: 436526

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	2.4	J	135	121		mg/Kg	☼	88	38 - 132	15	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	77		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-116535-2 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-011118-366
Prep Type: Total/NA
Prep Batch: 436526

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane	*91*		*25 - 162*

Lab Sample ID: 280-116535-2 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-011118-366
Prep Type: Total/NA
Prep Batch: 436526

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	22	U	307	258		mg/Kg	☼	84	45 - 130	5	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	*75*		*45 - 130*
n-Octacosane	*102*		*25 - 162*

GC/MS VOA

Analysis Batch: 437516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-3	V-S4-021118-416	Total/NA	Solid	8260B	437582
MB 280-437582/1-A	Method Blank	Total/NA	Solid	8260B	437582
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	8260B	437582

Prep Batch: 437582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-3	V-S4-021118-416	Total/NA	Solid	5035	
MB 280-437582/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-1	TB-S4-021118-01	Total/NA	Water	8260B	
MB 280-437713/4	Method Blank	Total/NA	Water	8260B	
LCS 280-437713/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 437546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-1	TB-S4-021118-01	Total/NA	Water	8015D GRO	
MB 280-437546/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437546/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Prep Batch: 437770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2	P-S4-011118-366	Total/NA	Solid	5030B	
280-116535-4	P-S4-021118-416	Total/NA	Solid	5030B	
MB 280-437770/2-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	5030B	

Analysis Batch: 437796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2	P-S4-011118-366	Total/NA	Solid	8015D GRO	437770
280-116535-4	P-S4-021118-416	Total/NA	Solid	8015D GRO	437770
MB 280-437770/2-A	Method Blank	Total/NA	Solid	8015D GRO	437770
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	437770

GC Semi VOA

Prep Batch: 436526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2	P-S4-011118-366	Total/NA	Solid	3546	
280-116535-4	P-S4-021118-416	Total/NA	Solid	3546	
MB 280-436526/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436526/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-436526/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-116535-2 MS	P-S4-011118-366	Total/NA	Solid	3546	
280-116535-2 MS	P-S4-011118-366	Total/NA	Solid	3546	
280-116535-2 MSD	P-S4-011118-366	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 436526 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2 MSD	P-S4-011118-366	Total/NA	Solid	3546	

Prep Batch: 437059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-3	V-S4-021118-416	Total/NA	Solid	8011	
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2	P-S4-011118-366	Total/NA	Solid	8015D DRO	436526
280-116535-4	P-S4-021118-416	Total/NA	Solid	8015D DRO	436526
MB 280-436526/1-A	Method Blank	Total/NA	Solid	8015D DRO	436526
LCS 280-436526/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436526
LCS 280-436526/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436526
280-116535-2 MS	P-S4-011118-366	Total/NA	Solid	8015D DRO	436526
280-116535-2 MS	P-S4-011118-366	Total/NA	Solid	8015D DRO	436526
280-116535-2 MSD	P-S4-011118-366	Total/NA	Solid	8015D DRO	436526
280-116535-2 MSD	P-S4-011118-366	Total/NA	Solid	8015D DRO	436526

Prep Batch: 437762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-1	TB-S4-021118-01	Total/NA	Water	8011	
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 437819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-3	V-S4-021118-416	Total/NA	Solid	8011	437059
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	437059
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	437059
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	437059

Analysis Batch: 438082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-1	TB-S4-021118-01	Total/NA	Water	8011	437762
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	437762
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	437762
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437762

General Chemistry

Analysis Batch: 436543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116535-2	P-S4-011118-366	Total/NA	Solid	Moisture	
280-116535-3	V-S4-021118-416	Total/NA	Solid	Moisture	
280-116535-4	P-S4-021118-416	Total/NA	Solid	Moisture	

Client Sample ID: TB-S4-021118-01

Lab Sample ID: 280-116535-1

Date Collected: 11/02/18 13:50

Matrix: Water

Date Received: 11/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437713	11/15/18 17:22	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437546	11/14/18 18:09	GPM	TAL DEN
Total/NA	Prep	8011			34.3 mL	35 mL	437762	11/15/18 11:36	SU	TAL DEN
Total/NA	Analysis	8011		1			438082	11/16/18 21:25	JLW	TAL DEN

Client Sample ID: P-S4-011118-366

Lab Sample ID: 280-116535-2

Date Collected: 11/01/18 14:40

Matrix: Solid

Date Received: 11/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.677 g	5 mL	437770	11/01/18 14:40	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 16:57	GPM	TAL DEN
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: P-S4-011118-366

Lab Sample ID: 280-116535-2

Date Collected: 11/01/18 14:40

Matrix: Solid

Date Received: 11/03/18 09:00

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			16.9 g	1 mL	436526	11/06/18 15:48	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/12/18 20:42	CSM	TAL DEN

Client Sample ID: V-S4-021118-416

Lab Sample ID: 280-116535-3

Date Collected: 11/02/18 15:43

Matrix: Solid

Date Received: 11/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: V-S4-021118-416

Lab Sample ID: 280-116535-3

Date Collected: 11/02/18 15:43

Matrix: Solid

Date Received: 11/03/18 09:00

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.675 g	5 mL	437582	11/02/18 15:43	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	437516	11/14/18 11:38	JLS	TAL DEN
Total/NA	Prep	8011			10.01 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/16/18 00:41	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Client Sample ID: P-S4-021118-416

Lab Sample ID: 280-116535-4

Date Collected: 11/02/18 15:43
Matrix: Solid
Date Received: 11/03/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.56 g	5 mL	437770	11/02/18 15:43	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 17:21	GPM	TAL DEN
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: P-S4-021118-416

Lab Sample ID: 280-116535-4

Date Collected: 11/02/18 15:43
Matrix: Solid
Date Received: 11/03/18 09:00
Percent Solids: 98.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			16.3 g	1 mL	436526	11/06/18 15:48	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/12/18 23:13	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116535-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3793 1041	COC No: COC1-54-TA-20181102
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO
City: Greenwood Village	TAT Requested (days): Per PO
State, Zip: CO, 80111	
Phone: 303-590-9143(Tel)	PO #: 16065
Email: pmoss@eaest.com	WO #: 62735DM02.1017
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071
Site: Kirtland BFF	SSOW#:

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-54-021118-01	11/02/18	1350	G	W	N	N						X	X	-	X	6	
P-54-011118-366	11/01/18	1440	G	S	N	N				X	X					3	
V-54-021118-416	11/02/18	1543	G	S	N	N	X	X	X							5	
P-54-021118-416	11/02/18	1543	G	S	N	N				X	X					3	

280-116535 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKeage	11/02/18 1700	EA	Alonez	11.3.18 0900	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.9, 0.7, IR8, Rlored by AM 11.3.18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116535-1

Login Number: 116535
List Number: 1
Creator: Gomez, Alyssa I

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116567-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/30/2018 2:00:44 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116567-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology
Project: Kirtland BFF Vadose Zone Coring
Report Number: 280-116567-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/03/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.6 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

Client submitted a revised chain of custody requesting that the trip blank be cancelled. Both original and revised chains of custody are attached.

VOLATILE ORGANIC COMPOUNDS (GC)

Samples RB-S9-011118-01 (280-116567-2) and RB-S9-011118-02 (280-116567-3) were analyzed for volatile organic compounds (GC) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/15/2018.

1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene and Naphthalene were detected in method blank MB 280-437691/6 at levels that were above the detection limit but below ½ the limit of quantitation (LOQ). The values should be considered estimates, and have been flagged "J".

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples RB-S9-011118-01 (280-116567-2) and RB-S9-011118-02 (280-116567-3) were analyzed for gasoline range organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-116567-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

ETHYLENE DIBROMIDE

Samples RB-S9-011118-01 (280-116567-2) and RB-S9-011118-02 (280-116567-3) were analyzed for Ethylene Dibromide in accordance with 8011. The samples were prepared on 11/14/2018 and analyzed on 11/26/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples RB-S9-011118-01 (280-116567-2) and RB-S9-011118-02 (280-116567-3) were analyzed for Diesel Range Organics in accordance with 8015D DRO. The samples were prepared on 11/07/2018 and analyzed on 11/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Client Sample ID: RB-S9-011118-01 — Lab Sample ID: 280-116567-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.6		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Isopropylbenzene	0.22	J	1.0	0.40	0.19	ug/L	1		8260B	Total/NA
Naphthalene	2.2		1.0	0.80	0.22	ug/L	1		8260B	Total/NA
N-Propylbenzene	0.46	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Toluene	0.71	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	2.8		1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	2.0		1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	2.5		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	0.15	J	0.26	0.12	0.033	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.12	J	0.51	0.13	0.057	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S9-011118-02 — Lab Sample ID: 280-116567-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.33	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Naphthalene	0.57	J	1.0	0.80	0.22	ug/L	1		8260B	Total/NA
Toluene	0.19	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.55	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	0.31	J	1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	0.52	J	2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	0.14	J	0.27	0.13	0.035	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.10	J	0.53	0.13	0.060	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116567-2	RB-S9-011118-01	Water	11/01/18 08:30	11/03/18 09:00
280-116567-3	RB-S9-011118-02	Water	11/01/18 08:45	11/03/18 09:00

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S9-011118-01
Date Collected: 11/01/18 08:30
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116567-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/15/18 11:38	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/15/18 11:38	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 11:38	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/15/18 11:38	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/15/18 11:38	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/15/18 11:38	1
sec-Butylbenzene	0.40	U M	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/15/18 11:38	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/15/18 11:38	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/15/18 11:38	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/15/18 11:38	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 11:38	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/15/18 11:38	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/15/18 11:38	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 11:38	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 11:38	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 11:38	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 11:38	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 11:38	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/15/18 11:38	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/15/18 11:38	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 11:38	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 11:38	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 11:38	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 11:38	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 11:38	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 11:38	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 11:38	1
Ethylbenzene	**1.6**		1.0	0.40	0.16	ug/L		11/15/18 11:38	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/15/18 11:38	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/15/18 11:38	1
Isopropylbenzene	**0.22**	**J**	1.0	0.40	0.19	ug/L		11/15/18 11:38	1
4-Isopropyltoluene	0.40	U M	1.0	0.40	0.20	ug/L		11/15/18 11:38	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/15/18 11:38	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/15/18 11:38	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/15/18 11:38	1
Naphthalene	**2.2**		1.0	0.80	0.22	ug/L		11/15/18 11:38	1
N-Propylbenzene	**0.46**	**J**	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Styrene	0.40	U M	1.0	0.40	0.17	ug/L		11/15/18 11:38	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S9-011118-01
Date Collected: 11/01/18 08:30
Date Received: 11/03/18 09:00
Lab Sample ID: 280-116567-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 11:38	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 11:38	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 11:38	1
Toluene	**0.71**	**J**	1.0	0.40	0.17	ug/L		11/15/18 11:38	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 11:38	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/15/18 11:38	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/15/18 11:38	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 11:38	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/15/18 11:38	1
1,2,4-Trimethylbenzene	**2.8**		1.0	0.40	0.15	ug/L		11/15/18 11:38	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 11:38	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/15/18 11:38	1
o-Xylene	**2.0**		1.0	0.40	0.19	ug/L		11/15/18 11:38	1
m-Xylene & p-Xylene	**2.5**		2.0	0.80	0.34	ug/L		11/15/18 11:38	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 11:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*89 - 112*		*11/15/18 11:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*81 - 118*		*11/15/18 11:38*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*11/15/18 11:38*	*1*
Dibromofluoromethane (Surr)	*89*		*80 - 119*		*11/15/18 11:38*	*1*

Client Sample ID: RB-S9-011118-02
Date Collected: 11/01/18 08:45
Date Received: 11/03/18 09:00
Lab Sample ID: 280-116567-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/15/18 12:01	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/15/18 12:01	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 12:01	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/15/18 12:01	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/15/18 12:01	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/15/18 12:01	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/15/18 12:01	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/15/18 12:01	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/15/18 12:01	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/15/18 12:01	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 12:01	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/15/18 12:01	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/15/18 12:01	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S9-011118-02
Date Collected: 11/01/18 08:45
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116567-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 12:01	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 12:01	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 12:01	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 12:01	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 12:01	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/15/18 12:01	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/15/18 12:01	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 12:01	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 12:01	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 12:01	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 12:01	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 12:01	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 12:01	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 12:01	1
Ethylbenzene	**0.33**	**J**	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/15/18 12:01	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/15/18 12:01	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 12:01	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 12:01	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		11/15/18 12:01	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/15/18 12:01	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/15/18 12:01	1
Naphthalene	**0.57**	**J**	1.0	0.80	0.22	ug/L		11/15/18 12:01	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 12:01	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 12:01	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 12:01	1
Toluene	**0.19**	**J**	1.0	0.40	0.17	ug/L		11/15/18 12:01	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 12:01	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/15/18 12:01	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/15/18 12:01	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 12:01	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/15/18 12:01	1
1,2,4-Trimethylbenzene	**0.55**	**J**	1.0	0.40	0.15	ug/L		11/15/18 12:01	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 12:01	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/15/18 12:01	1
o-Xylene	**0.31**	**J**	1.0	0.40	0.19	ug/L		11/15/18 12:01	1
m-Xylene & p-Xylene	**0.52**	**J**	2.0	0.80	0.34	ug/L		11/15/18 12:01	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 12:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*89 - 112*		*11/15/18 12:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*81 - 118*		*11/15/18 12:01*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/15/18 12:01*	*1*
Dibromofluoromethane (Surr)	*87*		*80 - 119*		*11/15/18 12:01*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S9-011118-01 — **Lab Sample ID: 280-116567-2**
Date Collected: 11/01/18 08:30 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/15/18 09:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*82 - 110*		*11/15/18 09:37*	*1*

Client Sample ID: RB-S9-011118-02 — **Lab Sample ID: 280-116567-3**
Date Collected: 11/01/18 08:45 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/15/18 10:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*11/15/18 10:00*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S9-011118-01 — **Lab Sample ID: 280-116567-2**
Date Collected: 11/01/18 08:30 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		11/26/18 22:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*114*		*70 - 130*	*11/14/18 11:02*	*11/26/18 22:00*	*1*

Client Sample ID: RB-S9-011118-02 — **Lab Sample ID: 280-116567-3**
Date Collected: 11/01/18 08:45 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		11/26/18 22:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*118*		*70 - 130*	*11/14/18 11:02*	*11/26/18 22:38*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S9-011118-01 — **Lab Sample ID: 280-116567-2**
Date Collected: 11/01/18 08:30 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.15**	**J**	0.26	0.12	0.033	mg/L		11/13/18 14:05	1
Motor Oil (C20-C38)	**0.12**	**J**	0.51	0.13	0.057	mg/L		11/13/18 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*86*		*56 - 125*	*11/07/18 14:03*	*11/13/18 14:05*	*1*
n-Octacosane	*99*		*60 - 142*	*11/07/18 14:03*	*11/13/18 14:05*	*1*

Client Sample ID: RB-S9-011118-02 — **Lab Sample ID: 280-116567-3**
Date Collected: 11/01/18 08:45 — **Matrix: Water**
Date Received: 11/03/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.14**	**J**	0.27	0.13	0.035	mg/L		11/13/18 14:25	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: RB-S9-011118-02
Date Collected: 11/01/18 08:45
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116567-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	**0.10**	**J**	0.53	0.13	0.060	mg/L		11/13/18 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*88*		*56 - 125*	*11/07/18 14:03*	*11/13/18 14:25*	*1*
n-Octacosane	*101*		*60 - 142*	*11/07/18 14:03*	*11/13/18 14:25*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116567-2	RB-S9-011118-01	103	91	98	89
280-116567-3	RB-S9-011118-02	103	89	101	87
LCS 280-437691/4	Lab Control Sample	108	93	97	86
MB 280-437691/6	Method Blank	100	86	101	86

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116567-2	RB-S9-011118-01	98
280-116567-3	RB-S9-011118-02	99
LCS 280-437546/3	Lab Control Sample	100
MB 280-437546/5	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-116567-2	RB-S9-011118-01	114
280-116567-3	RB-S9-011118-02	118
LCS 280-437578/2-A	Lab Control Sample	122
LCSD 280-437578/3-A	Lab Control Sample Dup	117
MB 280-437578/4-A	Method Blank	108

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-116567-2	RB-S9-011118-01	86	99
280-116567-3	RB-S9-011118-02	88	101
LCS 280-436683/2-A	Lab Control Sample	87	99
LCS 280-436683/3-A	Lab Control Sample	99	105 M

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
LCSD 280-436683/24-A	Lab Control Sample Dup	100	115								
LCSD 280-436683/25-A	Lab Control Sample Dup	95	107								
MB 280-436683/1-A	Method Blank	85	97								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-437691/6
Matrix: Water
Analysis Batch: 437691

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/15/18 10:09	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/15/18 10:09	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:09	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/15/18 10:09	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/15/18 10:09	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/15/18 10:09	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/15/18 10:09	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/15/18 10:09	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/15/18 10:09	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/15/18 10:09	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:09	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/15/18 10:09	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/15/18 10:09	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:09	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:09	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 10:09	1
1,4-Dichlorobenzene	0.40	U M	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 10:09	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/15/18 10:09	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/15/18 10:09	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/15/18 10:09	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:09	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:09	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:09	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/15/18 10:09	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/15/18 10:09	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:09	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:09	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/15/18 10:09	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/15/18 10:09	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:09	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 10:09	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		11/15/18 10:09	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/15/18 10:09	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/15/18 10:09	1
Naphthalene	0.486	J	1.0	0.80	0.22	ug/L		11/15/18 10:09	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437691/6
Matrix: Water
Analysis Batch: 437691

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:09	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/15/18 10:09	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/15/18 10:09	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1
1,2,3-Trichlorobenzene	0.484	J	1.0	0.80	0.21	ug/L		11/15/18 10:09	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/15/18 10:09	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/15/18 10:09	1
1,2,4-Trichlorobenzene	0.352	J	1.0	0.80	0.21	ug/L		11/15/18 10:09	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/15/18 10:09	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/15/18 10:09	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/15/18 10:09	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/15/18 10:09	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/15/18 10:09	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/15/18 10:09	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/15/18 10:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*11/15/18 10:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*81 - 118*		*11/15/18 10:09*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/15/18 10:09*	*1*
Dibromofluoromethane (Surr)	*86*		*80 - 119*		*11/15/18 10:09*	*1*

Lab Sample ID: LCS 280-437691/4
Matrix: Water
Analysis Batch: 437691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	12.9		ug/L		64	39 - 160
Benzene	5.00	4.11		ug/L		82	79 - 120
Bromobenzene	5.00	4.70		ug/L		94	80 - 120
Bromochloromethane	5.00	4.03		ug/L		81	78 - 123
Bromodichloromethane	5.00	4.51		ug/L		90	79 - 125
Bromoform	5.00	5.18		ug/L		104	66 - 130
Bromomethane	5.00	4.49		ug/L		90	53 - 141
2-Butanone (MEK)	20.0	16.4		ug/L		82	56 - 143
n-Butylbenzene	5.00	4.76		ug/L		95	75 - 128
sec-Butylbenzene	5.00	4.34		ug/L		87	77 - 126
tert-Butylbenzene	5.00	4.21		ug/L		84	78 - 124
Carbon disulfide	5.00	4.14		ug/L		83	64 - 133
Carbon tetrachloride	5.00	4.27		ug/L		85	72 - 136
Chlorobenzene	5.00	4.78		ug/L		96	82 - 118
Chloroethane	5.00	3.71		ug/L		74	60 - 138
Chloroform	5.00	4.54		ug/L		91	79 - 124
Chloromethane	5.00	3.96		ug/L		79	50 - 139
4-Chlorotoluene	5.00	3.93		ug/L		79	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437691/4
Matrix: Water
Analysis Batch: 437691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	4.76		ug/L		95	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.85	J	ug/L		97	62 - 128
Dichlorodifluoromethane	5.00	4.13		ug/L		83	32 - 152
Dibromomethane	5.00	4.52		ug/L		90	79 - 123
Ethylene Dibromide	5.00	4.98		ug/L		100	77 - 121
1,2-Dichlorobenzene	5.00	4.61		ug/L		92	80 - 119
1,3-Dichlorobenzene	5.00	4.56		ug/L		91	80 - 119
1,4-Dichlorobenzene	5.00	4.52		ug/L		90	79 - 118
1,1-Dichloroethane	5.00	4.04		ug/L		81	77 - 125
1,2-Dichloroethane	5.00	4.57		ug/L		91	73 - 128
1,1-Dichloroethene	5.00	4.58		ug/L		92	71 - 131
cis-1,2-Dichloroethene	5.00	4.69		ug/L		94	78 - 123
trans-1,2-Dichloroethene	5.00	4.66		ug/L		93	75 - 124
1,2-Dichloropropane	5.00	4.19		ug/L		84	78 - 122
1,3-Dichloropropane	5.00	4.80		ug/L		96	80 - 119
2,2-Dichloropropane	5.00	4.61		ug/L		92	60 - 139
1,1-Dichloropropene	5.00	4.22		ug/L		84	79 - 125
cis-1,3-Dichloropropene	5.00	5.23		ug/L		105	75 - 124
trans-1,3-Dichloropropene	5.00	4.54		ug/L		91	73 - 127
Ethylbenzene	5.00	4.99		ug/L		100	79 - 121
2-Hexanone	20.0	19.8		ug/L		99	57 - 139
Hexachlorobutadiene	5.00	4.80		ug/L		96	66 - 134
Isopropylbenzene	5.00	4.47		ug/L		89	72 - 131
4-Isopropyltoluene	5.00	4.16		ug/L		83	77 - 127
Methylene Chloride	5.00	4.30	J	ug/L		86	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	18.0		ug/L		90	67 - 130
Methyl tert-butyl ether	5.00	4.19	J	ug/L		84	71 - 124
Naphthalene	5.00	4.31		ug/L		86	61 - 128
N-Propylbenzene	5.00	4.14		ug/L		83	76 - 126
Styrene	5.00	4.81		ug/L		96	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.94		ug/L		99	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.53		ug/L		91	71 - 121
Tetrachloroethene	5.00	4.95		ug/L		99	74 - 129
Toluene	5.00	4.79		ug/L		96	80 - 121
1,2,3-Trichlorobenzene	5.00	4.55		ug/L		91	69 - 129
1,1,1-Trichloroethane	5.00	4.82		ug/L		96	74 - 131
1,1,2-Trichloroethane	5.00	4.80		ug/L		96	80 - 119
Trichloroethene	5.00	4.56		ug/L		91	79 - 123
Trichlorofluoromethane	5.00	4.58		ug/L		92	65 - 141
1,2,4-Trichlorobenzene	5.00	4.36		ug/L		87	69 - 130
1,2,3-Trichloropropane	5.00	4.34		ug/L		87	73 - 122
1,2,4-Trimethylbenzene	5.00	4.34		ug/L		87	76 - 124
1,3,5-Trimethylbenzene	5.00	4.39		ug/L		88	75 - 124
Vinyl chloride	5.00	3.68		ug/L		74	58 - 137
o-Xylene	5.00	5.15		ug/L		103	78 - 122
m-Xylene & p-Xylene	5.00	4.82		ug/L		96	80 - 121
2-Chlorotoluene	5.00	4.20		ug/L		84	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437691/4
Matrix: Water
Analysis Batch: 437691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*108*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*
Dibromofluoromethane (Surr)	*86*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437546/5
Matrix: Water
Analysis Batch: 437546

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/14/18 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*82 - 110*		*11/14/18 12:14*	*1*

Lab Sample ID: LCS 280-437546/3
Matrix: Water
Analysis Batch: 437546

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	86.7		ug/L		86	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*100*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437578/4-A
Matrix: Water
Analysis Batch: 438797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437578

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/26/18 18:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*108*		*70 - 130*	*11/14/18 11:02*	*11/26/18 18:48*	*1*

Lab Sample ID: LCS 280-437578/2-A
Matrix: Water
Analysis Batch: 438797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437578

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.227	M	ug/L		91	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-437578/2-A
Matrix: Water
Analysis Batch: 438797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437578

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	122		70 - 130

Lab Sample ID: LCSD 280-437578/3-A
Matrix: Water
Analysis Batch: 438797

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437578

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.217	M	ug/L		87	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	117		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436683/1-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436683

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		11/13/18 12:25	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		11/13/18 12:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	85		56 - 125	11/07/18 14:03	11/13/18 12:25	1
n-Octacosane	97		60 - 142	11/07/18 14:03	11/13/18 12:25	1

Lab Sample ID: LCS 280-436683/2-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436683

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			2.00	1.93		mg/L		96	36 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	87		56 - 125
n-Octacosane	99		60 - 142

Lab Sample ID: LCS 280-436683/3-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436683

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.21		mg/L		104	41 - 113		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	99		56 - 125

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-436683/3-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436683

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*105*	*M*	*60 - 142*

Lab Sample ID: LCSD 280-436683/24-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436683

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	5.41		mg/L		108	41 - 113	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*100*		*56 - 125*
n-Octacosane	*115*		*60 - 142*

Lab Sample ID: LCSD 280-436683/25-A
Matrix: Water
Analysis Batch: 437344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 436683

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.97		mg/L		98	36 - 132	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*95*		*56 - 125*
n-Octacosane	*107*		*60 - 142*

GC/MS VOA

Analysis Batch: 437691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	8260B	
280-116567-3	RB-S9-011118-02	Total/NA	Water	8260B	
MB 280-437691/6	Method Blank	Total/NA	Water	8260B	
LCS 280-437691/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 437546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	8015D GRO	
280-116567-3	RB-S9-011118-02	Total/NA	Water	8015D GRO	
MB 280-437546/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437546/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 436683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	3510C	
280-116567-3	RB-S9-011118-02	Total/NA	Water	3510C	
MB 280-436683/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-436683/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-436683/3-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-436683/24-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-436683/25-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 437344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	8015D DRO	436683
280-116567-3	RB-S9-011118-02	Total/NA	Water	8015D DRO	436683
MB 280-436683/1-A	Method Blank	Total/NA	Water	8015D DRO	436683
LCS 280-436683/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	436683
LCS 280-436683/3-A	Lab Control Sample	Total/NA	Water	8015D DRO	436683
LCSD 280-436683/24-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	436683
LCSD 280-436683/25-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	436683

Prep Batch: 437578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	8011	
280-116567-3	RB-S9-011118-02	Total/NA	Water	8011	
MB 280-437578/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437578/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437578/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 438797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116567-2	RB-S9-011118-01	Total/NA	Water	8011	437578
280-116567-3	RB-S9-011118-02	Total/NA	Water	8011	437578
MB 280-437578/4-A	Method Blank	Total/NA	Water	8011	437578
LCS 280-437578/2-A	Lab Control Sample	Total/NA	Water	8011	437578

GC Semi VOA (Continued)

Analysis Batch: 438797 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-437578/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437578

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Client Sample ID: RB-S9-011118-01

Date Collected: 11/01/18 08:30
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116567-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437691	11/15/18 11:38	DPI	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437546	11/15/18 09:37	GPM	TAL DEN
Total/NA	Prep	8011			34.1 mL	35 mL	437578	11/14/18 11:02	SU	TAL DEN
Total/NA	Analysis	8011		1			438797	11/26/18 22:00	JLW	TAL DEN
Total/NA	Prep	3510C			975.8 mL	1 mL	436683	11/07/18 14:03	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			437344	11/13/18 14:05	CSM	TAL DEN

Client Sample ID: RB-S9-011118-02

Date Collected: 11/01/18 08:45
Date Received: 11/03/18 09:00

Lab Sample ID: 280-116567-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437691	11/15/18 12:01	DPI	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437546	11/15/18 10:00	GPM	TAL DEN
Total/NA	Prep	8011			34.2 mL	35 mL	437578	11/14/18 11:02	SU	TAL DEN
Total/NA	Analysis	8011		1			438797	11/26/18 22:38	JLW	TAL DEN
Total/NA	Prep	3510C			941.5 mL	1 mL	436683	11/07/18 14:03	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			437344	11/13/18 14:25	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116567-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4437 3373 1030	COC No: COC1-59-TA-20181101
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-59-011118-01	11/01/18	0800	G	W	N	N						X	X	-	X	6	
RB-59-011118-01	11/01/18	0830	G	W	N	N						X	X	X	X	11	
RB-59-011118-02	11/01/18	0845	G	W	N	N						X	X	X	X	11	

280-116567 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKeage	11/02/18 1700	EA		11-03-18 0900	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 5.9 to 0.7 IR9 XFERED BY ED 11-03-18

Ver: 08/04/2016

1. Plz delete the TB-59-011118-01 below. Pmoss 11/5/18

Copy

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeage	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443773731030	COC No: COC1-59-TA-20181101
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
Delete TB-59-011118-00	11/01/18	0800	G	W	N	N	—	—	—	—	→	X	X	—	X	→	6
pm 11/5/18 RB-59-011118-01	11/01/18	0830	G	W	N	N	—	—	—	—	→	X	X	X	X	→	11
RB-59-011118-02	11/01/18	0845	G	W	N	N	—	—	—	—	→	X	X	X	X	→	11

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by: Kevin McKeage	Date/Time: 11/02/18 1700	Company EA	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116567-1

Login Number: 116567
List Number: 1
Creator: Dunlap, Krista M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116615-1
Client Project/Site: Kirtland BFF Vadose Zone Coring
Revision: 1

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
12/31/2018 10:00:04 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116615-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology
Project: Kirtland BFF Vadose Zone Coring
Report Number: 280-116615-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1 - 12/30/2018
Revision 1 was created to add the missing Benzene and Toluene results for sample V-S4-051118-494 (280-116615-4).

RECEIPT
The samples were received on 11/06/2018; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.2º C, 3.3º C and 4.6º C.

One of Two VOA vials for sample ID TB-S4-041118-01 was received containing a bubble greater than 6mm in diameter. Sufficient volume with no bubbles remained for analysis.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS) - Solid
Samples V-S4-041118-467 (280-116615-2) and V-S4-051118-494 (280-116615-4) were analyzed for volatile organic compounds (GC-MS) in accordance with 8260B. The samples were prepared on 11/04/2018 and 11/05/2018 and analyzed on 11/14/2018 and 11/19/2018.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-437516: n-Butylbenzene. Associated results have been flagged "Q". This compound is not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. therefore, the data have been reported. The associated samples contained detections for the following analytes: n-Butylbenzene.

The continuing calibration verification (CCV) associated with batch 280-438179 recovered above the upper control limit for Dibromochloromethane, Carbon disulfide, trans-1,3-Dichloropropene and 1,2-Dichloroethane. The samples associated with this CCV

Job ID: 280-116615-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

were non-targets for the affected analytes; therefore, the data have been reported. In addition, this is the diluted analysis and these compounds were not targets.

The Dibromofluoromethane (Surr) recovery for the MB 280-438120/1-A associated with preparation batch 280-438120 and analytical batch 280-438179 was outside the upper control limits. Associated results have been flagged "Q". This surrogate is not associated to any targets since this is the diluted analysis for Toluene and Benzene only.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC) - Water

Sample TB-S4-041118-01 (280-116615-1) was analyzed for volatile organic compounds (GC) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/16/2018.

Methylene Chloride was detected in method blank MB 280-437861/4 at a level that was above the detection limit but below ½ the limit of quantitation (LOQ). The value should be considered an estimate, and has been flagged "J".

1,1,2-Trichloroethane failed the recovery criteria high for LCS 280-437861/5 and LCSD 280-437861/6. This analyte was biased high in the LCS and LCSD and was not detected in the associated samples; therefore, the data have been reported. Associated results have been flagged "Q".

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GAS RANGE ORGANICS - Solid

Samples P-S4-041118-467 (280-116615-3) and P-S4-051118-494 (280-116615-5) were analyzed for gas range organics in accordance with 8015D GRO. The samples were prepared on 11/04/2018 and 11/05/2018 and analyzed on 11/15/2018 and 11/16/2018.

Sample P-S4-051118-494 (280-116615-5)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S4-051118-494 (280-116615-5). Associated results have been flagged "Q". Evidence of matrix interference is present; therefore, re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S4-041118-01 (280-116615-1) was analyzed for gasoline range organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S4-041118-467 (280-116615-2) and V-S4-051118-494 (280-116615-4) were analyzed for EDB and DBCP in accordance with EPA SW-846 Method 8011. The samples were prepared on 11/09/2018 and analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ETHYLENE DIBROMIDE - Water

Sample TB-S4-041118-01 (280-116615-1) was analyzed for Ethylene Dibromide in accordance with 8011. The samples were prepared on 11/15/2018 and analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples P-S4-041118-467 (280-116615-3) and P-S4-051118-494 (280-116615-5) were analyzed for diesel range organics in accordance with 8015DRO. The samples were prepared on 11/07/2018 and analyzed on 11/13/2018.

Job ID: 280-116615-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Diesel Range Organics [C10-C28] was detected in method blank MB 280-436699/1-A at a level that was above the detection limit but below ½ the limit of quantitation (LOQ). The value should be considered an estimate, and has been flagged "J".

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S4-041118-467 (280-116615-2), P-S4-041118-467 (280-116615-3), V-S4-051118-494 (280-116615-4) and P-S4-051118-494 (280-116615-5) were analyzed for percent solids in accordance with ASTM D2216. The samples were analyzed on 11/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Client Sample ID: TB-S4-041118-01 — Lab Sample ID: 280-116615-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	15	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S4-041118-467 — Lab Sample ID: 280-116615-2

No Detections.

Client Sample ID: P-S4-041118-467 — Lab Sample ID: 280-116615-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.7	J	7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S4-051118-494 — Lab Sample ID: 280-116615-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	44		5.0	3.2	0.58	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	17		5.0	1.6	0.57	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	3.2	J	5.0	1.6	0.49	ug/Kg	1	☼	8260B	Total/NA
Acetone	25		20	13	5.3	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	90		5.0	1.6	0.67	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	9.1		5.0	1.6	0.52	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	11		5.0	1.6	0.59	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	190		3.2	3.2	1.0	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	9.7		5.0	1.6	0.63	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	5.1	Q	5.0	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	14		5.0	1.6	0.58	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	91		5.0	1.6	0.61	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	8.7		5.0	1.6	0.77	ug/Kg	1	☼	8260B	Total/NA
Benzene - DL	440		200	130	36	ug/Kg	1	☼	8260B	Total/NA
Toluene - DL	830		200	63	31	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	0.22	M	0.11	0.043	0.017	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S4-051118-494 — Lab Sample ID: 280-116615-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	140	D Q	11	10	3.1	mg/Kg	10	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	10		8.9	4.4	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116615-1	TB-S4-041118-01	Water	11/04/18 11:00	11/06/18 08:55
280-116615-2	V-S4-041118-467	Solid	11/04/18 10:40	11/06/18 08:55
280-116615-3	P-S4-041118-467	Solid	11/04/18 10:40	11/06/18 08:55
280-116615-4	V-S4-051118-494	Solid	11/05/18 07:25	11/06/18 08:55
280-116615-5	P-S4-051118-494	Solid	11/05/18 07:25	11/06/18 08:55

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S4-041118-01
Date Collected: 11/04/18 11:00
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/16/18 13:20	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/16/18 13:20	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:20	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/16/18 13:20	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/16/18 13:20	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/16/18 13:20	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/16/18 13:20	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/16/18 13:20	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/16/18 13:20	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/16/18 13:20	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:20	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/16/18 13:20	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/16/18 13:20	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:20	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:20	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 13:20	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:20	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 13:20	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/16/18 13:20	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/16/18 13:20	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:20	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:20	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:20	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:20	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:20	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:20	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:20	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/16/18 13:20	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/16/18 13:20	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:20	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 13:20	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/16/18 13:20	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/16/18 13:20	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/16/18 13:20	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:20	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S4-041118-01
Date Collected: 11/04/18 11:00
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:20	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:20	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 13:20	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:20	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		11/16/18 13:20	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/16/18 13:20	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:20	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/16/18 13:20	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:20	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:20	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/16/18 13:20	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:20	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/16/18 13:20	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*89 - 112*		*11/16/18 13:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*81 - 118*		*11/16/18 13:20*	*1*
4-Bromofluorobenzene (Surr)	*109*		*85 - 114*		*11/16/18 13:20*	*1*
Dibromofluoromethane (Surr)	*107*		*80 - 119*		*11/16/18 13:20*	*1*

Client Sample ID: V-S4-041118-467
Date Collected: 11/04/18 10:40
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-2
Matrix: Solid
Percent Solids: 94.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/14/18 11:59	1
1,1,1-Trichloroethane	1.8	U	5.6	1.8	0.59	ug/Kg	☼	11/14/18 11:59	1
1,1,2,2-Tetrachloroethane	1.8	U	5.6	1.8	0.69	ug/Kg	☼	11/14/18 11:59	1
1,1,2-Trichloroethane	3.6	U	5.6	3.6	0.99	ug/Kg	☼	11/14/18 11:59	1
1,1-Dichloroethane	0.90	U	5.6	0.90	0.24	ug/Kg	☼	11/14/18 11:59	1
1,1-Dichloroethene	1.8	U	5.6	1.8	0.67	ug/Kg	☼	11/14/18 11:59	1
1,1-Dichloropropene	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/14/18 11:59	1
1,2,3-Trichlorobenzene	1.8	U	5.6	1.8	0.85	ug/Kg	☼	11/14/18 11:59	1
1,2,3-Trichloropropane	3.6	U	5.6	3.6	0.91	ug/Kg	☼	11/14/18 11:59	1
1,2,4-Trichlorobenzene	1.8	U	5.6	1.8	0.82	ug/Kg	☼	11/14/18 11:59	1
1,2,4-Trimethylbenzene	3.6	U	5.6	3.6	0.65	ug/Kg	☼	11/14/18 11:59	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.68	ug/Kg	☼	11/14/18 11:59	1
1,2-Dichlorobenzene	1.8	U	5.6	1.8	0.51	ug/Kg	☼	11/14/18 11:59	1
1,2-Dichloroethane	1.8	U	5.6	1.8	0.79	ug/Kg	☼	11/14/18 11:59	1
1,2-Dichloroethene, Total	1.8	U	5.6	1.8	0.44	ug/Kg	☼	11/14/18 11:59	1
1,2-Dichloropropane	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/14/18 11:59	1
1,3,5-Trimethylbenzene	1.8	U	5.6	1.8	0.64	ug/Kg	☼	11/14/18 11:59	1
1,3-Dichlorobenzene	1.8	U	5.6	1.8	0.54	ug/Kg	☼	11/14/18 11:59	1
1,3-Dichloropropane	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/14/18 11:59	1
1,4-Dichlorobenzene	1.8	U	5.6	1.8	0.88	ug/Kg	☼	11/14/18 11:59	1
2,2-Dichloropropane	1.8	U	5.6	1.8	0.50	ug/Kg	☼	11/14/18 11:59	1
2-Butanone (MEK)	7.2	U	23	7.2	2.1	ug/Kg	☼	11/14/18 11:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-041118-467
Date Collected: 11/04/18 10:40
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-2
Matrix: Solid
Percent Solids: 94.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/14/18 11:59	1
2-Hexanone	14	U	23	14	5.5	ug/Kg	☼	11/14/18 11:59	1
4-Chlorotoluene	1.8	U	5.6	1.8	0.88	ug/Kg	☼	11/14/18 11:59	1
4-Isopropyltoluene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	11/14/18 11:59	1
4-Methyl-2-pentanone (MIBK)	14	U	23	14	4.9	ug/Kg	☼	11/14/18 11:59	1
Acetone	14	U	23	14	6.1	ug/Kg	☼	11/14/18 11:59	1
Benzene	1.8	U	5.6	1.8	0.53	ug/Kg	☼	11/14/18 11:59	1
Bromobenzene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	11/14/18 11:59	1
Bromoform	0.90	U	5.6	0.90	0.26	ug/Kg	☼	11/14/18 11:59	1
Bromomethane	1.8	U	11	1.8	0.56	ug/Kg	☼	11/14/18 11:59	1
Carbon disulfide	1.8	U	5.6	1.8	0.47	ug/Kg	☼	11/14/18 11:59	1
Carbon tetrachloride	1.8	U	5.6	1.8	0.71	ug/Kg	☼	11/14/18 11:59	1
Chlorobenzene	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/14/18 11:59	1
Bromochloromethane	0.90	U	5.6	0.90	0.34	ug/Kg	☼	11/14/18 11:59	1
Dibromochloromethane	1.8	U	5.6	1.8	0.64	ug/Kg	☼	11/14/18 11:59	1
Chloroethane	3.6	U	11	3.6	1.0	ug/Kg	☼	11/14/18 11:59	1
Chloroform	0.90	U	11	0.90	0.33	ug/Kg	☼	11/14/18 11:59	1
Chloromethane	1.8	U	11	1.8	0.87	ug/Kg	☼	11/14/18 11:59	1
cis-1,2-Dichloroethene	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/14/18 11:59	1
cis-1,3-Dichloropropene	3.6	U	5.6	3.6	1.5	ug/Kg	☼	11/14/18 11:59	1
Dibromomethane	3.6	U	5.6	3.6	0.95	ug/Kg	☼	11/14/18 11:59	1
Bromodichloromethane	0.90	U	5.6	0.90	0.25	ug/Kg	☼	11/14/18 11:59	1
Dichlorodifluoromethane	1.8	U	11	1.8	0.59	ug/Kg	☼	11/14/18 11:59	1
Ethylbenzene	1.8	U	5.6	1.8	0.76	ug/Kg	☼	11/14/18 11:59	1
Ethylene Dibromide	1.8	U	5.6	1.8	0.59	ug/Kg	☼	11/14/18 11:59	1
Hexachlorobutadiene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/14/18 11:59	1
Isopropylbenzene	1.8	U	5.6	1.8	0.67	ug/Kg	☼	11/14/18 11:59	1
Methyl tert-butyl ether	0.90	U	23	0.90	0.38	ug/Kg	☼	11/14/18 11:59	1
Methylene Chloride	3.6	U	5.6	3.6	1.8	ug/Kg	☼	11/14/18 11:59	1
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	11/14/18 11:59	1
Naphthalene	1.8	U	5.6	1.8	0.71	ug/Kg	☼	11/14/18 11:59	1
n-Butylbenzene	1.8	U Q	5.6	1.8	0.63	ug/Kg	☼	11/14/18 11:59	1
N-Propylbenzene	1.8	U	5.6	1.8	0.65	ug/Kg	☼	11/14/18 11:59	1
o-Xylene	1.8	U	5.6	1.8	0.69	ug/Kg	☼	11/14/18 11:59	1
sec-Butylbenzene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	11/14/18 11:59	1
Styrene	1.8	U	5.6	1.8	0.71	ug/Kg	☼	11/14/18 11:59	1
tert-Butylbenzene	1.8	U	5.6	1.8	0.56	ug/Kg	☼	11/14/18 11:59	1
Tetrachloroethene	1.8	U	5.6	1.8	0.67	ug/Kg	☼	11/14/18 11:59	1
Toluene	1.8	U	5.6	1.8	0.78	ug/Kg	☼	11/14/18 11:59	1
trans-1,2-Dichloroethene	0.90	U	5.6	0.90	0.44	ug/Kg	☼	11/14/18 11:59	1
trans-1,3-Dichloropropene	1.8	U	5.6	1.8	0.76	ug/Kg	☼	11/14/18 11:59	1
Trichloroethene	0.90	U	5.6	0.90	0.26	ug/Kg	☼	11/14/18 11:59	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	11/14/18 11:59	1
Vinyl chloride	3.6	U	5.6	3.6	1.5	ug/Kg	☼	11/14/18 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/04/18 10:40*	*11/14/18 11:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/04/18 10:40*	*11/14/18 11:59*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*11/04/18 10:40*	*11/14/18 11:59*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-041118-467
Date Collected: 11/04/18 10:40
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-2
Matrix: Solid
Percent Solids: 94.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	99		78 - 119	11/04/18 10:40	11/14/18 11:59	1

Client Sample ID: V-S4-051118-494
Date Collected: 11/05/18 07:25
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-4
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg	☼	11/14/18 16:02	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg	☼	11/14/18 16:02	1
1,1,2,2-Tetrachloroethane	1.6	U M	5.0	1.6	0.61	ug/Kg	☼	11/14/18 16:02	1
1,1,2-Trichloroethane	3.2	U M	5.0	3.2	0.87	ug/Kg	☼	11/14/18 16:02	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg	☼	11/14/18 16:02	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	11/14/18 16:02	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg	☼	11/14/18 16:02	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg	☼	11/14/18 16:02	1
1,2,3-Trichloropropane	3.2	U M	5.0	3.2	0.81	ug/Kg	☼	11/14/18 16:02	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg	☼	11/14/18 16:02	1
1,2,4-Trimethylbenzene	**44**		5.0	3.2	0.58	ug/Kg	☼	11/14/18 16:02	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.9	1.6	0.60	ug/Kg	☼	11/14/18 16:02	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg	☼	11/14/18 16:02	1
1,2-Dichloroethane	1.6	U M	5.0	1.6	0.70	ug/Kg	☼	11/14/18 16:02	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg	☼	11/14/18 16:02	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg	☼	11/14/18 16:02	1
1,3,5-Trimethylbenzene	**17**		5.0	1.6	0.57	ug/Kg	☼	11/14/18 16:02	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg	☼	11/14/18 16:02	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg	☼	11/14/18 16:02	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg	☼	11/14/18 16:02	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg	☼	11/14/18 16:02	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg	☼	11/14/18 16:02	1
2-Chlorotoluene	1.6	U M	5.0	1.6	0.51	ug/Kg	☼	11/14/18 16:02	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg	☼	11/14/18 16:02	1
4-Chlorotoluene	1.6	U M	5.0	1.6	0.78	ug/Kg	☼	11/14/18 16:02	1
4-Isopropyltoluene	**3.2**	**J**	5.0	1.6	0.49	ug/Kg	☼	11/14/18 16:02	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.3	ug/Kg	☼	11/14/18 16:02	1
Acetone	**25**		20	13	5.3	ug/Kg	☼	11/14/18 16:02	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg	☼	11/14/18 16:02	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg	☼	11/14/18 16:02	1
Bromomethane	1.6	U	9.9	1.6	0.50	ug/Kg	☼	11/14/18 16:02	1
Carbon disulfide	1.6	U M	5.0	1.6	0.42	ug/Kg	☼	11/14/18 16:02	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg	☼	11/14/18 16:02	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg	☼	11/14/18 16:02	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg	☼	11/14/18 16:02	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg	☼	11/14/18 16:02	1
Chloroethane	3.2	U	9.9	3.2	0.88	ug/Kg	☼	11/14/18 16:02	1
Chloroform	0.80	U	9.9	0.80	0.29	ug/Kg	☼	11/14/18 16:02	1
Chloromethane	1.6	U	9.9	1.6	0.77	ug/Kg	☼	11/14/18 16:02	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg	☼	11/14/18 16:02	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg	☼	11/14/18 16:02	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg	☼	11/14/18 16:02	1
Bromodichloromethane	0.80	U M	5.0	0.80	0.22	ug/Kg	☼	11/14/18 16:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Dichlorodifluoromethane	1.6	U	9.9	1.6	0.52	ug/Kg	☼	11/14/18 16:02	1
Ethylbenzene	**90**		5.0	1.6	0.67	ug/Kg	☼	11/14/18 16:02	1
Ethylene Dibromide	**9.1**		5.0	1.6	0.52	ug/Kg	☼	11/14/18 16:02	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg	☼	11/14/18 16:02	1
Isopropylbenzene	**11**		5.0	1.6	0.59	ug/Kg	☼	11/14/18 16:02	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg	☼	11/14/18 16:02	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg	☼	11/14/18 16:02	1
m-Xylene & p-Xylene	**190**		3.2	3.2	1.0	ug/Kg	☼	11/14/18 16:02	1
Naphthalene	**9.7**		5.0	1.6	0.63	ug/Kg	☼	11/14/18 16:02	1
n-Butylbenzene	**5.1**	**Q**	5.0	1.6	0.56	ug/Kg	☼	11/14/18 16:02	1
N-Propylbenzene	**14**		5.0	1.6	0.58	ug/Kg	☼	11/14/18 16:02	1
o-Xylene	**91**		5.0	1.6	0.61	ug/Kg	☼	11/14/18 16:02	1
sec-Butylbenzene	**8.7**		5.0	1.6	0.77	ug/Kg	☼	11/14/18 16:02	1
Styrene	1.6	U M	5.0	1.6	0.63	ug/Kg	☼	11/14/18 16:02	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg	☼	11/14/18 16:02	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	11/14/18 16:02	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg	☼	11/14/18 16:02	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg	☼	11/14/18 16:02	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg	☼	11/14/18 16:02	1
Trichlorofluoromethane	3.2	U	9.9	3.2	1.0	ug/Kg	☼	11/14/18 16:02	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg	☼	11/14/18 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*113*		*85 - 116*	*11/05/18 07:25*	*11/14/18 16:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*	*11/05/18 07:25*	*11/14/18 16:02*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*11/05/18 07:25*	*11/14/18 16:02*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/05/18 07:25*	*11/14/18 16:02*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	**440**		200	130	36	ug/Kg	☼	11/19/18 13:56	1
Toluene	**830**		200	63	31	ug/Kg	☼	11/19/18 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*85*		*85 - 116*	*11/05/18 07:25*	*11/19/18 13:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/05/18 07:25*	*11/19/18 13:56*	*1*
4-Bromofluorobenzene (Surr)	*90*		*79 - 119*	*11/05/18 07:25*	*11/19/18 13:56*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 119*	*11/05/18 07:25*	*11/19/18 13:56*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S4-041118-01 — **Lab Sample ID: 280-116615-1**
Date Collected: 11/04/18 11:00 — **Matrix: Water**
Date Received: 11/06/18 08:55

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	15	J	25	25	10	ug/L		11/16/18 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	101		82 - 110		11/16/18 16:53	1

Client Sample ID: P-S4-041118-467 — **Lab Sample ID: 280-116615-3**
Date Collected: 11/04/18 10:40 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 94.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.38	mg/Kg	☼	11/15/18 17:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	101		77 - 123	11/04/18 10:40	11/15/18 17:44	1

Client Sample ID: P-S4-051118-494 — **Lab Sample ID: 280-116615-5**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	140	D Q	11	10	3.1	mg/Kg	☼	11/16/18 09:47	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	716	Q	77 - 123	11/05/18 07:25	11/16/18 09:47	10

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S4-041118-01 — **Lab Sample ID: 280-116615-1**
Date Collected: 11/04/18 11:00 — **Matrix: Water**
Date Received: 11/06/18 08:55

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/16/18 22:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	113	M	70 - 130	11/15/18 11:36	11/16/18 22:03	1

Client Sample ID: V-S4-041118-467 — **Lab Sample ID: 280-116615-2**
Date Collected: 11/04/18 10:40 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 94.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.11	0.040	0.016	ug/Kg	☼	11/16/18 01:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	105		55 - 130	11/09/18 14:56	11/16/18 01:19	1

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.22	M	0.11	0.043	0.017	ug/Kg	☼	11/16/18 01:38	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	105	M	55 - 130	11/09/18 14:56	11/16/18 01:38	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S4-041118-467 — **Lab Sample ID: 280-116615-3**
Date Collected: 11/04/18 10:40 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 94.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.7	J	7.6	3.8	1.3	mg/Kg	☼	11/13/18 02:08	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg	☼	11/13/18 02:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	68		45 - 130	11/07/18 16:21	11/13/18 02:08	1
n-Octacosane	84		25 - 162	11/07/18 16:21	11/13/18 02:08	1

Client Sample ID: P-S4-051118-494 — **Lab Sample ID: 280-116615-5**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	10		8.9	4.4	1.5	mg/Kg	☼	11/13/18 02:29	1
Motor Oil (C20-C38)	26	U	27	26	8.7	mg/Kg	☼	11/13/18 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	71		45 - 130	11/07/18 16:21	11/13/18 02:29	1
n-Octacosane	90		25 - 162	11/07/18 16:21	11/13/18 02:29	1

General Chemistry

Client Sample ID: V-S4-041118-467 — **Lab Sample ID: 280-116615-2**
Date Collected: 11/04/18 10:40 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 94.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	5.4		0.1	0.05	0.1	%		11/06/18 17:42	1

Client Sample ID: P-S4-041118-467 — **Lab Sample ID: 280-116615-3**
Date Collected: 11/04/18 10:40 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 94.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	5.4		0.1	0.05	0.1	%		11/06/18 17:42	1

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.9		0.1	0.05	0.1	%		11/06/18 16:30	1

Client Sample ID: P-S4-051118-494 — **Lab Sample ID: 280-116615-5**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.4		0.1	0.05	0.1	%		11/06/18 17:42	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-116615-2	V-S4-041118-467	100	91	96	99
280-116615-4	V-S4-051118-494	113	89	98	96
280-116615-4 - DL	V-S4-051118-494	85	95	90	87
LCS 280-437582/2-A	Lab Control Sample	103	91	96	100
LCS 280-438120/2-A	Lab Control Sample	96	118	96	106
LCSD 280-438120/3-A	Lab Control Sample Dup	94	122	101	111
MB 280-437582/1-A	Method Blank	99	93	101	97
MB 280-438120/1-A	Method Blank	109	132	116	121 Q

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116615-1	TB-S4-041118-01	105	103	109	107
LCS 280-437861/5	Lab Control Sample	104	118	104	118
LCSD 280-437861/6	Lab Control Sample Dup	101	106	101	110
MB 280-437861/4	Method Blank	102	116	106	112

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116615-3	P-S4-041118-467	101
280-116615-5	P-S4-051118-494	716 Q
LCS 280-437770/1-A	Lab Control Sample	99
MB 280-437770/2-A	Method Blank	101

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-116615-1	TB-S4-041118-01	101
LCS 280-437913/3	Lab Control Sample	97
MB 280-437913/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-116615-2	V-S4-041118-467	105
280-116615-4	V-S4-051118-494	105 M
LCS 280-437059/2-A	Lab Control Sample	108
LCSD 280-437059/3-A	Lab Control Sample Dup	109
MB 280-437059/4-A	Method Blank	97 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-116615-1	TB-S4-041118-01	113 M
LCS 280-437762/2-A	Lab Control Sample	121
LCSD 280-437762/3-A	Lab Control Sample Dup	116
MB 280-437762/4-A	Method Blank	115

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-116615-3	P-S4-041118-467	68	84
280-116615-5	P-S4-051118-494	71	90
LCS 280-436699/2-A	Lab Control Sample	69	82
LCS 280-436699/3-A	Lab Control Sample	78	104
MB 280-436699/1-A	Method Blank	70	92

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/14/18 10:37	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/14/18 10:37	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/14/18 10:37	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/14/18 10:37	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/14/18 10:37	1
Acetone	13	U	20	13	5.4	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/14/18 10:37	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/14/18 10:37	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/14/18 10:37	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/14/18 10:37	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/14/18 10:37	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/14/18 10:37	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		11/14/18 10:37	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/14/18 10:37	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/14/18 10:37	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/14/18 10:37	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/14/18 10:37	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/14/18 10:37	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/14/18 10:37	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/14/18 10:37	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/14/18 10:37	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/14/18 10:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/14/18 10:37	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/14/18 10:37	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/14/18 10:37	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/14/18 10:37	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/14/18 10:37	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/14/18 10:37	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/14/18 10:37	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/14/18 10:37	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/14/18 10:37	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	48.4		ug/Kg		97	61 - 132
2-Butanone (MEK)	200	190		ug/Kg		95	51 - 148
1,2-Dichlorobenzene	50.0	48.4		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	50.0	47.0		ug/Kg		94	77 - 121
4-Chlorotoluene	50.0	48.4		ug/Kg		97	72 - 124
1,4-Dichlorobenzene	50.0	46.9		ug/Kg		94	75 - 120
1,1-Dichloroethane	50.0	41.6		ug/Kg		83	76 - 125
1,2-Dichloroethane	50.0	48.7		ug/Kg		97	73 - 128
Acetone	200	193		ug/Kg		97	36 - 164
1,1-Dichloroethene	50.0	47.0		ug/Kg		94	70 - 131
Benzene	50.0	46.7		ug/Kg		93	77 - 121
Bromobenzene	50.0	49.1		ug/Kg		98	78 - 121
Bromoform	50.0	54.4		ug/Kg		109	67 - 132
Bromomethane	50.0	52.2		ug/Kg		104	53 - 143
1,2-Dichloropropane	50.0	48.4		ug/Kg		97	76 - 123
Carbon disulfide	50.0	45.4		ug/Kg		91	63 - 132
1,3-Dichloropropane	50.0	49.0		ug/Kg		98	77 - 121
Carbon tetrachloride	50.0	46.4		ug/Kg		93	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	45.1		ug/Kg		90	67 - 133
Chlorobenzene	50.0	47.0		ug/Kg		94	79 - 120
1,1-Dichloropropene	50.0	45.8		ug/Kg		92	76 - 125
Bromochloromethane	50.0	49.5		ug/Kg		99	78 - 125
Dibromochloromethane	50.0	52.6		ug/Kg		105	74 - 126
Chloroethane	50.0	44.0		ug/Kg		88	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	213		ug/Kg		107	53 - 145
Chloromethane	50.0	44.0		ug/Kg		88	50 - 136
cis-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	77 - 123
cis-1,3-Dichloropropene	50.0	53.4		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	48.8		ug/Kg		98	73 - 127
Dibromomethane	50.0	47.7		ug/Kg		95	78 - 125
Bromodichloromethane	50.0	50.0		ug/Kg		100	75 - 127
4-Methyl-2-pentanone (MIBK)	200	215		ug/Kg		107	65 - 135
Dichlorodifluoromethane	50.0	38.9		ug/Kg		78	29 - 149
Ethylbenzene	50.0	48.6		ug/Kg		97	76 - 122
Ethylene Dibromide	50.0	51.1		ug/Kg		102	78 - 122
Hexachlorobutadiene	50.0	45.8		ug/Kg		92	61 - 135
Isopropylbenzene	50.0	48.1		ug/Kg		96	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.4		ug/Kg		99	78 - 125
Methyl tert-butyl ether	50.0	45.4		ug/Kg		91	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.0		ug/Kg		100	70 - 124
Methylene Chloride	50.0	45.8		ug/Kg		92	70 - 128
Naphthalene	50.0	54.6		ug/Kg		109	62 - 129
1,2,3-Trichlorobenzene	50.0	50.7		ug/Kg		101	66 - 130
n-Butylbenzene	50.0	49.7		ug/Kg		99	70 - 128
1,1,1-Trichloroethane	50.0	48.9		ug/Kg		98	73 - 130
N-Propylbenzene	50.0	46.5		ug/Kg		93	73 - 125
1,1,2-Trichloroethane	50.0	49.6		ug/Kg		99	78 - 121
sec-Butylbenzene	50.0	51.6		ug/Kg		103	73 - 126
Styrene	50.0	50.0		ug/Kg		100	76 - 124
1,2,4-Trichlorobenzene	50.0	51.2		ug/Kg		102	67 - 129
tert-Butylbenzene	50.0	47.8		ug/Kg		96	73 - 125
1,2,3-Trichloropropane	50.0	52.0		ug/Kg		104	73 - 125
Tetrachloroethene	50.0	44.9		ug/Kg		90	73 - 128
1,2,4-Trimethylbenzene	50.0	47.6		ug/Kg		95	75 - 123
Toluene	50.0	48.2		ug/Kg		96	77 - 121
1,3,5-Trimethylbenzene	50.0	48.1		ug/Kg		96	73 - 124
trans-1,2-Dichloroethene	50.0	44.2		ug/Kg		88	74 - 125
trans-1,3-Dichloropropene	50.0	53.1		ug/Kg		106	71 - 130
o-Xylene	50.0	50.1		ug/Kg		100	77 - 123
Trichloroethene	50.0	47.5		ug/Kg		95	77 - 123
m-Xylene & p-Xylene	50.0	47.6		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	42.8		ug/Kg		86	62 - 140
Vinyl chloride	50.0	45.0		ug/Kg		90	56 - 135
2-Chlorotoluene	50.0	48.2		ug/Kg		96	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: MB 280-437861/4
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/16/18 09:58	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/16/18 09:58	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 09:58	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 09:58	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/16/18 09:58	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/16/18 09:58	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/16/18 09:58	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/16/18 09:58	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/16/18 09:58	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/16/18 09:58	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/16/18 09:58	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/16/18 09:58	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/16/18 09:58	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/16/18 09:58	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 09:58	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/16/18 09:58	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/16/18 09:58	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/16/18 09:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437861/4
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/16/18 09:58	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
Methylene Chloride	0.346	J	5.0	0.80	0.32	ug/L		11/16/18 09:58	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/16/18 09:58	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/16/18 09:58	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/16/18 09:58	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 09:58	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/16/18 09:58	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/16/18 09:58	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/16/18 09:58	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*11/16/18 09:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*11/16/18 09:58*	*1*
4-Bromofluorobenzene (Surr)	*106*		*85 - 114*		*11/16/18 09:58*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 119*		*11/16/18 09:58*	*1*

Lab Sample ID: LCS 280-437861/5
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.35		ug/L		107	62 - 128
2-Butanone (MEK)	20.0	18.6		ug/L		93	56 - 143
1,2-Dichlorobenzene	5.00	5.33		ug/L		107	80 - 119
1,3-Dichlorobenzene	5.00	5.32		ug/L		106	80 - 119
4-Chlorotoluene	5.00	5.43		ug/L		109	78 - 122
1,4-Dichlorobenzene	5.00	5.27		ug/L		105	79 - 118
1,1-Dichloroethane	5.00	5.91		ug/L		118	77 - 125
1,2-Dichloroethane	5.00	6.05		ug/L		121	73 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437861/5
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	23.4		ug/L		117	39 - 160
1,1-Dichloroethene	5.00	5.66		ug/L		113	71 - 131
Benzene	5.00	5.78		ug/L		116	79 - 120
Bromobenzene	5.00	5.47		ug/L		109	80 - 120
Bromoform	5.00	5.22		ug/L		104	66 - 130
Bromomethane	5.00	5.48		ug/L		110	53 - 141
1,2-Dichloropropane	5.00	6.02		ug/L		120	78 - 122
Carbon disulfide	5.00	5.59		ug/L		112	64 - 133
1,3-Dichloropropane	5.00	5.55		ug/L		111	80 - 119
Carbon tetrachloride	5.00	5.75		ug/L		115	72 - 136
2,2-Dichloropropane	5.00	5.98		ug/L		120	60 - 139
Chlorobenzene	5.00	5.58		ug/L		112	82 - 118
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125
Bromochloromethane	5.00	5.99		ug/L		120	78 - 123
Dibromochloromethane	5.00	5.41		ug/L		108	74 - 126
Chloroethane	5.00	5.33		ug/L		107	60 - 138
Chloroform	5.00	6.07		ug/L		121	79 - 124
2-Hexanone	20.0	20.0		ug/L		100	57 - 139
Chloromethane	5.00	4.57		ug/L		91	50 - 139
cis-1,2-Dichloroethene	5.00	5.92		ug/L		118	78 - 123
cis-1,3-Dichloropropene	5.00	5.75		ug/L		115	75 - 124
4-Isopropyltoluene	5.00	5.36		ug/L		107	77 - 127
Dibromomethane	5.00	5.89		ug/L		118	79 - 123
Bromodichloromethane	5.00	6.08		ug/L		122	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	67 - 130
Dichlorodifluoromethane	5.00	4.34		ug/L		87	32 - 152
Ethylbenzene	5.00	5.36		ug/L		107	79 - 121
Ethylene Dibromide	5.00	5.68		ug/L		114	77 - 121
Hexachlorobutadiene	5.00	4.82		ug/L		96	66 - 134
Isopropylbenzene	5.00	5.40		ug/L		108	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.71		ug/L		114	78 - 124
Methyl tert-butyl ether	5.00	5.68		ug/L		114	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.77		ug/L		115	71 - 121
Methylene Chloride	5.00	5.71		ug/L		114	74 - 124
Naphthalene	5.00	5.40		ug/L		108	61 - 128
1,2,3-Trichlorobenzene	5.00	5.36		ug/L		107	69 - 129
n-Butylbenzene	5.00	5.30		ug/L		106	75 - 128
1,1,1-Trichloroethane	5.00	5.98		ug/L		120	74 - 131
N-Propylbenzene	5.00	5.50		ug/L		110	76 - 126
1,1,2-Trichloroethane	5.00	5.98	Q	ug/L		120	80 - 119
sec-Butylbenzene	5.00	5.54		ug/L		111	77 - 126
Styrene	5.00	5.52		ug/L		110	78 - 123
1,2,4-Trichlorobenzene	5.00	5.16		ug/L		103	69 - 130
tert-Butylbenzene	5.00	5.37		ug/L		107	78 - 124
1,2,3-Trichloropropane	5.00	5.46		ug/L		109	73 - 122
Tetrachloroethene	5.00	5.24		ug/L		105	74 - 129
1,2,4-Trimethylbenzene	5.00	5.36		ug/L		107	76 - 124
Toluene	5.00	5.95		ug/L		119	80 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437861/5
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	5.00	5.36		ug/L		107	75 - 124
trans-1,2-Dichloroethene	5.00	5.89		ug/L		118	75 - 124
trans-1,3-Dichloropropene	5.00	5.59		ug/L		112	73 - 127
o-Xylene	5.00	5.55		ug/L		111	78 - 122
Trichloroethene	5.00	5.65		ug/L		113	79 - 123
m-Xylene & p-Xylene	5.00	5.27		ug/L		105	80 - 121
Trichlorofluoromethane	5.00	5.77		ug/L		115	65 - 141
Vinyl chloride	5.00	5.11		ug/L		102	58 - 137
2-Chlorotoluene	5.00	5.33		ug/L		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*118*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*118*		*80 - 119*

Lab Sample ID: LCSD 280-437861/6
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.11		ug/L		102	62 - 128	5	20
2-Butanone (MEK)	20.0	17.2		ug/L		86	56 - 143	8	20
1,2-Dichlorobenzene	5.00	5.65		ug/L		113	80 - 119	6	20
1,3-Dichlorobenzene	5.00	5.50		ug/L		110	80 - 119	3	20
4-Chlorotoluene	5.00	5.75		ug/L		115	78 - 122	6	20
1,4-Dichlorobenzene	5.00	5.45		ug/L		109	79 - 118	3	20
1,1-Dichloroethane	5.00	5.83		ug/L		117	77 - 125	1	20
1,2-Dichloroethane	5.00	6.04		ug/L		121	73 - 128	0	20
Acetone	20.0	21.1		ug/L		105	39 - 160	10	20
1,1-Dichloroethene	5.00	5.69		ug/L		114	71 - 131	0	20
Benzene	5.00	5.70		ug/L		114	79 - 120	1	20
Bromobenzene	5.00	5.62		ug/L		112	80 - 120	3	20
Bromoform	5.00	5.11		ug/L		102	66 - 130	2	20
Bromomethane	5.00	5.41		ug/L		108	53 - 141	1	20
1,2-Dichloropropane	5.00	5.93		ug/L		119	78 - 122	2	20
Carbon disulfide	5.00	5.56		ug/L		111	64 - 133	1	20
1,3-Dichloropropane	5.00	5.61		ug/L		112	80 - 119	1	20
Carbon tetrachloride	5.00	5.78		ug/L		116	72 - 136	1	20
2,2-Dichloropropane	5.00	5.79		ug/L		116	60 - 139	3	20
Chlorobenzene	5.00	5.62		ug/L		112	82 - 118	1	20
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125	0	20
Bromochloromethane	5.00	5.96		ug/L		119	78 - 123	1	20
Dibromochloromethane	5.00	5.72		ug/L		114	74 - 126	6	20
Chloroethane	5.00	5.41		ug/L		108	60 - 138	2	20
Chloroform	5.00	5.95		ug/L		119	79 - 124	2	20
2-Hexanone	20.0	19.4		ug/L		97	57 - 139	3	20
Chloromethane	5.00	4.69		ug/L		94	50 - 139	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-437861/6
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	5.00	5.86		ug/L		117	78 - 123	1	20
cis-1,3-Dichloropropene	5.00	5.88		ug/L		118	75 - 124	2	20
4-Isopropyltoluene	5.00	5.65		ug/L		113	77 - 127	5	20
Dibromomethane	5.00	6.12		ug/L		122	79 - 123	4	20
Bromodichloromethane	5.00	6.12		ug/L		122	79 - 125	1	20
4-Methyl-2-pentanone (MIBK)	20.0	21.8		ug/L		109	67 - 130	6	20
Dichlorodifluoromethane	5.00	4.22		ug/L		84	32 - 152	3	20
Ethylbenzene	5.00	5.51		ug/L		110	79 - 121	3	20
Ethylene Dibromide	5.00	5.93		ug/L		119	77 - 121	4	20
Hexachlorobutadiene	5.00	5.21		ug/L		104	66 - 134	8	20
Isopropylbenzene	5.00	5.69		ug/L		114	72 - 131	5	20
1,1,1,2-Tetrachloroethane	5.00	5.72		ug/L		114	78 - 124	0	20
Methyl tert-butyl ether	5.00	5.55		ug/L		111	71 - 124	2	20
1,1,2,2-Tetrachloroethane	5.00	5.75		ug/L		115	71 - 121	0	20
Methylene Chloride	5.00	5.84		ug/L		117	74 - 124	2	20
Naphthalene	5.00	5.10		ug/L		102	61 - 128	6	20
1,2,3-Trichlorobenzene	5.00	5.67		ug/L		113	69 - 129	6	20
n-Butylbenzene	5.00	5.58		ug/L		112	75 - 128	5	20
1,1,1-Trichloroethane	5.00	5.84		ug/L		117	74 - 131	2	20
N-Propylbenzene	5.00	5.58		ug/L		112	76 - 126	1	20
1,1,2-Trichloroethane	5.00	6.20	Q	ug/L		124	80 - 119	4	20
sec-Butylbenzene	5.00	5.59		ug/L		112	77 - 126	1	20
Styrene	5.00	5.63		ug/L		113	78 - 123	2	20
1,2,4-Trichlorobenzene	5.00	5.50		ug/L		110	69 - 130	6	20
tert-Butylbenzene	5.00	5.62		ug/L		112	78 - 124	5	20
1,2,3-Trichloropropane	5.00	5.99		ug/L		120	73 - 122	9	20
Tetrachloroethene	5.00	5.31		ug/L		106	74 - 129	1	20
1,2,4-Trimethylbenzene	5.00	5.69		ug/L		114	76 - 124	6	20
Toluene	5.00	5.92		ug/L		118	80 - 121	1	20
1,3,5-Trimethylbenzene	5.00	5.65		ug/L		113	75 - 124	5	20
trans-1,2-Dichloroethene	5.00	5.81		ug/L		116	75 - 124	1	20
trans-1,3-Dichloropropene	5.00	5.59		ug/L		112	73 - 127	0	20
o-Xylene	5.00	5.60		ug/L		112	78 - 122	1	20
Trichloroethene	5.00	5.67		ug/L		113	79 - 123	0	20
m-Xylene & p-Xylene	5.00	5.56		ug/L		111	80 - 121	5	20
Trichlorofluoromethane	5.00	5.65		ug/L		113	65 - 141	2	20
Vinyl chloride	5.00	5.14		ug/L		103	58 - 137	1	20
2-Chlorotoluene	5.00	5.58		ug/L		112	79 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*
Dibromofluoromethane (Surr)	*110*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-438120/1-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438120

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		11/19/18 12:40	1
2-Butanone (MEK)	640	U Q	1000	640	300	ug/Kg		11/19/18 12:40	1
1,2-Dichlorobenzene	320	U M	500	320	94	ug/Kg		11/19/18 12:40	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		11/19/18 12:40	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		11/19/18 12:40	1
1,4-Dichlorobenzene	80	U M	250	80	25	ug/Kg		11/19/18 12:40	1
1,1-Dichloroethane	160	U Q	250	160	51	ug/Kg		11/19/18 12:40	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		11/19/18 12:40	1
Acetone	1300	U M Q	1500	1300	400	ug/Kg		11/19/18 12:40	1
1,1-Dichloroethene	160	U Q	250	160	51	ug/Kg		11/19/18 12:40	1
Benzene	160	U M	250	160	45	ug/Kg		11/19/18 12:40	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		11/19/18 12:40	1
Bromobenzene	40	U	250	40	19	ug/Kg		11/19/18 12:40	1
Bromoform	160	U	250	160	160	ug/Kg		11/19/18 12:40	1
Bromomethane	160	U M Q	500	160	44	ug/Kg		11/19/18 12:40	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		11/19/18 12:40	1
Carbon disulfide	160	U M Q	250	160	64	ug/Kg		11/19/18 12:40	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		11/19/18 12:40	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		11/19/18 12:40	1
2,2-Dichloropropane	80	U Q	250	80	27	ug/Kg		11/19/18 12:40	1
Chlorobenzene	80	U	250	80	30	ug/Kg		11/19/18 12:40	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		11/19/18 12:40	1
Bromochloromethane	160	U Q	250	160	47	ug/Kg		11/19/18 12:40	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		11/19/18 12:40	1
Chloroethane	160	U Q	500	160	44	ug/Kg		11/19/18 12:40	1
Chloroform	160	U Q	250	160	46	ug/Kg		11/19/18 12:40	1
2-Hexanone	640	U	1000	640	220	ug/Kg		11/19/18 12:40	1
Chloromethane	160	U Q	500	160	50	ug/Kg		11/19/18 12:40	1
cis-1,2-Dichloroethene	80	U Q	130	80	22	ug/Kg		11/19/18 12:40	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		11/19/18 12:40	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		11/19/18 12:40	1
Dibromomethane	80	U	250	80	30	ug/Kg		11/19/18 12:40	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		11/19/18 12:40	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		11/19/18 12:40	1
Dichlorodifluoromethane	80	U Q	500	80	22	ug/Kg		11/19/18 12:40	1
Ethylbenzene	80	U	250	80	34	ug/Kg		11/19/18 12:40	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		11/19/18 12:40	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		11/19/18 12:40	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		11/19/18 12:40	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		11/19/18 12:40	1
Methyl tert-butyl ether	160	U Q	250	160	50	ug/Kg		11/19/18 12:40	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		11/19/18 12:40	1
Methylene Chloride	160	U Q	250	160	69	ug/Kg		11/19/18 12:40	1
Naphthalene	80	U	500	80	38	ug/Kg		11/19/18 12:40	1
1,2,3-Trichlorobenzene	80	U M	250	80	35	ug/Kg		11/19/18 12:40	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		11/19/18 12:40	1
1,1,1-Trichloroethane	40	U Q	250	40	20	ug/Kg		11/19/18 12:40	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		11/19/18 12:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-438120/1-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438120

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		11/19/18 12:40	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		11/19/18 12:40	1
Styrene	80	U M	250	80	26	ug/Kg		11/19/18 12:40	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		11/19/18 12:40	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		11/19/18 12:40	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		11/19/18 12:40	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		11/19/18 12:40	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		11/19/18 12:40	1
Toluene	80	U	250	80	39	ug/Kg		11/19/18 12:40	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		11/19/18 12:40	1
trans-1,2-Dichloroethene	160	U Q	250	160	45	ug/Kg		11/19/18 12:40	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		11/19/18 12:40	1
o-Xylene	80	U	130	80	35	ug/Kg		11/19/18 12:40	1
Trichloroethene	80	U	250	80	23	ug/Kg		11/19/18 12:40	1
m-Xylene & p-Xylene	160	U M	250	160	78	ug/Kg		11/19/18 12:40	1
Trichlorofluoromethane	160	U Q	500	160	50	ug/Kg		11/19/18 12:40	1
Vinyl chloride	80	U Q	500	80	27	ug/Kg		11/19/18 12:40	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		11/19/18 12:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*85 - 116*	*11/19/18 10:02*	*11/19/18 12:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*132*		*71 - 136*	*11/19/18 10:02*	*11/19/18 12:40*	*1*
4-Bromofluorobenzene (Surr)	*116*		*79 - 119*	*11/19/18 10:02*	*11/19/18 12:40*	*1*
Dibromofluoromethane (Surr)	*121*	*Q*	*78 - 119*	*11/19/18 10:02*	*11/19/18 12:40*	*1*

Lab Sample ID: LCS 280-438120/2-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	2170		ug/Kg		108	61 - 132
2-Butanone (MEK)	8000	8240		ug/Kg		103	51 - 148
1,2-Dichlorobenzene	2000	1920		ug/Kg		96	78 - 121
1,3-Dichlorobenzene	2000	1830		ug/Kg		92	77 - 121
4-Chlorotoluene	2000	1810		ug/Kg		91	72 - 124
1,4-Dichlorobenzene	2000	1840		ug/Kg		92	75 - 120
1,1-Dichloroethane	2000	1920		ug/Kg		96	76 - 125
1,2-Dichloroethane	2000	2190		ug/Kg		109	73 - 128
Acetone	8000	7120		ug/Kg		89	36 - 164
1,1-Dichloroethene	2000	1780		ug/Kg		89	70 - 131
Benzene	2000	1760		ug/Kg		88	77 - 121
Bromobenzene	2000	1890		ug/Kg		95	78 - 121
Bromoform	2000	2000		ug/Kg		100	67 - 132
Bromomethane	2000	1810		ug/Kg		91	53 - 143
1,2-Dichloropropane	2000	1810		ug/Kg		91	76 - 123
Carbon disulfide	2000	1850		ug/Kg		92	63 - 132
1,3-Dichloropropane	2000	2020		ug/Kg		101	77 - 121
Carbon tetrachloride	2000	2160		ug/Kg		108	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438120/2-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	2000	2110		ug/Kg		105	67 - 133
Chlorobenzene	2000	1900		ug/Kg		95	79 - 120
1,1-Dichloropropene	2000	1860		ug/Kg		93	76 - 125
Bromochloromethane	2000	2010		ug/Kg		100	78 - 125
Dibromochloromethane	2000	2370		ug/Kg		119	74 - 126
Chloroethane	2000	1500		ug/Kg		75	59 - 139
Chloroform	2000	2030		ug/Kg		102	78 - 123
2-Hexanone	8000	8050		ug/Kg		101	53 - 145
Chloromethane	2000	1680		ug/Kg		84	50 - 136
cis-1,2-Dichloroethene	2000	1820		ug/Kg		91	77 - 123
cis-1,3-Dichloropropene	2000	2250		ug/Kg		113	74 - 126
4-Isopropyltoluene	2000	1830		ug/Kg		91	73 - 127
Dibromomethane	2000	2070		ug/Kg		103	78 - 125
Bromodichloromethane	2000	2230		ug/Kg		111	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	7810		ug/Kg		98	65 - 135
Dichlorodifluoromethane	2000	1180		ug/Kg		59	29 - 149
Ethylbenzene	2000	1810		ug/Kg		91	76 - 122
Ethylene Dibromide	2000	2190		ug/Kg		109	78 - 122
Hexachlorobutadiene	2000	1760		ug/Kg		88	61 - 135
Isopropylbenzene	2000	1810		ug/Kg		91	68 - 134
1,1,1,2-Tetrachloroethane	2000	2200		ug/Kg		110	78 - 125
Methyl tert-butyl ether	2000	2050		ug/Kg		102	73 - 125
1,1,2,2-Tetrachloroethane	2000	2000		ug/Kg		100	70 - 124
Methylene Chloride	2000	1930		ug/Kg		97	70 - 128
Naphthalene	2000	2000		ug/Kg		100	62 - 129
1,2,3-Trichlorobenzene	2000	1960		ug/Kg		98	66 - 130
n-Butylbenzene	2000	1800		ug/Kg		90	70 - 128
1,1,1-Trichloroethane	2000	2110		ug/Kg		105	73 - 130
N-Propylbenzene	2000	1810		ug/Kg		91	73 - 125
1,1,2-Trichloroethane	2000	2140		ug/Kg		107	78 - 121
sec-Butylbenzene	2000	1760		ug/Kg		88	73 - 126
Styrene	2000	1940		ug/Kg		97	76 - 124
1,2,4-Trichlorobenzene	2000	1860		ug/Kg		93	67 - 129
tert-Butylbenzene	2000	1800		ug/Kg		90	73 - 125
1,2,3-Trichloropropane	2000	1970		ug/Kg		99	73 - 125
Tetrachloroethene	2000	1820		ug/Kg		91	73 - 128
1,2,4-Trimethylbenzene	2000	1820		ug/Kg		91	75 - 123
Toluene	2000	1830		ug/Kg		92	77 - 121
1,3,5-Trimethylbenzene	2000	1840		ug/Kg		92	73 - 124
trans-1,2-Dichloroethene	2000	1890		ug/Kg		95	74 - 125
trans-1,3-Dichloropropene	2000	2390		ug/Kg		120	71 - 130
o-Xylene	2000	1880		ug/Kg		94	77 - 123
Trichloroethene	2000	1820		ug/Kg		91	77 - 123
m-Xylene & p-Xylene	2000	1790		ug/Kg		90	77 - 124
Trichlorofluoromethane	2000	1950		ug/Kg		97	62 - 140
Vinyl chloride	2000	1790		ug/Kg		89	56 - 135
2-Chlorotoluene	2000	1820		ug/Kg		91	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438120/2-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*118*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*106*		*78 - 119*

Lab Sample ID: LCSD 280-438120/3-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438120

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	2060		ug/Kg		103	61 - 132	5	20
2-Butanone (MEK)	8000	7770		ug/Kg		97	51 - 148	6	20
1,2-Dichlorobenzene	2000	1980		ug/Kg		99	78 - 121	3	20
1,3-Dichlorobenzene	2000	1870		ug/Kg		93	77 - 121	2	20
4-Chlorotoluene	2000	1860		ug/Kg		93	72 - 124	2	20
1,4-Dichlorobenzene	2000	1870		ug/Kg		94	75 - 120	1	20
1,1-Dichloroethane	2000	1930		ug/Kg		96	76 - 125	1	20
1,2-Dichloroethane	2000	2180		ug/Kg		109	73 - 128	0	20
Acetone	8000	7110		ug/Kg		89	36 - 164	0	20
1,1-Dichloroethene	2000	1840		ug/Kg		92	70 - 131	4	20
Benzene	2000	1770		ug/Kg		88	77 - 121	0	20
Bromobenzene	2000	1920		ug/Kg		96	78 - 121	1	20
Bromoform	2000	2010		ug/Kg		101	67 - 132	0	20
Bromomethane	2000	1750		ug/Kg		87	53 - 143	4	20
1,2-Dichloropropane	2000	1850		ug/Kg		92	76 - 123	2	20
Carbon disulfide	2000	1830		ug/Kg		92	63 - 132	1	20
1,3-Dichloropropane	2000	1980		ug/Kg		99	77 - 121	2	20
Carbon tetrachloride	2000	2180		ug/Kg		109	70 - 135	1	20
2,2-Dichloropropane	2000	2120		ug/Kg		106	67 - 133	1	20
Chlorobenzene	2000	1860		ug/Kg		93	79 - 120	2	20
1,1-Dichloropropene	2000	1860		ug/Kg		93	76 - 125	0	20
Bromochloromethane	2000	2130		ug/Kg		106	78 - 125	6	20
Dibromochloromethane	2000	2330		ug/Kg		117	74 - 126	2	20
Chloroethane	2000	1520		ug/Kg		76	59 - 139	1	20
Chloroform	2000	2050		ug/Kg		103	78 - 123	1	20
2-Hexanone	8000	7620		ug/Kg		95	53 - 145	5	20
Chloromethane	2000	1560		ug/Kg		78	50 - 136	7	20
cis-1,2-Dichloroethene	2000	1870		ug/Kg		93	77 - 123	2	20
cis-1,3-Dichloropropene	2000	2220		ug/Kg		111	74 - 126	2	20
4-Isopropyltoluene	2000	1840		ug/Kg		92	73 - 127	1	20
Dibromomethane	2000	2090		ug/Kg		104	78 - 125	1	20
Bromodichloromethane	2000	2240		ug/Kg		112	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)	8000	8080		ug/Kg		101	65 - 135	3	20
Dichlorodifluoromethane	2000	1050		ug/Kg		52	29 - 149	12	20
Ethylbenzene	2000	1770		ug/Kg		88	76 - 122	2	20
Ethylene Dibromide	2000	2110		ug/Kg		106	78 - 122	3	20
Hexachlorobutadiene	2000	1810		ug/Kg		91	61 - 135	3	20
Isopropylbenzene	2000	1850		ug/Kg		92	68 - 134	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-438120/3-A
Matrix: Solid
Analysis Batch: 438179

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438120

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	2000	2190		ug/Kg		109	78 - 125	1	20
Methyl tert-butyl ether	2000	2080		ug/Kg		104	73 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	2100		ug/Kg		105	70 - 124	5	20
Methylene Chloride	2000	1960		ug/Kg		98	70 - 128	1	20
Naphthalene	2000	2110		ug/Kg		106	62 - 129	5	20
1,2,3-Trichlorobenzene	2000	2000		ug/Kg		100	66 - 130	2	20
n-Butylbenzene	2000	1810		ug/Kg		91	70 - 128	1	20
1,1,1-Trichloroethane	2000	2180		ug/Kg		109	73 - 130	3	20
N-Propylbenzene	2000	1810		ug/Kg		90	73 - 125	0	20
1,1,2-Trichloroethane	2000	2220		ug/Kg		111	78 - 121	3	20
sec-Butylbenzene	2000	1800		ug/Kg		90	73 - 126	2	20
Styrene	2000	1880		ug/Kg		94	76 - 124	3	20
1,2,4-Trichlorobenzene	2000	1920		ug/Kg		96	67 - 129	3	20
tert-Butylbenzene	2000	1850		ug/Kg		92	73 - 125	3	20
1,2,3-Trichloropropane	2000	2230		ug/Kg		111	73 - 125	12	20
Tetrachloroethene	2000	1740		ug/Kg		87	73 - 128	4	20
1,2,4-Trimethylbenzene	2000	1870		ug/Kg		94	75 - 123	3	20
Toluene	2000	1860		ug/Kg		93	77 - 121	2	20
1,3,5-Trimethylbenzene	2000	1860		ug/Kg		93	73 - 124	1	20
trans-1,2-Dichloroethene	2000	1890		ug/Kg		94	74 - 125	0	20
trans-1,3-Dichloropropene	2000	2440		ug/Kg		122	71 - 130	2	20
o-Xylene	2000	1810		ug/Kg		90	77 - 123	4	20
Trichloroethene	2000	1860		ug/Kg		93	77 - 123	2	20
m-Xylene & p-Xylene	2000	1760		ug/Kg		88	77 - 124	2	20
Trichlorofluoromethane	2000	1920		ug/Kg		96	62 - 140	1	20
Vinyl chloride	2000	1730		ug/Kg		86	56 - 135	4	20
2-Chlorotoluene	2000	1840		ug/Kg		92	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*122*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*111*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/15/18 15:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*	*11/15/18 12:57*	*11/15/18 15:57*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-437770/1-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.32		mg/Kg		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: MB 280-437913/5
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/16/18 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*11/16/18 13:27*	*1*

Lab Sample ID: LCS 280-437913/3
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	100		ug/L		100	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437059/4-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437059

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/15/18 21:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*	*M*	*55 - 130*	*11/09/18 14:56*	*11/15/18 21:33*	*1*

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.763		ug/Kg		87	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	108		55 - 130

Lab Sample ID: LCSD 280-437059/3-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437059

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.740	M	ug/Kg		85	70 - 130	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	109		55 - 130

Lab Sample ID: MB 280-437762/4-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437762

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/16/18 18:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	115		70 - 130	11/15/18 11:36	11/16/18 18:15	1

Lab Sample ID: LCS 280-437762/2-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437762

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.250	0.230	M	ug/L		92	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	121		70 - 130

Lab Sample ID: LCSD 280-437762/3-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437762

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.235	M	ug/L		94	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	116		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436699/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436699

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.49	J	7.6	3.8	1.3	mg/Kg		11/12/18 23:35	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg		11/12/18 23:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*11/07/18 16:21*	*11/12/18 23:35*	*1*
n-Octacosane	*92*		*25 - 162*	*11/07/18 16:21*	*11/12/18 23:35*	*1*

Lab Sample ID: LCS 280-436699/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	121	96.1		mg/Kg		79	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*82*		*25 - 162*

Lab Sample ID: LCS 280-436699/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	317	273		mg/Kg		86	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*104*		*25 - 162*

GC/MS VOA

Analysis Batch: 437516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-2	V-S4-041118-467	Total/NA	Solid	8260B	437582
280-116615-4	V-S4-051118-494	Total/NA	Solid	8260B	437582
MB 280-437582/1-A	Method Blank	Total/NA	Solid	8260B	437582
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	8260B	437582

Prep Batch: 437582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-2	V-S4-041118-467	Total/NA	Solid	5035	
280-116615-4	V-S4-051118-494	Total/NA	Solid	5035	
MB 280-437582/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-1	TB-S4-041118-01	Total/NA	Water	8260B	
MB 280-437861/4	Method Blank	Total/NA	Water	8260B	
LCS 280-437861/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-437861/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Prep Batch: 438120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-4 - DL	V-S4-051118-494	Total/NA	Solid	5035	
MB 280-438120/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438120/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-438120/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 438179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-4 - DL	V-S4-051118-494	Total/NA	Solid	8260B	438120
MB 280-438120/1-A	Method Blank	Total/NA	Solid	8260B	438120
LCS 280-438120/2-A	Lab Control Sample	Total/NA	Solid	8260B	438120
LCSD 280-438120/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	438120

GC VOA

Prep Batch: 437770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-3	P-S4-041118-467	Total/NA	Solid	5035	
280-116615-5	P-S4-051118-494	Total/NA	Solid	5035	
MB 280-437770/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-3	P-S4-041118-467	Total/NA	Solid	8015D GRO	437770
280-116615-5	P-S4-051118-494	Total/NA	Solid	8015D GRO	437770
MB 280-437770/2-A	Method Blank	Total/NA	Solid	8015D GRO	437770
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	437770

GC VOA (Continued)

Analysis Batch: 437913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-1	TB-S4-041118-01	Total/NA	Water	8015D GRO	
MB 280-437913/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437913/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 436699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-3	P-S4-041118-467	Total/NA	Solid	3546	
280-116615-5	P-S4-051118-494	Total/NA	Solid	3546	
MB 280-436699/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 437059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-2	V-S4-041118-467	Total/NA	Solid	8011	
280-116615-4	V-S4-051118-494	Total/NA	Solid	8011	
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-3	P-S4-041118-467	Total/NA	Solid	8015D DRO	436699
280-116615-5	P-S4-051118-494	Total/NA	Solid	8015D DRO	436699
MB 280-436699/1-A	Method Blank	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699

Prep Batch: 437762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-1	TB-S4-041118-01	Total/NA	Water	8011	
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 437819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-2	V-S4-041118-467	Total/NA	Solid	8011	437059
280-116615-4	V-S4-051118-494	Total/NA	Solid	8011	437059
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	437059
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	437059
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	437059

Analysis Batch: 438082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-1	TB-S4-041118-01	Total/NA	Water	8011	437762
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	437762
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	437762

GC Semi VOA (Continued)

Analysis Batch: 438082 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437762

General Chemistry

Analysis Batch: 436543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-2	V-S4-041118-467	Total/NA	Solid	Moisture	
280-116615-3	P-S4-041118-467	Total/NA	Solid	Moisture	
280-116615-4	V-S4-051118-494	Total/NA	Solid	Moisture	
280-116615-5	P-S4-051118-494	Total/NA	Solid	Moisture	

Client Sample ID: TB-S4-041118-01

Lab Sample ID: 280-116615-1

Date Collected: 11/04/18 11:00

Matrix: Water

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437861	11/16/18 13:20	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437913	11/16/18 16:53	GPM	TAL DEN
Total/NA	Prep	8011			34.6 mL	35 mL	437762	11/15/18 11:36	SU	TAL DEN
Total/NA	Analysis	8011		1			438082	11/16/18 22:03	JLW	TAL DEN

Client Sample ID: V-S4-041118-467

Lab Sample ID: 280-116615-2

Date Collected: 11/04/18 10:40

Matrix: Solid

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: V-S4-041118-467

Lab Sample ID: 280-116615-2

Date Collected: 11/04/18 10:40

Matrix: Solid

Date Received: 11/06/18 08:55

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.684 g	5 mL	437582	11/04/18 10:40	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	437516	11/14/18 11:59	JLS	TAL DEN
Total/NA	Prep	8011			9.97 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/16/18 01:19	JLW	TAL DEN

Client Sample ID: P-S4-041118-467

Lab Sample ID: 280-116615-3

Date Collected: 11/04/18 10:40

Matrix: Solid

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S4-041118-467

Lab Sample ID: 280-116615-3

Date Collected: 11/04/18 10:40

Matrix: Solid

Date Received: 11/06/18 08:55

Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.78 g	5 mL	437770	11/04/18 10:40	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 17:44	GPM	TAL DEN
Total/NA	Prep	3546			16.6 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 02:08	CSM	TAL DEN

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: V-S4-051118-494 — **Lab Sample ID: 280-116615-4**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.706 g	5 mL	437582	11/05/18 07:25	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	437516	11/14/18 16:02	JLS	TAL DEN
Total/NA	Prep	5035	DL		7.183 g	1000 mL	438120	11/05/18 07:25	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	1	20 mL	20 mL	438179	11/19/18 13:56	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/16/18 01:38	JLW	TAL DEN

Client Sample ID: P-S4-051118-494 — **Lab Sample ID: 280-116615-5**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S4-051118-494 — **Lab Sample ID: 280-116615-5**
Date Collected: 11/05/18 07:25 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.944 g	5 mL	437770	11/05/18 07:25	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		10	0.1 mL	5 mL	437796	11/16/18 09:47	GPM	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 02:29	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKeegan	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 7393 0906	COC No: COC1-54-TA-20181105
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	Analysis Requested
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#: —	

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
TB-54-041118-01	11/4/18	1100	G	W	N	N						X	X	-	X	6	
V-54-041118-467	11/4/18	1040	G	S	N	N	X	X	X							3	
P-54-041118-467	11/4/18	1040	G	S	N	N				X	X					2	
V-54-051118-494	11/5/18	0725	G	S	N	N	X	X	X							3	
P-54-051118-494	11/5/18	0725	G	S	N	N				X	X					2	

280-116615 Chain of Custody

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Kevin McKeegan	11/05/18 1800	EA		11/6/18 0815	TAOKW
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1, 1.5, 3.9 to 7 trunk UA

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116615-1

Login Number: 116615
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116615-2
Client Project/Site: Kirtland BFF Vadose Zone Coring
Revision: 1

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/30/2018 9:40:53 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

General Chemistry

Qualifier	Qualifier Description
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116615-2

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116615-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Revision 1 - 11/30/2018
Revision 1 was created in order to report the surrogates for the MS and MSD for Motor Oil (C20-C38) 8015D.

RECEIPT
The samples were received on 11/6/2018 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.2º C, 3.3º C and 4.6º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-S4-051118-504 (280-116615-7) and V-S4-051158-504 (280-116615-9) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/05/2018 and analyzed on 11/14/2018.

Several analytes failed the recovery criteria high for the MS/MSD of sample V-S4-051118-504 (280-116615-7) in batch 280-437516. Several analytes exceeded the RPD limit. Associated results have been flagged "J1". Refer to the QC report for details. The acceptable LCS data indicate that the analytical system was operating within control.

The following compound was outside control limits in the continuing calibration verification (CCV) associated with batch 280-437516: n-Butylbenzene (+20.5%D). Associated results have been flagged "Q". This compound is not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. As instructed by the client, the data have been reported. The associated samples contained detections for this analyte.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S4-051118-01 (280-116615-6) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/16/2018.

Methylene Chloride was detected in method blank MB 280-437861/4 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection in the method blank is less than one-half the LOQ.

1,1,2-Trichloroethane failed the recovery criteria high for LCS 280-437861/5. 1,1,2-Trichloroethane failed the recovery criteria high for LCSD 280-437861/6. All associated results have been flagged "Q". Refer to the QC report for details. This analyte was biased high in the

Job ID: 280-116615-2 (Continued)

Laboratory: TestAmerica Denver (Continued)

LCS and LCSD, and was not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-S4-051118-504 (280-116615-7) and V-S4-051158-504 (280-116615-9) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/09/2018 and analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water
Sample TB-S4-051118-01 (280-116615-6) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/15/2018 and analyzed on 11/17/2018.

Compound 1,2-Dibromopropane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following samples and CCV: (CCV 280-438082/31). This retention time shift was taken into account when reviewing the samples for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-S4-051118-504 (280-116615-8) and P-S4-051158-504 (280-116615-10) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/05/2018 and analyzed on 11/15/2018 and 11/16/2018.

Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria low for the MS/MSD of sample P-S4-051118-504 (280-116615-8) in batch 280-437796. Associated results have been flagged "J1". Refer to the QC report for details. The acceptable LCS data indicate that the analytical system was operating within control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S4-051118-01 (280-116615-6) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S4-051118-504 (280-116615-8) and P-S4-051158-504 (280-116615-10) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/07/2018 and analyzed on 11/13/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-436699/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection in the method blank is less than one-half the LOQ.

Motor Oil (C20-C38) exceeded the RPD limit for the MSD of sample P-S4-051118-504 (280-116615-8) in batch 280-437229. Associated results have been flagged "J1". Refer to the QC report for details. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples V-S4-051118-504 (280-116615-7), P-S4-051118-504 (280-116615-8), V-S4-051158-504 (280-116615-9) and P-S4-051158-504 (280-116615-10) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/06/2018.

Job ID: 280-116615-2 (Continued)

Laboratory: TestAmerica Denver (Continued)

Percent Moisture exceeded the RPD limit for the duplicate of sample V-S4-051118-504 (280-116615-7). Associated results have been flagged "J1". Refer to the QC report for details. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S4-051118-01 — Lab Sample ID: 280-116615-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	12	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S4-051118-504 — Lab Sample ID: 280-116615-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	3.2	J J1	4.8	3.1	0.55	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	1.4	J J1	4.8	1.5	0.55	ug/Kg	1	☼	8260B	Total/NA
Acetone	90	J1	19	12	5.1	ug/Kg	1	☼	8260B	Total/NA
Benzene	4.4	J J1	4.8	1.5	0.45	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	2.4	J J1	4.8	1.5	0.64	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	0.88	J J1	4.8	1.5	0.56	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	6.2	J1	3.1	3.1	0.99	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	0.93	J Q J1	4.8	1.5	0.54	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.93	J J1	4.8	1.5	0.55	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	2.5	J J1	4.8	1.5	0.58	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	1.1	J J1	4.8	1.5	0.74	ug/Kg	1	☼	8260B	Total/NA
Toluene	10	J1	4.8	1.5	0.66	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S4-051118-504 — Lab Sample ID: 280-116615-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.5	J1	1.3	1.2	0.36	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	4.0	J	8.8	4.4	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S4-051158-504 — Lab Sample ID: 280-116615-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	2.9	J	4.1	2.6	0.48	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	1.3	J	4.1	1.3	0.47	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	0.43	J	4.1	1.3	0.40	ug/Kg	1	☼	8260B	Total/NA
Acetone	89		16	10	4.4	ug/Kg	1	☼	8260B	Total/NA
Benzene	3.3	J	4.1	1.3	0.39	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	2.2	J	4.1	1.3	0.55	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	0.70	J	4.1	1.3	0.48	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	5.8		2.6	2.6	0.85	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	1.0	J	4.1	1.3	0.52	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	0.85	J Q	4.1	1.3	0.46	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.95	J	4.1	1.3	0.48	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	2.2	J	4.1	1.3	0.50	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	0.77	J	4.1	1.3	0.63	ug/Kg	1	☼	8260B	Total/NA
Toluene	9.1		4.1	1.3	0.57	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S4-051158-504 — Lab Sample ID: 280-116615-10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2.7		1.2	1.1	0.32	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.4	J	8.6	4.3	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116615-6	TB-S4-051118-01	Water	11/05/18 16:00	11/06/18 08:55
280-116615-7	V-S4-051118-504	Solid	11/05/18 09:05	11/06/18 08:55
280-116615-8	P-S4-051118-504	Solid	11/05/18 09:05	11/06/18 08:55
280-116615-9	V-S4-051158-504	Solid	11/05/18 09:05	11/06/18 08:55
280-116615-10	P-S4-051158-504	Solid	11/05/18 09:05	11/06/18 08:55

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S4-051118-01
Date Collected: 11/05/18 16:00
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-6
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/16/18 13:38	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/16/18 13:38	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:38	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/16/18 13:38	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/16/18 13:38	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/16/18 13:38	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/16/18 13:38	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/16/18 13:38	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/16/18 13:38	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/16/18 13:38	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:38	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/16/18 13:38	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/16/18 13:38	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:38	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:38	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 13:38	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:38	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 13:38	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/16/18 13:38	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/16/18 13:38	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:38	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:38	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:38	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:38	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 13:38	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:38	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:38	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/16/18 13:38	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/16/18 13:38	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:38	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 13:38	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/16/18 13:38	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/16/18 13:38	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/16/18 13:38	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 13:38	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S4-051118-01
Date Collected: 11/05/18 16:00
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-6
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:38	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:38	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 13:38	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:38	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		11/16/18 13:38	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/16/18 13:38	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 13:38	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/16/18 13:38	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 13:38	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 13:38	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/16/18 13:38	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 13:38	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/16/18 13:38	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*11/16/18 13:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*11/16/18 13:38*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*11/16/18 13:38*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*11/16/18 13:38*	*1*

Client Sample ID: V-S4-051118-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-7
Matrix: Solid
Percent Solids: 80.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.5	U J1	4.8	1.5	0.54	ug/Kg	☼	11/14/18 12:39	1
1,1,1-Trichloroethane	1.5	U J1	4.8	1.5	0.50	ug/Kg	☼	11/14/18 12:39	1
1,1,2,2-Tetrachloroethane	1.5	U M J1	4.8	1.5	0.58	ug/Kg	☼	11/14/18 12:39	1
1,1,2-Trichloroethane	3.1	U M J1	4.8	3.1	0.84	ug/Kg	☼	11/14/18 12:39	1
1,1-Dichloroethane	0.77	U J1	4.8	0.77	0.20	ug/Kg	☼	11/14/18 12:39	1
1,1-Dichloroethene	1.5	U J1	4.8	1.5	0.56	ug/Kg	☼	11/14/18 12:39	1
1,1-Dichloropropene	1.5	U J1	4.8	1.5	0.52	ug/Kg	☼	11/14/18 12:39	1
1,2,3-Trichlorobenzene	1.5	U J1	4.8	1.5	0.72	ug/Kg	☼	11/14/18 12:39	1
1,2,3-Trichloropropane	3.1	U M J1	4.8	3.1	0.77	ug/Kg	☼	11/14/18 12:39	1
1,2,4-Trichlorobenzene	1.5	U J1	4.8	1.5	0.70	ug/Kg	☼	11/14/18 12:39	1
1,2,4-Trimethylbenzene	**3.2**	**J J1**	4.8	3.1	0.55	ug/Kg	☼	11/14/18 12:39	1
1,2-Dibromo-3-Chloropropane	1.5	U J1	9.6	1.5	0.57	ug/Kg	☼	11/14/18 12:39	1
1,2-Dichlorobenzene	1.5	U J1	4.8	1.5	0.43	ug/Kg	☼	11/14/18 12:39	1
1,2-Dichloroethane	1.5	U J1	4.8	1.5	0.67	ug/Kg	☼	11/14/18 12:39	1
1,2-Dichloroethene, Total	1.5	U J1	4.8	1.5	0.37	ug/Kg	☼	11/14/18 12:39	1
1,2-Dichloropropane	1.5	U M J1	4.8	1.5	0.53	ug/Kg	☼	11/14/18 12:39	1
1,3,5-Trimethylbenzene	**1.4**	**J J1**	4.8	1.5	0.55	ug/Kg	☼	11/14/18 12:39	1
1,3-Dichlorobenzene	1.5	U J1	4.8	1.5	0.46	ug/Kg	☼	11/14/18 12:39	1
1,3-Dichloropropane	1.5	U J1	4.8	1.5	0.49	ug/Kg	☼	11/14/18 12:39	1
1,4-Dichlorobenzene	1.5	U J1	4.8	1.5	0.75	ug/Kg	☼	11/14/18 12:39	1
2,2-Dichloropropane	1.5	U J1	4.8	1.5	0.42	ug/Kg	☼	11/14/18 12:39	1
2-Butanone (MEK)	6.1	U M J1	19	6.1	1.8	ug/Kg	☼	11/14/18 12:39	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-051118-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-7
Matrix: Solid
Percent Solids: 80.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.5	U J1	4.8	1.5	0.49	ug/Kg	☼	11/14/18 12:39	1
2-Hexanone	12	U M J1	19	12	4.7	ug/Kg	☼	11/14/18 12:39	1
4-Chlorotoluene	1.5	U J1	4.8	1.5	0.75	ug/Kg	☼	11/14/18 12:39	1
4-Isopropyltoluene	1.5	U J1	4.8	1.5	0.47	ug/Kg	☼	11/14/18 12:39	1
4-Methyl-2-pentanone (MIBK)	12	U M J1	19	12	4.2	ug/Kg	☼	11/14/18 12:39	1
Acetone	**90**	**J1**	19	12	5.1	ug/Kg	☼	11/14/18 12:39	1
Benzene	**4.4**	**J J1**	4.8	1.5	0.45	ug/Kg	☼	11/14/18 12:39	1
Bromobenzene	1.5	U J1	4.8	1.5	0.47	ug/Kg	☼	11/14/18 12:39	1
Bromoform	0.77	U J1	4.8	0.77	0.22	ug/Kg	☼	11/14/18 12:39	1
Bromomethane	1.5	U J1	9.6	1.5	0.48	ug/Kg	☼	11/14/18 12:39	1
Carbon disulfide	1.5	U J1	4.8	1.5	0.40	ug/Kg	☼	11/14/18 12:39	1
Carbon tetrachloride	1.5	U J1	4.8	1.5	0.60	ug/Kg	☼	11/14/18 12:39	1
Chlorobenzene	1.5	U J1	4.8	1.5	0.52	ug/Kg	☼	11/14/18 12:39	1
Bromochloromethane	0.77	U J1	4.8	0.77	0.29	ug/Kg	☼	11/14/18 12:39	1
Dibromochloromethane	1.5	U J1	4.8	1.5	0.55	ug/Kg	☼	11/14/18 12:39	1
Chloroethane	3.1	U J1	9.6	3.1	0.85	ug/Kg	☼	11/14/18 12:39	1
Chloroform	0.77	U J1	9.6	0.77	0.28	ug/Kg	☼	11/14/18 12:39	1
Chloromethane	1.5	U J1	9.6	1.5	0.74	ug/Kg	☼	11/14/18 12:39	1
cis-1,2-Dichloroethene	1.5	U J1	4.8	1.5	0.54	ug/Kg	☼	11/14/18 12:39	1
cis-1,3-Dichloropropene	3.1	U J1	4.8	3.1	1.2	ug/Kg	☼	11/14/18 12:39	1
Dibromomethane	3.1	U J1	4.8	3.1	0.80	ug/Kg	☼	11/14/18 12:39	1
Bromodichloromethane	0.77	U M J1	4.8	0.77	0.21	ug/Kg	☼	11/14/18 12:39	1
Dichlorodifluoromethane	1.5	U J1	9.6	1.5	0.50	ug/Kg	☼	11/14/18 12:39	1
Ethylbenzene	**2.4**	**J J1**	4.8	1.5	0.64	ug/Kg	☼	11/14/18 12:39	1
Ethylene Dibromide	1.5	U J1	4.8	1.5	0.50	ug/Kg	☼	11/14/18 12:39	1
Hexachlorobutadiene	1.5	U J1	4.8	1.5	0.53	ug/Kg	☼	11/14/18 12:39	1
Isopropylbenzene	**0.88**	**J J1**	4.8	1.5	0.56	ug/Kg	☼	11/14/18 12:39	1
Methyl tert-butyl ether	0.77	U J1	19	0.77	0.33	ug/Kg	☼	11/14/18 12:39	1
Methylene Chloride	3.1	U J1	4.8	3.1	1.5	ug/Kg	☼	11/14/18 12:39	1
m-Xylene & p-Xylene	**6.2**	**J1**	3.1	3.1	0.99	ug/Kg	☼	11/14/18 12:39	1
Naphthalene	1.5	U J1	4.8	1.5	0.60	ug/Kg	☼	11/14/18 12:39	1
n-Butylbenzene	**0.93**	**J Q J1**	4.8	1.5	0.54	ug/Kg	☼	11/14/18 12:39	1
N-Propylbenzene	**0.93**	**J J1**	4.8	1.5	0.55	ug/Kg	☼	11/14/18 12:39	1
o-Xylene	**2.5**	**J J1**	4.8	1.5	0.58	ug/Kg	☼	11/14/18 12:39	1
sec-Butylbenzene	**1.1**	**J J1**	4.8	1.5	0.74	ug/Kg	☼	11/14/18 12:39	1
Styrene	1.5	U J1	4.8	1.5	0.60	ug/Kg	☼	11/14/18 12:39	1
tert-Butylbenzene	1.5	U J1	4.8	1.5	0.48	ug/Kg	☼	11/14/18 12:39	1
Tetrachloroethene	1.5	U J1	4.8	1.5	0.56	ug/Kg	☼	11/14/18 12:39	1
Toluene	**10**	**J1**	4.8	1.5	0.66	ug/Kg	☼	11/14/18 12:39	1
trans-1,2-Dichloroethene	0.77	U J1	4.8	0.77	0.37	ug/Kg	☼	11/14/18 12:39	1
trans-1,3-Dichloropropene	1.5	U J1	4.8	1.5	0.64	ug/Kg	☼	11/14/18 12:39	1
Trichloroethene	0.77	U J1	4.8	0.77	0.22	ug/Kg	☼	11/14/18 12:39	1
Trichlorofluoromethane	3.1	U J1	9.6	3.1	0.99	ug/Kg	☼	11/14/18 12:39	1
Vinyl chloride	3.1	U J1	4.8	3.1	1.3	ug/Kg	☼	11/14/18 12:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*85 - 116*	*11/05/18 09:05*	*11/14/18 12:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*11/05/18 09:05*	*11/14/18 12:39*	*1*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*	*11/05/18 09:05*	*11/14/18 12:39*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*11/05/18 09:05*	*11/14/18 12:39*	*1*

Client Sample ID: V-S4-051158-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-9
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.3	U	4.1	1.3	0.46	ug/Kg	☼	11/14/18 13:40	1
1,1,1-Trichloroethane	1.3	U	4.1	1.3	0.43	ug/Kg	☼	11/14/18 13:40	1
1,1,2,2-Tetrachloroethane	1.3	U M	4.1	1.3	0.50	ug/Kg	☼	11/14/18 13:40	1
1,1,2-Trichloroethane	2.6	U M	4.1	2.6	0.72	ug/Kg	☼	11/14/18 13:40	1
1,1-Dichloroethane	0.66	U	4.1	0.66	0.17	ug/Kg	☼	11/14/18 13:40	1
1,1-Dichloroethene	1.3	U	4.1	1.3	0.48	ug/Kg	☼	11/14/18 13:40	1
1,1-Dichloropropene	1.3	U	4.1	1.3	0.44	ug/Kg	☼	11/14/18 13:40	1
1,2,3-Trichlorobenzene	1.3	U	4.1	1.3	0.61	ug/Kg	☼	11/14/18 13:40	1
1,2,3-Trichloropropane	2.6	U M	4.1	2.6	0.66	ug/Kg	☼	11/14/18 13:40	1
1,2,4-Trichlorobenzene	1.3	U M	4.1	1.3	0.60	ug/Kg	☼	11/14/18 13:40	1
1,2,4-Trimethylbenzene	**2.9**	**J**	4.1	2.6	0.48	ug/Kg	☼	11/14/18 13:40	1
1,2-Dibromo-3-Chloropropane	1.3	U	8.2	1.3	0.49	ug/Kg	☼	11/14/18 13:40	1
1,2-Dichlorobenzene	1.3	U	4.1	1.3	0.37	ug/Kg	☼	11/14/18 13:40	1
1,2-Dichloroethane	1.3	U	4.1	1.3	0.57	ug/Kg	☼	11/14/18 13:40	1
1,2-Dichloroethene, Total	1.3	U	4.1	1.3	0.32	ug/Kg	☼	11/14/18 13:40	1
1,2-Dichloropropane	1.3	U M	4.1	1.3	0.45	ug/Kg	☼	11/14/18 13:40	1
1,3,5-Trimethylbenzene	**1.3**	**J**	4.1	1.3	0.47	ug/Kg	☼	11/14/18 13:40	1
1,3-Dichlorobenzene	1.3	U	4.1	1.3	0.39	ug/Kg	☼	11/14/18 13:40	1
1,3-Dichloropropane	1.3	U	4.1	1.3	0.42	ug/Kg	☼	11/14/18 13:40	1
1,4-Dichlorobenzene	1.3	U	4.1	1.3	0.64	ug/Kg	☼	11/14/18 13:40	1
2,2-Dichloropropane	1.3	U	4.1	1.3	0.36	ug/Kg	☼	11/14/18 13:40	1
2-Butanone (MEK)	5.2	U M	16	5.2	1.5	ug/Kg	☼	11/14/18 13:40	1
2-Chlorotoluene	1.3	U	4.1	1.3	0.42	ug/Kg	☼	11/14/18 13:40	1
2-Hexanone	10	U M	16	10	4.0	ug/Kg	☼	11/14/18 13:40	1
4-Chlorotoluene	1.3	U	4.1	1.3	0.64	ug/Kg	☼	11/14/18 13:40	1
4-Isopropyltoluene	**0.43**	**J**	4.1	1.3	0.40	ug/Kg	☼	11/14/18 13:40	1
4-Methyl-2-pentanone (MIBK)	10	U M	16	10	3.6	ug/Kg	☼	11/14/18 13:40	1
Acetone	**89**		16	10	4.4	ug/Kg	☼	11/14/18 13:40	1
Benzene	**3.3**	**J**	4.1	1.3	0.39	ug/Kg	☼	11/14/18 13:40	1
Bromobenzene	1.3	U	4.1	1.3	0.40	ug/Kg	☼	11/14/18 13:40	1
Bromoform	0.66	U	4.1	0.66	0.19	ug/Kg	☼	11/14/18 13:40	1
Bromomethane	1.3	U	8.2	1.3	0.41	ug/Kg	☼	11/14/18 13:40	1
Carbon disulfide	1.3	U	4.1	1.3	0.34	ug/Kg	☼	11/14/18 13:40	1
Carbon tetrachloride	1.3	U	4.1	1.3	0.52	ug/Kg	☼	11/14/18 13:40	1
Chlorobenzene	1.3	U	4.1	1.3	0.44	ug/Kg	☼	11/14/18 13:40	1
Bromochloromethane	0.66	U	4.1	0.66	0.25	ug/Kg	☼	11/14/18 13:40	1
Dibromochloromethane	1.3	U	4.1	1.3	0.47	ug/Kg	☼	11/14/18 13:40	1
Chloroethane	2.6	U	8.2	2.6	0.73	ug/Kg	☼	11/14/18 13:40	1
Chloroform	0.66	U	8.2	0.66	0.24	ug/Kg	☼	11/14/18 13:40	1
Chloromethane	1.3	U	8.2	1.3	0.63	ug/Kg	☼	11/14/18 13:40	1
cis-1,2-Dichloroethene	1.3	U	4.1	1.3	0.46	ug/Kg	☼	11/14/18 13:40	1
cis-1,3-Dichloropropene	2.6	U	4.1	2.6	1.1	ug/Kg	☼	11/14/18 13:40	1
Dibromomethane	2.6	U	4.1	2.6	0.69	ug/Kg	☼	11/14/18 13:40	1
Bromodichloromethane	0.66	U M	4.1	0.66	0.18	ug/Kg	☼	11/14/18 13:40	1
Dichlorodifluoromethane	1.3	U	8.2	1.3	0.43	ug/Kg	☼	11/14/18 13:40	1
Ethylbenzene	**2.2**	**J**	4.1	1.3	0.55	ug/Kg	☼	11/14/18 13:40	1
Ethylene Dibromide	1.3	U	4.1	1.3	0.43	ug/Kg	☼	11/14/18 13:40	1
Hexachlorobutadiene	1.3	U	4.1	1.3	0.45	ug/Kg	☼	11/14/18 13:40	1
Isopropylbenzene	**0.70**	**J**	4.1	1.3	0.48	ug/Kg	☼	11/14/18 13:40	1
Methyl tert-butyl ether	0.66	U	16	0.66	0.28	ug/Kg	☼	11/14/18 13:40	1
Methylene Chloride	2.6	U	4.1	2.6	1.3	ug/Kg	☼	11/14/18 13:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S4-051158-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-9
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	**5.8**		2.6	2.6	0.85	ug/Kg	☼	11/14/18 13:40	1
Naphthalene	**1.0**	**J**	4.1	1.3	0.52	ug/Kg	☼	11/14/18 13:40	1
n-Butylbenzene	**0.85**	**J Q**	4.1	1.3	0.46	ug/Kg	☼	11/14/18 13:40	1
N-Propylbenzene	**0.95**	**J**	4.1	1.3	0.48	ug/Kg	☼	11/14/18 13:40	1
o-Xylene	**2.2**	**J**	4.1	1.3	0.50	ug/Kg	☼	11/14/18 13:40	1
sec-Butylbenzene	**0.77**	**J**	4.1	1.3	0.63	ug/Kg	☼	11/14/18 13:40	1
Styrene	1.3	U M	4.1	1.3	0.52	ug/Kg	☼	11/14/18 13:40	1
tert-Butylbenzene	1.3	U	4.1	1.3	0.41	ug/Kg	☼	11/14/18 13:40	1
Tetrachloroethene	1.3	U	4.1	1.3	0.48	ug/Kg	☼	11/14/18 13:40	1
Toluene	**9.1**		4.1	1.3	0.57	ug/Kg	☼	11/14/18 13:40	1
trans-1,2-Dichloroethene	0.66	U	4.1	0.66	0.32	ug/Kg	☼	11/14/18 13:40	1
trans-1,3-Dichloropropene	1.3	U	4.1	1.3	0.55	ug/Kg	☼	11/14/18 13:40	1
Trichloroethene	0.66	U	4.1	0.66	0.19	ug/Kg	☼	11/14/18 13:40	1
Trichlorofluoromethane	2.6	U	8.2	2.6	0.85	ug/Kg	☼	11/14/18 13:40	1
Vinyl chloride	2.6	U	4.1	2.6	1.1	ug/Kg	☼	11/14/18 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*11/05/18 09:05*	*11/14/18 13:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*11/05/18 09:05*	*11/14/18 13:40*	*1*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*	*11/05/18 09:05*	*11/14/18 13:40*	*1*
Dibromofluoromethane (Surr)	*101*		*78 - 119*	*11/05/18 09:05*	*11/14/18 13:40*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S4-051118-01
Date Collected: 11/05/18 16:00
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-6
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**12**	**J**	25	25	10	ug/L		11/16/18 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*82 - 110*		*11/16/18 17:16*	*1*

Client Sample ID: P-S4-051118-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-8
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.5**	**J1**	1.3	1.2	0.36	mg/Kg	☼	11/16/18 10:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*114*		*77 - 123*	*11/05/18 09:05*	*11/16/18 10:11*	*1*

Client Sample ID: P-S4-051158-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-10
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2.7**		1.2	1.1	0.32	mg/Kg	☼	11/15/18 19:41	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	122		77 - 123	11/05/18 09:05	11/15/18 19:41	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S4-051118-01 — **Lab Sample ID: 280-116615-6**
Date Collected: 11/05/18 16:00 — **Matrix: Water**
Date Received: 11/06/18 08:55

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/17/18 00:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	117		70 - 130	11/15/18 11:36	11/17/18 00:55	1

Client Sample ID: V-S4-051118-504 — **Lab Sample ID: 280-116615-7**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 80.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.047	U	0.12	0.047	0.019	ug/Kg	☼	11/16/18 01:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	114		55 - 130	11/09/18 14:56	11/16/18 01:57	1

Client Sample ID: V-S4-051158-504 — **Lab Sample ID: 280-116615-9**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	11/16/18 02:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	106		55 - 130	11/09/18 14:56	11/16/18 02:54	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S4-051118-504 — **Lab Sample ID: 280-116615-8**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.0**	**J**	8.8	4.4	1.5	mg/Kg	☼	11/13/18 02:51	1
Motor Oil (C20-C38)	26	U J1	26	26	8.6	mg/Kg	☼	11/13/18 02:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	11/07/18 16:21	11/13/18 02:51	1
n-Octacosane	90		25 - 162	11/07/18 16:21	11/13/18 02:51	1

Client Sample ID: P-S4-051158-504 — **Lab Sample ID: 280-116615-10**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.4**	**J**	8.6	4.3	1.5	mg/Kg	☼	11/13/18 04:40	1
Motor Oil (C20-C38)	25	U	26	25	8.4	mg/Kg	☼	11/13/18 04:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	74		45 - 130	11/07/18 16:21	11/13/18 04:40	1
n-Octacosane	89		25 - 162	11/07/18 16:21	11/13/18 04:40	1

General Chemistry

Client Sample ID: V-S4-051118-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-7
Matrix: Solid
Percent Solids: 80.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	19.7		0.1	0.05	0.1	%		11/06/18 16:30	1

Client Sample ID: P-S4-051118-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-8
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.3		0.1	0.05	0.1	%		11/06/18 17:42	1

Client Sample ID: V-S4-051158-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-9
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.3		0.1	0.05	0.1	%		11/06/18 16:30	1

Client Sample ID: P-S4-051158-504
Date Collected: 11/05/18 09:05
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-10
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.3		0.1	0.05	0.1	%		11/06/18 17:42	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-116615-7	V-S4-051118-504	103	100	89	101
280-116615-7 MS	V-S4-051118-504	103	94	97	100
280-116615-7 MSD	V-S4-051118-504	102	97	93	103
280-116615-9	V-S4-051158-504	104	94	91	101
LCS 280-437582/2-A	Lab Control Sample	103	91	96	100
MB 280-437582/1-A	Method Blank	99	93	101	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116615-6	TB-S4-051118-01	102	107	101	106
LCS 280-437861/5	Lab Control Sample	104	118	104	118
LCSD 280-437861/6	Lab Control Sample Dup	101	106	101	110
MB 280-437861/4	Method Blank	102	116	106	112

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116615-8	P-S4-051118-504	114
280-116615-8 MS	P-S4-051118-504	103
280-116615-8 MSD	P-S4-051118-504	106
280-116615-10	P-S4-051158-504	122
LCS 280-437770/1-A	Lab Control Sample	99
MB 280-437770/2-A	Method Blank	101

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-116615-6	TB-S4-051118-01	101
LCS 280-437913/3	Lab Control Sample	97
MB 280-437913/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-116615-7	V-S4-051118-504	114
280-116615-7 MS	V-S4-051118-504	111
280-116615-7 MSD	V-S4-051118-504	114 M
280-116615-9	V-S4-051158-504	106
LCS 280-437059/2-A	Lab Control Sample	108
LCSD 280-437059/3-A	Lab Control Sample Dup	109
MB 280-437059/4-A	Method Blank	97 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-116615-6	TB-S4-051118-01	117
LCS 280-437762/2-A	Lab Control Sample	121
LCSD 280-437762/3-A	Lab Control Sample Dup	116
MB 280-437762/4-A	Method Blank	115

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-116615-8	P-S4-051118-504	70	90
280-116615-8 MS	P-S4-051118-504	70	88
280-116615-8 MS	P-S4-051118-504	90	110
280-116615-8 MSD	P-S4-051118-504	73	91
280-116615-8 MSD	P-S4-051118-504	60	82
280-116615-10	P-S4-051158-504	74	89

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
LCS 280-436699/2-A	Lab Control Sample	69	82								
LCS 280-436699/3-A	Lab Control Sample	78	104								
MB 280-436699/1-A	Method Blank	70	92								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/14/18 10:37	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/14/18 10:37	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/14/18 10:37	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/14/18 10:37	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/14/18 10:37	1
Acetone	13	U	20	13	5.4	ug/Kg		11/14/18 10:37	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/14/18 10:37	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/14/18 10:37	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/14/18 10:37	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/14/18 10:37	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/14/18 10:37	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/14/18 10:37	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/14/18 10:37	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/14/18 10:37	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		11/14/18 10:37	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/14/18 10:37	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/14/18 10:37	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/14/18 10:37	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/14/18 10:37	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/14/18 10:37	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/14/18 10:37	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/14/18 10:37	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/14/18 10:37	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/14/18 10:37	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/14/18 10:37	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/14/18 10:37	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/14/18 10:37	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/14/18 10:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437582/1-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437582

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/14/18 10:37	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/14/18 10:37	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/14/18 10:37	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/14/18 10:37	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/14/18 10:37	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/14/18 10:37	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/14/18 10:37	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/14/18 10:37	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/14/18 10:37	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/14/18 10:37	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/14/18 10:37	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/14/18 10:37	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/14/18 10:37	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/14/18 10:37	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/14/18 10:37	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/14/18 10:37	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/14/18 10:37	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/14/18 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*11/14/18 07:00*	*11/14/18 10:37*	*1*

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	48.4		ug/Kg		97	61 - 132
2-Butanone (MEK)	200	190		ug/Kg		95	51 - 148
1,2-Dichlorobenzene	50.0	48.4		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	50.0	47.0		ug/Kg		94	77 - 121
4-Chlorotoluene	50.0	48.4		ug/Kg		97	72 - 124
1,4-Dichlorobenzene	50.0	46.9		ug/Kg		94	75 - 120
1,1-Dichloroethane	50.0	41.6		ug/Kg		83	76 - 125
1,2-Dichloroethane	50.0	48.7		ug/Kg		97	73 - 128
Acetone	200	193		ug/Kg		97	36 - 164
1,1-Dichloroethene	50.0	47.0		ug/Kg		94	70 - 131
Benzene	50.0	46.7		ug/Kg		93	77 - 121
Bromobenzene	50.0	49.1		ug/Kg		98	78 - 121
Bromoform	50.0	54.4		ug/Kg		109	67 - 132
Bromomethane	50.0	52.2		ug/Kg		104	53 - 143
1,2-Dichloropropane	50.0	48.4		ug/Kg		97	76 - 123
Carbon disulfide	50.0	45.4		ug/Kg		91	63 - 132
1,3-Dichloropropane	50.0	49.0		ug/Kg		98	77 - 121
Carbon tetrachloride	50.0	46.4		ug/Kg		93	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	45.1		ug/Kg		90	67 - 133
Chlorobenzene	50.0	47.0		ug/Kg		94	79 - 120
1,1-Dichloropropene	50.0	45.8		ug/Kg		92	76 - 125
Bromochloromethane	50.0	49.5		ug/Kg		99	78 - 125
Dibromochloromethane	50.0	52.6		ug/Kg		105	74 - 126
Chloroethane	50.0	44.0		ug/Kg		88	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	213		ug/Kg		107	53 - 145
Chloromethane	50.0	44.0		ug/Kg		88	50 - 136
cis-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	77 - 123
cis-1,3-Dichloropropene	50.0	53.4		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	48.8		ug/Kg		98	73 - 127
Dibromomethane	50.0	47.7		ug/Kg		95	78 - 125
Bromodichloromethane	50.0	50.0		ug/Kg		100	75 - 127
4-Methyl-2-pentanone (MIBK)	200	215		ug/Kg		107	65 - 135
Dichlorodifluoromethane	50.0	38.9		ug/Kg		78	29 - 149
Ethylbenzene	50.0	48.6		ug/Kg		97	76 - 122
Ethylene Dibromide	50.0	51.1		ug/Kg		102	78 - 122
Hexachlorobutadiene	50.0	45.8		ug/Kg		92	61 - 135
Isopropylbenzene	50.0	48.1		ug/Kg		96	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.4		ug/Kg		99	78 - 125
Methyl tert-butyl ether	50.0	45.4		ug/Kg		91	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.0		ug/Kg		100	70 - 124
Methylene Chloride	50.0	45.8		ug/Kg		92	70 - 128
Naphthalene	50.0	54.6		ug/Kg		109	62 - 129
1,2,3-Trichlorobenzene	50.0	50.7		ug/Kg		101	66 - 130
n-Butylbenzene	50.0	49.7		ug/Kg		99	70 - 128
1,1,1-Trichloroethane	50.0	48.9		ug/Kg		98	73 - 130
N-Propylbenzene	50.0	46.5		ug/Kg		93	73 - 125
1,1,2-Trichloroethane	50.0	49.6		ug/Kg		99	78 - 121
sec-Butylbenzene	50.0	51.6		ug/Kg		103	73 - 126
Styrene	50.0	50.0		ug/Kg		100	76 - 124
1,2,4-Trichlorobenzene	50.0	51.2		ug/Kg		102	67 - 129
tert-Butylbenzene	50.0	47.8		ug/Kg		96	73 - 125
1,2,3-Trichloropropane	50.0	52.0		ug/Kg		104	73 - 125
Tetrachloroethene	50.0	44.9		ug/Kg		90	73 - 128
1,2,4-Trimethylbenzene	50.0	47.6		ug/Kg		95	75 - 123
Toluene	50.0	48.2		ug/Kg		96	77 - 121
1,3,5-Trimethylbenzene	50.0	48.1		ug/Kg		96	73 - 124
trans-1,2-Dichloroethene	50.0	44.2		ug/Kg		88	74 - 125
trans-1,3-Dichloropropene	50.0	53.1		ug/Kg		106	71 - 130
o-Xylene	50.0	50.1		ug/Kg		100	77 - 123
Trichloroethene	50.0	47.5		ug/Kg		95	77 - 123
m-Xylene & p-Xylene	50.0	47.6		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	42.8		ug/Kg		86	62 - 140
Vinyl chloride	50.0	45.0		ug/Kg		90	56 - 135
2-Chlorotoluene	50.0	48.2		ug/Kg		96	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437582/2-A
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437582

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: 280-116615-7 MS
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	1.5	U J1	12.7	45.6	J1	ug/Kg	☼	360	78 - 125
1,1,1-Trichloroethane	1.5	U J1	12.7	42.3	J1	ug/Kg	☼	334	73 - 130
1,1,2,2-Tetrachloroethane	1.5	U M J1	12.7	48.8	J1	ug/Kg	☼	385	70 - 124
1,1,2-Trichloroethane	3.1	U M J1	12.7	60.8	J1	ug/Kg	☼	480	78 - 121
1,1-Dichloroethane	0.77	U J1	12.7	43.1	J1	ug/Kg	☼	340	76 - 125
1,1-Dichloroethene	1.5	U J1	12.7	39.6	J1	ug/Kg	☼	312	70 - 131
1,1-Dichloropropene	1.5	U J1	12.7	42.7	J1	ug/Kg	☼	337	76 - 125
1,2,3-Trichlorobenzene	1.5	U J1	12.7	46.8	J1	ug/Kg	☼	370	66 - 130
1,2,3-Trichloropropane	3.1	U M J1	12.7	55.1	J1	ug/Kg	☼	435	73 - 125
1,2,4-Trichlorobenzene	1.5	U J1	12.7	50.6	J1	ug/Kg	☼	399	67 - 129
1,2,4-Trimethylbenzene	3.2	J1	12.7	52.3	J1	ug/Kg	☼	387	75 - 123
1,2-Dibromo-3-Chloropropane	1.5	U J1	12.7	52.1	J1	ug/Kg	☼	411	61 - 132
1,2-Dichlorobenzene	1.5	U J1	12.7	45.9	J1	ug/Kg	☼	362	78 - 121
1,2-Dichloroethane	1.5	U J1	12.7	46.6	J1	ug/Kg	☼	368	73 - 128
1,2-Dichloropropane	1.5	U M J1	12.7	46.9	J1	ug/Kg	☼	370	76 - 123
1,3,5-Trimethylbenzene	1.4	J1	12.7	48.0	J1	ug/Kg	☼	367	73 - 124
1,3-Dichlorobenzene	1.5	U J1	12.7	45.3	J1	ug/Kg	☼	358	77 - 121
1,3-Dichloropropane	1.5	U J1	12.7	47.2	J1	ug/Kg	☼	373	77 - 121
1,4-Dichlorobenzene	1.5	U J1	12.7	46.1	J1	ug/Kg	☼	364	75 - 120
2,2-Dichloropropane	1.5	U J1	12.7	41.0	J1	ug/Kg	☼	323	67 - 133
2-Butanone (MEK)	6.1	U M J1	50.7	224	J1	ug/Kg	☼	443	51 - 148
2-Chlorotoluene	1.5	U J1	12.7	47.1	J1	ug/Kg	☼	371	75 - 122
2-Hexanone	12	U M J1	50.7	241	J1	ug/Kg	☼	476	53 - 145
4-Chlorotoluene	1.5	U J1	12.7	47.6	J1	ug/Kg	☼	376	72 - 124
4-Isopropyltoluene	1.5	U J1	12.7	46.3	J1	ug/Kg	☼	365	73 - 127
4-Methyl-2-pentanone (MIBK)	12	U M J1	50.7	225	J1	ug/Kg	☼	445	65 - 135
Acetone	90	J1	50.7	300	J1	ug/Kg	☼	415	36 - 164
Benzene	4.4	J1	12.7	51.6	J1	ug/Kg	☼	373	77 - 121
Bromobenzene	1.5	U J1	12.7	47.1	J1	ug/Kg	☼	372	78 - 121
Bromoform	0.77	U J1	12.7	54.9	J1	ug/Kg	☼	433	67 - 132
Bromomethane	1.5	U J1	12.7	38.7	J1	ug/Kg	☼	305	53 - 143
Carbon disulfide	1.5	U J1	12.7	42.4	J1	ug/Kg	☼	335	63 - 132
Carbon tetrachloride	1.5	U J1	12.7	42.1	J1	ug/Kg	☼	332	70 - 135
Chlorobenzene	1.5	U J1	12.7	45.0	J1	ug/Kg	☼	355	79 - 120
Bromochloromethane	0.77	U J1	12.7	48.3	J1	ug/Kg	☼	381	78 - 125
Dibromochloromethane	1.5	U J1	12.7	50.8	J1	ug/Kg	☼	401	74 - 126
Chloroethane	3.1	U J1	12.7	37.0	J1	ug/Kg	☼	292	59 - 139
Chloroform	0.77	U J1	12.7	44.1	J1	ug/Kg	☼	348	78 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116615-7 MS
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	1.5	U J1	12.7	31.0	J1	ug/Kg	☼	244	50 - 136
cis-1,2-Dichloroethene	1.5	U J1	12.7	46.0	J1	ug/Kg	☼	363	77 - 123
cis-1,3-Dichloropropene	3.1	U J1	12.7	51.3	J1	ug/Kg	☼	404	74 - 126
Dibromomethane	3.1	U J1	12.7	49.2	J1	ug/Kg	☼	388	78 - 125
Bromodichloromethane	0.77	U M J1	12.7	48.4	J1	ug/Kg	☼	382	75 - 127
Dichlorodifluoromethane	1.5	U J1	12.7	29.1	J1	ug/Kg	☼	230	29 - 149
Ethylbenzene	2.4	J1	12.7	51.3	J1	ug/Kg	☼	386	76 - 122
Ethylene Dibromide	1.5	U J1	12.7	51.6	J1	ug/Kg	☼	407	78 - 122
Hexachlorobutadiene	1.5	U J1	12.7	40.1	J1	ug/Kg	☼	316	61 - 135
Isopropylbenzene	0.88	J1	12.7	47.6	J1	ug/Kg	☼	369	68 - 134
Methyl tert-butyl ether	0.77	U J1	12.7	47.8	J1	ug/Kg	☼	377	73 - 125
Methylene Chloride	3.1	U J1	12.7	46.2	J1	ug/Kg	☼	364	70 - 128
m-Xylene & p-Xylene	6.2	J1	12.7	60.9	J1	ug/Kg	☼	431	77 - 124
Naphthalene	1.5	U J1	12.7	53.3	J1	ug/Kg	☼	421	62 - 129
n-Butylbenzene	0.93	Q J1	12.7	46.8	J1	ug/Kg	☼	362	70 - 128
N-Propylbenzene	0.93	J1	12.7	47.0	J1	ug/Kg	☼	363	73 - 125
o-Xylene	2.5	J1	12.7	52.4	J1	ug/Kg	☼	394	77 - 123
sec-Butylbenzene	1.1	J1	12.7	47.9	J1	ug/Kg	☼	370	73 - 126
Styrene	1.5	U J1	12.7	47.9	J1	ug/Kg	☼	378	76 - 124
tert-Butylbenzene	1.5	U J1	12.7	45.2	J1	ug/Kg	☼	357	73 - 125
Tetrachloroethene	1.5	U J1	12.7	42.7	J1	ug/Kg	☼	337	73 - 128
Toluene	10	J1	12.7	68.2	J1	ug/Kg	☼	459	77 - 121
trans-1,2-Dichloroethene	0.77	U J1	12.7	46.2	J1	ug/Kg	☼	364	74 - 125
trans-1,3-Dichloropropene	1.5	U J1	12.7	52.6	J1	ug/Kg	☼	415	71 - 130
Trichloroethene	0.77	U J1	12.7	44.7	J1	ug/Kg	☼	352	77 - 123
Trichlorofluoromethane	3.1	U J1	12.7	36.4	J1	ug/Kg	☼	287	62 - 140
Vinyl chloride	3.1	U J1	12.7	31.6	J1	ug/Kg	☼	249	56 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: 280-116615-7 MSD
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	1.5	U J1	12.1	42.7	J1	ug/Kg	☼	352	78 - 125	7	20
1,1,1-Trichloroethane	1.5	U J1	12.1	41.2	J1	ug/Kg	☼	340	73 - 130	3	20
1,1,2,2-Tetrachloroethane	1.5	U M J1	12.1	45.5	J1	ug/Kg	☼	375	70 - 124	7	20
1,1,2-Trichloroethane	3.1	U M J1	12.1	52.9	J1	ug/Kg	☼	436	78 - 121	14	20
1,1-Dichloroethane	0.77	U J1	12.1	39.7	J1	ug/Kg	☼	328	76 - 125	8	20
1,1-Dichloroethene	1.5	U J1	12.1	41.3	J1	ug/Kg	☼	341	70 - 131	4	20
1,1-Dichloropropene	1.5	U J1	12.1	39.8	J1	ug/Kg	☼	328	76 - 125	7	20
1,2,3-Trichlorobenzene	1.5	U J1	12.1	41.2	J1	ug/Kg	☼	340	66 - 130	13	20
1,2,3-Trichloropropane	3.1	U M J1	12.1	48.2	J1	ug/Kg	☼	398	73 - 125	13	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116615-7 MSD
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	1.5	U J1	12.1	40.8	J1	ug/Kg	☼	337	67 - 129	21	20
1,2,4-Trimethylbenzene	3.2	J1	12.1	39.3	J1	ug/Kg	☼	298	75 - 123	28	20
1,2-Dibromo-3-Chloropropane	1.5	U J1	12.1	46.2	J1	ug/Kg	☼	381	61 - 132	12	20
1,2-Dichlorobenzene	1.5	U J1	12.1	39.9	J1	ug/Kg	☼	329	78 - 121	14	20
1,2-Dichloroethane	1.5	U J1	12.1	45.7	J1	ug/Kg	☼	377	73 - 128	2	20
1,2-Dichloropropane	1.5	U M J1	12.1	42.5	J1	ug/Kg	☼	350	76 - 123	10	20
1,3,5-Trimethylbenzene	1.4	J1	12.1	38.8	J1	ug/Kg	☼	309	73 - 124	21	20
1,3-Dichlorobenzene	1.5	U J1	12.1	38.3	J1	ug/Kg	☼	316	77 - 121	17	20
1,3-Dichloropropane	1.5	U J1	12.1	44.4	J1	ug/Kg	☼	367	77 - 121	6	20
1,4-Dichlorobenzene	1.5	U J1	12.1	38.7	J1	ug/Kg	☼	319	75 - 120	18	20
2,2-Dichloropropane	1.5	U J1	12.1	39.3	J1	ug/Kg	☼	325	67 - 133	4	20
2-Butanone (MEK)	6.1	U M J1	48.5	209	J1	ug/Kg	☼	431	51 - 148	7	20
2-Chlorotoluene	1.5	U J1	12.1	41.7	J1	ug/Kg	☼	344	75 - 122	12	20
2-Hexanone	12	U M J1	48.5	213	J1	ug/Kg	☼	440	53 - 145	12	20
4-Chlorotoluene	1.5	U J1	12.1	40.5	J1	ug/Kg	☼	334	72 - 124	16	20
4-Isopropyltoluene	1.5	U J1	12.1	38.4	J1	ug/Kg	☼	316	73 - 127	19	20
4-Methyl-2-pentanone (MIBK)	12	U M J1	48.5	220	J1	ug/Kg	☼	455	65 - 135	2	20
Acetone	90	J1	48.5	355	J1	ug/Kg	☼	548	36 - 164	17	20
Benzene	4.4	J1	12.1	43.8	J1	ug/Kg	☼	326	77 - 121	16	20
Bromobenzene	1.5	U J1	12.1	41.0	J1	ug/Kg	☼	338	78 - 121	14	20
Bromoform	0.77	U J1	12.1	51.6	J1	ug/Kg	☼	426	67 - 132	6	20
Bromomethane	1.5	U J1	12.1	43.1	J1	ug/Kg	☼	355	53 - 143	11	20
Carbon disulfide	1.5	U J1	12.1	39.1	J1	ug/Kg	☼	323	63 - 132	8	20
Carbon tetrachloride	1.5	U J1	12.1	40.9	J1	ug/Kg	☼	337	70 - 135	3	20
Chlorobenzene	1.5	U J1	12.1	40.7	J1	ug/Kg	☼	336	79 - 120	10	20
Bromochloromethane	0.77	U J1	12.1	44.2	J1	ug/Kg	☼	364	78 - 125	9	20
Dibromochloromethane	1.5	U J1	12.1	47.6	J1	ug/Kg	☼	393	74 - 126	7	20
Chloroethane	3.1	U J1	12.1	37.3	J1	ug/Kg	☼	308	59 - 139	1	20
Chloroform	0.77	U J1	12.1	41.2	J1	ug/Kg	☼	340	78 - 123	7	20
Chloromethane	1.5	U J1	12.1	34.3	J1	ug/Kg	☼	283	50 - 136	10	20
cis-1,2-Dichloroethene	1.5	U J1	12.1	41.7	J1	ug/Kg	☼	344	77 - 123	10	20
cis-1,3-Dichloropropene	3.1	U J1	12.1	44.6	J1	ug/Kg	☼	368	74 - 126	14	20
Dibromomethane	3.1	U J1	12.1	45.4	J1	ug/Kg	☼	375	78 - 125	8	20
Bromodichloromethane	0.77	U M J1	12.1	45.9	J1	ug/Kg	☼	379	75 - 127	5	20
Dichlorodifluoromethane	1.5	U J1	12.1	30.2	J1	ug/Kg	☼	249	29 - 149	4	20
Ethylbenzene	2.4	J1	12.1	41.8	J1	ug/Kg	☼	325	76 - 122	21	20
Ethylene Dibromide	1.5	U J1	12.1	47.9	J1	ug/Kg	☼	395	78 - 122	7	20
Hexachlorobutadiene	1.5	U J1	12.1	34.4	J1	ug/Kg	☼	284	61 - 135	15	20
Isopropylbenzene	0.88	J1	12.1	39.8	J1	ug/Kg	☼	321	68 - 134	18	20
Methyl tert-butyl ether	0.77	U J1	12.1	47.1	J1	ug/Kg	☼	389	73 - 125	1	20
Methylene Chloride	3.1	U J1	12.1	44.4	J1	ug/Kg	☼	367	70 - 128	4	20
m-Xylene & p-Xylene	6.2	J1	12.1	42.7	J1	ug/Kg	☼	301	77 - 124	35	20
Naphthalene	1.5	U J1	12.1	46.7	J1	ug/Kg	☼	385	62 - 129	13	20
n-Butylbenzene	0.93	Q J1	12.1	37.7	J1	ug/Kg	☼	304	70 - 128	21	20
N-Propylbenzene	0.93	J1	12.1	38.6	J1	ug/Kg	☼	311	73 - 125	20	20
o-Xylene	2.5	J1	12.1	44.1	J1	ug/Kg	☼	343	77 - 123	17	20
sec-Butylbenzene	1.1	J1	12.1	40.3	J1	ug/Kg	☼	324	73 - 126	17	20
Styrene	1.5	U J1	12.1	43.2	J1	ug/Kg	☼	356	76 - 124	10	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-116615-7 MSD
Matrix: Solid
Analysis Batch: 437516

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
tert-Butylbenzene	1.5	U J1	12.1	39.1	J1	ug/Kg	☼	323	73 - 125	15	20
Tetrachloroethene	1.5	U J1	12.1	39.2	J1	ug/Kg	☼	323	73 - 128	9	20
Toluene	10	J1	12.1	53.3	J1	ug/Kg	☼	357	77 - 121	25	20
trans-1,2-Dichloroethene	0.77	U J1	12.1	41.5	J1	ug/Kg	☼	343	74 - 125	11	20
trans-1,3-Dichloropropene	1.5	U J1	12.1	53.9	J1	ug/Kg	☼	445	71 - 130	3	20
Trichloroethene	0.77	U J1	12.1	40.7	J1	ug/Kg	☼	336	77 - 123	9	20
Trichlorofluoromethane	3.1	U J1	12.1	37.7	J1	ug/Kg	☼	311	62 - 140	3	20
Vinyl chloride	3.1	U J1	12.1	34.1	J1	ug/Kg	☼	282	56 - 135	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Lab Sample ID: MB 280-437861/4
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/16/18 09:58	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/16/18 09:58	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 09:58	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/16/18 09:58	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/16/18 09:58	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/16/18 09:58	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/16/18 09:58	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/16/18 09:58	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/16/18 09:58	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/16/18 09:58	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/16/18 09:58	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/16/18 09:58	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/16/18 09:58	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/16/18 09:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-437861/4
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 09:58	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/16/18 09:58	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/16/18 09:58	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/16/18 09:58	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/16/18 09:58	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/16/18 09:58	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
Methylene Chloride	0.346	J	5.0	0.80	0.32	ug/L		11/16/18 09:58	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/16/18 09:58	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/16/18 09:58	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/16/18 09:58	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/16/18 09:58	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/16/18 09:58	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/16/18 09:58	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/16/18 09:58	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/16/18 09:58	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/16/18 09:58	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/16/18 09:58	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/16/18 09:58	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/16/18 09:58	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/16/18 09:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*11/16/18 09:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*11/16/18 09:58*	*1*
4-Bromofluorobenzene (Surr)	*106*		*85 - 114*		*11/16/18 09:58*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 119*		*11/16/18 09:58*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437861/5
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.35		ug/L		107	62 - 128
2-Butanone (MEK)	20.0	18.6		ug/L		93	56 - 143
1,2-Dichlorobenzene	5.00	5.33		ug/L		107	80 - 119
1,3-Dichlorobenzene	5.00	5.32		ug/L		106	80 - 119
4-Chlorotoluene	5.00	5.43		ug/L		109	78 - 122
1,4-Dichlorobenzene	5.00	5.27		ug/L		105	79 - 118
1,1-Dichloroethane	5.00	5.91		ug/L		118	77 - 125
1,2-Dichloroethane	5.00	6.05		ug/L		121	73 - 128
Acetone	20.0	23.4		ug/L		117	39 - 160
1,1-Dichloroethene	5.00	5.66		ug/L		113	71 - 131
Benzene	5.00	5.78		ug/L		116	79 - 120
Bromobenzene	5.00	5.47		ug/L		109	80 - 120
Bromoform	5.00	5.22		ug/L		104	66 - 130
Bromomethane	5.00	5.48		ug/L		110	53 - 141
1,2-Dichloropropane	5.00	6.02		ug/L		120	78 - 122
Carbon disulfide	5.00	5.59		ug/L		112	64 - 133
1,3-Dichloropropane	5.00	5.55		ug/L		111	80 - 119
Carbon tetrachloride	5.00	5.75		ug/L		115	72 - 136
2,2-Dichloropropane	5.00	5.98		ug/L		120	60 - 139
Chlorobenzene	5.00	5.58		ug/L		112	82 - 118
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125
Bromochloromethane	5.00	5.99		ug/L		120	78 - 123
Dibromochloromethane	5.00	5.41		ug/L		108	74 - 126
Chloroethane	5.00	5.33		ug/L		107	60 - 138
Chloroform	5.00	6.07		ug/L		121	79 - 124
2-Hexanone	20.0	20.0		ug/L		100	57 - 139
Chloromethane	5.00	4.57		ug/L		91	50 - 139
cis-1,2-Dichloroethene	5.00	5.92		ug/L		118	78 - 123
cis-1,3-Dichloropropene	5.00	5.75		ug/L		115	75 - 124
4-Isopropyltoluene	5.00	5.36		ug/L		107	77 - 127
Dibromomethane	5.00	5.89		ug/L		118	79 - 123
Bromodichloromethane	5.00	6.08		ug/L		122	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	67 - 130
Dichlorodifluoromethane	5.00	4.34		ug/L		87	32 - 152
Ethylbenzene	5.00	5.36		ug/L		107	79 - 121
Ethylene Dibromide	5.00	5.68		ug/L		114	77 - 121
Hexachlorobutadiene	5.00	4.82		ug/L		96	66 - 134
Isopropylbenzene	5.00	5.40		ug/L		108	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.71		ug/L		114	78 - 124
Methyl tert-butyl ether	5.00	5.68		ug/L		114	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.77		ug/L		115	71 - 121
Methylene Chloride	5.00	5.71		ug/L		114	74 - 124
Naphthalene	5.00	5.40		ug/L		108	61 - 128
1,2,3-Trichlorobenzene	5.00	5.36		ug/L		107	69 - 129
n-Butylbenzene	5.00	5.30		ug/L		106	75 - 128
1,1,1-Trichloroethane	5.00	5.98		ug/L		120	74 - 131
N-Propylbenzene	5.00	5.50		ug/L		110	76 - 126
1,1,2-Trichloroethane	5.00	5.98	Q	ug/L		120	80 - 119

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-437861/5
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
sec-Butylbenzene	5.00	5.54		ug/L		111	77 - 126
Styrene	5.00	5.52		ug/L		110	78 - 123
1,2,4-Trichlorobenzene	5.00	5.16		ug/L		103	69 - 130
tert-Butylbenzene	5.00	5.37		ug/L		107	78 - 124
1,2,3-Trichloropropane	5.00	5.46		ug/L		109	73 - 122
Tetrachloroethene	5.00	5.24		ug/L		105	74 - 129
1,2,4-Trimethylbenzene	5.00	5.36		ug/L		107	76 - 124
Toluene	5.00	5.95		ug/L		119	80 - 121
1,3,5-Trimethylbenzene	5.00	5.36		ug/L		107	75 - 124
trans-1,2-Dichloroethene	5.00	5.89		ug/L		118	75 - 124
trans-1,3-Dichloropropene	5.00	5.59		ug/L		112	73 - 127
o-Xylene	5.00	5.55		ug/L		111	78 - 122
Trichloroethene	5.00	5.65		ug/L		113	79 - 123
m-Xylene & p-Xylene	5.00	5.27		ug/L		105	80 - 121
Trichlorofluoromethane	5.00	5.77		ug/L		115	65 - 141
Vinyl chloride	5.00	5.11		ug/L		102	58 - 137
2-Chlorotoluene	5.00	5.33		ug/L		107	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*118*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*118*		*80 - 119*

Lab Sample ID: LCSD 280-437861/6
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.11		ug/L		102	62 - 128	5	20
2-Butanone (MEK)	20.0	17.2		ug/L		86	56 - 143	8	20
1,2-Dichlorobenzene	5.00	5.65		ug/L		113	80 - 119	6	20
1,3-Dichlorobenzene	5.00	5.50		ug/L		110	80 - 119	3	20
4-Chlorotoluene	5.00	5.75		ug/L		115	78 - 122	6	20
1,4-Dichlorobenzene	5.00	5.45		ug/L		109	79 - 118	3	20
1,1-Dichloroethane	5.00	5.83		ug/L		117	77 - 125	1	20
1,2-Dichloroethane	5.00	6.04		ug/L		121	73 - 128	0	20
Acetone	20.0	21.1		ug/L		105	39 - 160	10	20
1,1-Dichloroethene	5.00	5.69		ug/L		114	71 - 131	0	20
Benzene	5.00	5.70		ug/L		114	79 - 120	1	20
Bromobenzene	5.00	5.62		ug/L		112	80 - 120	3	20
Bromoform	5.00	5.11		ug/L		102	66 - 130	2	20
Bromomethane	5.00	5.41		ug/L		108	53 - 141	1	20
1,2-Dichloropropane	5.00	5.93		ug/L		119	78 - 122	2	20
Carbon disulfide	5.00	5.56		ug/L		111	64 - 133	1	20
1,3-Dichloropropane	5.00	5.61		ug/L		112	80 - 119	1	20
Carbon tetrachloride	5.00	5.78		ug/L		116	72 - 136	1	20
2,2-Dichloropropane	5.00	5.79		ug/L		116	60 - 139	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-437861/6
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	5.00	5.62		ug/L		112	82 - 118	1	20
1,1-Dichloropropene	5.00	5.71		ug/L		114	79 - 125	0	20
Bromochloromethane	5.00	5.96		ug/L		119	78 - 123	1	20
Dibromochloromethane	5.00	5.72		ug/L		114	74 - 126	6	20
Chloroethane	5.00	5.41		ug/L		108	60 - 138	2	20
Chloroform	5.00	5.95		ug/L		119	79 - 124	2	20
2-Hexanone	20.0	19.4		ug/L		97	57 - 139	3	20
Chloromethane	5.00	4.69		ug/L		94	50 - 139	3	20
cis-1,2-Dichloroethene	5.00	5.86		ug/L		117	78 - 123	1	20
cis-1,3-Dichloropropene	5.00	5.88		ug/L		118	75 - 124	2	20
4-Isopropyltoluene	5.00	5.65		ug/L		113	77 - 127	5	20
Dibromomethane	5.00	6.12		ug/L		122	79 - 123	4	20
Bromodichloromethane	5.00	6.12		ug/L		122	79 - 125	1	20
4-Methyl-2-pentanone (MIBK)	20.0	21.8		ug/L		109	67 - 130	6	20
Dichlorodifluoromethane	5.00	4.22		ug/L		84	32 - 152	3	20
Ethylbenzene	5.00	5.51		ug/L		110	79 - 121	3	20
Ethylene Dibromide	5.00	5.93		ug/L		119	77 - 121	4	20
Hexachlorobutadiene	5.00	5.21		ug/L		104	66 - 134	8	20
Isopropylbenzene	5.00	5.69		ug/L		114	72 - 131	5	20
1,1,1,2-Tetrachloroethane	5.00	5.72		ug/L		114	78 - 124	0	20
Methyl tert-butyl ether	5.00	5.55		ug/L		111	71 - 124	2	20
1,1,2,2-Tetrachloroethane	5.00	5.75		ug/L		115	71 - 121	0	20
Methylene Chloride	5.00	5.84		ug/L		117	74 - 124	2	20
Naphthalene	5.00	5.10		ug/L		102	61 - 128	6	20
1,2,3-Trichlorobenzene	5.00	5.67		ug/L		113	69 - 129	6	20
n-Butylbenzene	5.00	5.58		ug/L		112	75 - 128	5	20
1,1,1-Trichloroethane	5.00	5.84		ug/L		117	74 - 131	2	20
N-Propylbenzene	5.00	5.58		ug/L		112	76 - 126	1	20
1,1,2-Trichloroethane	5.00	6.20	Q	ug/L		124	80 - 119	4	20
sec-Butylbenzene	5.00	5.59		ug/L		112	77 - 126	1	20
Styrene	5.00	5.63		ug/L		113	78 - 123	2	20
1,2,4-Trichlorobenzene	5.00	5.50		ug/L		110	69 - 130	6	20
tert-Butylbenzene	5.00	5.62		ug/L		112	78 - 124	5	20
1,2,3-Trichloropropane	5.00	5.99		ug/L		120	73 - 122	9	20
Tetrachloroethene	5.00	5.31		ug/L		106	74 - 129	1	20
1,2,4-Trimethylbenzene	5.00	5.69		ug/L		114	76 - 124	6	20
Toluene	5.00	5.92		ug/L		118	80 - 121	1	20
1,3,5-Trimethylbenzene	5.00	5.65		ug/L		113	75 - 124	5	20
trans-1,2-Dichloroethene	5.00	5.81		ug/L		116	75 - 124	1	20
trans-1,3-Dichloropropene	5.00	5.59		ug/L		112	73 - 127	0	20
o-Xylene	5.00	5.60		ug/L		112	78 - 122	1	20
Trichloroethene	5.00	5.67		ug/L		113	79 - 123	0	20
m-Xylene & p-Xylene	5.00	5.56		ug/L		111	80 - 121	5	20
Trichlorofluoromethane	5.00	5.65		ug/L		113	65 - 141	2	20
Vinyl chloride	5.00	5.14		ug/L		103	58 - 137	1	20
2-Chlorotoluene	5.00	5.58		ug/L		112	79 - 122	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-437861/6
Matrix: Water
Analysis Batch: 437861

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*
Dibromofluoromethane (Surr)	*110*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/15/18 15:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*	*11/15/18 12:57*	*11/15/18 15:57*	*1*

Lab Sample ID: LCS 280-437770/1-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.32		mg/Kg		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: 280-116615-8 MS
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	1.5	J1	5.05	4.41	J1	mg/Kg		57	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*

Lab Sample ID: 280-116615-8 MSD
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.5	J1	4.90	5.13	J1	mg/Kg		73	79 - 122	15	30

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: 280-116615-8 MSD
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437770

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	106		77 - 123

Lab Sample ID: MB 280-437913/5
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/16/18 13:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	96		82 - 110		11/16/18 13:27	1

Lab Sample ID: LCS 280-437913/3
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	100		ug/L		100	78 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	97		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437059/4-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437059

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		11/15/18 21:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	97	M	55 - 130	11/09/18 14:56	11/15/18 21:33	1

Lab Sample ID: LCS 280-437059/2-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.763		ug/Kg		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	108		55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-437059/3-A
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437059

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.740	M	ug/Kg		85	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*109*		*55 - 130*

Lab Sample ID: 280-116615-7 MS
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.047	U	1.09	0.868		ug/Kg	☼	80	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*111*		*55 - 130*

Lab Sample ID: 280-116615-7 MSD
Matrix: Solid
Analysis Batch: 437819

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA
Prep Batch: 437059

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.047	U	1.09	0.823	M	ug/Kg	☼	76	70 - 130	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*114*	*M*	*55 - 130*

Lab Sample ID: MB 280-437762/4-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437762

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/16/18 18:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*115*		*70 - 130*	*11/15/18 11:36*	*11/16/18 18:15*	*1*

Lab Sample ID: LCS 280-437762/2-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437762

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.250	0.230	M	ug/L		92	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*121*		*70 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-437762/3-A
Matrix: Water
Analysis Batch: 438082

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437762

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.235	M	ug/L		94	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*116*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436699/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436699

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.49	J	7.6	3.8	1.3	mg/Kg		11/12/18 23:35	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg		11/12/18 23:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*11/07/18 16:21*	*11/12/18 23:35*	*1*
n-Octacosane	*92*		*25 - 162*	*11/07/18 16:21*	*11/12/18 23:35*	*1*

Lab Sample ID: LCS 280-436699/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			121	96.1		mg/Kg		79	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*82*		*25 - 162*

Lab Sample ID: LCS 280-436699/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			317	273		mg/Kg		86	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*104*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-116615-8 MS
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	4.0	J	133	117		mg/Kg		85	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*45 - 130*
n-Octacosane	*88*		*25 - 162*

Lab Sample ID: 280-116615-8 MS
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	26	U J1	300	278		mg/Kg		93	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*90*		*45 - 130*
n-Octacosane	*110*		*25 - 162*

Lab Sample ID: 280-116615-8 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.0	J	121	110		mg/Kg		88	38 - 132	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*45 - 130*
n-Octacosane	*91*		*25 - 162*

Lab Sample ID: 280-116615-8 MSD
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: P-S4-051118-504
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	26	U J1	308	194	J1	mg/Kg		63	45 - 130	36	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*60*		*45 - 130*
n-Octacosane	*82*		*25 - 162*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Method: Moisture - Percent Moisture

Lab Sample ID: 280-116615-7 DU
Matrix: Solid
Analysis Batch: 436543

Client Sample ID: V-S4-051118-504
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	19.7			11.7	J1	%				51	20

GC/MS VOA

Analysis Batch: 437516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-7	V-S4-051118-504	Total/NA	Solid	8260B	437582
280-116615-9	V-S4-051158-504	Total/NA	Solid	8260B	437582
MB 280-437582/1-A	Method Blank	Total/NA	Solid	8260B	437582
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	8260B	437582
280-116615-7 MS	V-S4-051118-504	Total/NA	Solid	8260B	437582
280-116615-7 MSD	V-S4-051118-504	Total/NA	Solid	8260B	437582

Prep Batch: 437582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-7	V-S4-051118-504	Total/NA	Solid	5035	
280-116615-9	V-S4-051158-504	Total/NA	Solid	5035	
MB 280-437582/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437582/2-A	Lab Control Sample	Total/NA	Solid	5035	
280-116615-7 MS	V-S4-051118-504	Total/NA	Solid	5035	
280-116615-7 MSD	V-S4-051118-504	Total/NA	Solid	5035	

Analysis Batch: 437861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-6	TB-S4-051118-01	Total/NA	Water	8260B	
MB 280-437861/4	Method Blank	Total/NA	Water	8260B	
LCS 280-437861/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-437861/6	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 437770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-8	P-S4-051118-504	Total/NA	Solid	5035	
280-116615-10	P-S4-051158-504	Total/NA	Solid	5035	
MB 280-437770/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	5035	
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	5035	

Analysis Batch: 437796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-8	P-S4-051118-504	Total/NA	Solid	8015D GRO	437770
280-116615-10	P-S4-051158-504	Total/NA	Solid	8015D GRO	437770
MB 280-437770/2-A	Method Blank	Total/NA	Solid	8015D GRO	437770
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	437770
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	8015D GRO	437770
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	8015D GRO	437770

Analysis Batch: 437913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-6	TB-S4-051118-01	Total/NA	Water	8015D GRO	
MB 280-437913/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437913/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 436699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-8	P-S4-051118-504	Total/NA	Solid	3546	
280-116615-10	P-S4-051158-504	Total/NA	Solid	3546	
MB 280-436699/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	3546	
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	3546	
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	3546	
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	3546	

Prep Batch: 437059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-7	V-S4-051118-504	Total/NA	Solid	8011	
280-116615-9	V-S4-051158-504	Total/NA	Solid	8011	
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-116615-7 MS	V-S4-051118-504	Total/NA	Solid	8011	
280-116615-7 MSD	V-S4-051118-504	Total/NA	Solid	8011	

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-8	P-S4-051118-504	Total/NA	Solid	8015D DRO	436699
280-116615-10	P-S4-051158-504	Total/NA	Solid	8015D DRO	436699
MB 280-436699/1-A	Method Blank	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	8015D DRO	436699
280-116615-8 MS	P-S4-051118-504	Total/NA	Solid	8015D DRO	436699
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	8015D DRO	436699
280-116615-8 MSD	P-S4-051118-504	Total/NA	Solid	8015D DRO	436699

Prep Batch: 437762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-6	TB-S4-051118-01	Total/NA	Water	8011	
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 437819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-7	V-S4-051118-504	Total/NA	Solid	8011	437059
280-116615-9	V-S4-051158-504	Total/NA	Solid	8011	437059
MB 280-437059/4-A	Method Blank	Total/NA	Solid	8011	437059
LCS 280-437059/2-A	Lab Control Sample	Total/NA	Solid	8011	437059
LCSD 280-437059/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	437059
280-116615-7 MS	V-S4-051118-504	Total/NA	Solid	8011	437059
280-116615-7 MSD	V-S4-051118-504	Total/NA	Solid	8011	437059

GC Semi VOA (Continued)

Analysis Batch: 438082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-6	TB-S4-051118-01	Total/NA	Water	8011	437762
MB 280-437762/4-A	Method Blank	Total/NA	Water	8011	437762
LCS 280-437762/2-A	Lab Control Sample	Total/NA	Water	8011	437762
LCSD 280-437762/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437762

General Chemistry

Analysis Batch: 436543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-7	V-S4-051118-504	Total/NA	Solid	Moisture	
280-116615-8	P-S4-051118-504	Total/NA	Solid	Moisture	
280-116615-9	V-S4-051158-504	Total/NA	Solid	Moisture	
280-116615-10	P-S4-051158-504	Total/NA	Solid	Moisture	
280-116615-7 DU	V-S4-051118-504	Total/NA	Solid	Moisture	

Client Sample ID: TB-S4-051118-01

Lab Sample ID: 280-116615-6

Date Collected: 11/05/18 16:00

Matrix: Water

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	437861	11/16/18 13:38	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437913	11/16/18 17:16	GPM	TAL DEN
Total/NA	Prep	8011			34.6 mL	35 mL	437762	11/15/18 11:36	SU	TAL DEN
Total/NA	Analysis	8011		1			438082	11/17/18 00:55	JLW	TAL DEN

Client Sample ID: V-S4-051118-504

Lab Sample ID: 280-116615-7

Date Collected: 11/05/18 09:05

Matrix: Solid

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: V-S4-051118-504

Lab Sample ID: 280-116615-7

Date Collected: 11/05/18 09:05

Matrix: Solid

Date Received: 11/06/18 08:55

Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.508 g	5 mL	437582	11/05/18 09:05	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	437516	11/14/18 12:39	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/16/18 01:57	JLW	TAL DEN

Client Sample ID: P-S4-051118-504

Lab Sample ID: 280-116615-8

Date Collected: 11/05/18 09:05

Matrix: Solid

Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S4-051118-504

Lab Sample ID: 280-116615-8

Date Collected: 11/05/18 09:05

Matrix: Solid

Date Received: 11/06/18 08:55

Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.78 g	5 mL	437770	11/05/18 09:05	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/16/18 10:11	GPM	TAL DEN
Total/NA	Prep	3546			15.4 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 02:51	CSM	TAL DEN

Client Sample ID: V-S4-051158-504 — **Lab Sample ID: 280-116615-9**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 16:30	SVC	TAL DEN

Client Sample ID: V-S4-051158-504 — **Lab Sample ID: 280-116615-9**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.884 g	5 mL	437582	11/05/18 09:05	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	437516	11/14/18 13:40	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	437059	11/09/18 14:56	SU	TAL DEN
Total/NA	Analysis	8011		1			437819	11/16/18 02:54	JLW	TAL DEN

Client Sample ID: P-S4-051158-504 — **Lab Sample ID: 280-116615-10**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S4-051158-504 — **Lab Sample ID: 280-116615-10**
Date Collected: 11/05/18 09:05 — **Matrix: Solid**
Date Received: 11/06/18 08:55 — **Percent Solids: 88.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.549 g	5 mL	437770	11/05/18 09:05	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 19:41	GPM	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 04:40	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-2

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information
Client Contact: Pamela Moss
Company: EA Engineering, Science, and Technology
Address: 7995 E. Prentice Ave, Suite 206E
City: Greenwood Village
State, Zip: CO, 80111
Phone: 303-590-9143(Tel)
Email: pmoss@eaest.com
Project Name: Kirtland Vadose Zone Coring
Site: Kirtland BFF

Sampler: Kevin McKenzie
Phone: 316-765-1486
Lab PM: Rothmeyer, Stephanie K
E-Mail: stephanie.rothmeyer@testamericainc.com
Carrier Tracking No(s): 4453 3393 0917 4017
COC No: COC2-54-TA-20181105
Page: 1 of 1
Job #: —

Due Date Requested: Per PO
TAT Requested (days): Per PO
PO #: 16065
WO #: 62735DM02.1017
Project #: 28016071
SSOW#: —

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		F	N	F	N	N	F	F	A	R	M	A		
TB-54-051118-01 Sen	11/5/18	1800	G	W	N	N	—	—	—	—	—	X	X	—	X	—	6
V-54-051118-504	11/5/18	0905	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	MS MSD
P-54-051118-504	11/5/18	0905	G	S	N	N	—	—	—	X	X	—	—	—	—	—	9	MS MSD
V-54-051158-504	11/5/18	0905	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	
P-54-051158-504	11/5/18	0905	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3	

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify)
Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Kevin McKenzie	Date/Time: 11/05/18 1800	Company: EA	Received by:	Date/Time: 11/6/18 0855	Company: TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116615-2

Login Number: 116615
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
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Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116615-3
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/28/2018 10:44:44 PM

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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116615-3

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116615-3

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 11/6/2018 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.2º C, 3.3º C and 4.6º C.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-S3-051118-240 (280-116615-12) and P-S3-051118-360 (280-116615-13) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/04/2018 and 11/05/2018 and analyzed on 11/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S3-051118-01 (280-116615-11) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S3-051118-240 (280-116615-12) and P-S3-051118-360 (280-116615-13) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/07/2018 and analyzed on 11/13/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-436699/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable since the detection in the method blank was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples P-S3-051118-240 (280-116615-12) and P-S3-051118-360 (280-116615-13) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Client Sample ID: TB-S3-051118-01 — Lab Sample ID: 280-116615-11

No Detections.

Client Sample ID: P-S3-051118-240 — Lab Sample ID: 280-116615-12

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.7	J	9.1	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S3-051118-360 — Lab Sample ID: 280-116615-13

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.8	J	7.2	3.6	1.2	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116615-11	TB-S3-051118-01	Water	11/05/18 11:05	11/06/18 08:55
280-116615-12	P-S3-051118-240	Solid	11/04/18 11:25	11/06/18 08:55
280-116615-13	P-S3-051118-360	Solid	11/05/18 11:35	11/06/18 08:55

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S3-051118-01
Date Collected: 11/05/18 11:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/16/18 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*11/16/18 17:39*	*1*

Client Sample ID: P-S3-051118-240
Date Collected: 11/04/18 11:25
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-12
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.1	U	2.3	2.1	0.62	mg/Kg	☼	11/15/18 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*	*11/04/18 11:25*	*11/15/18 20:04*	*1*

Client Sample ID: P-S3-051118-360
Date Collected: 11/05/18 11:35
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-13
Matrix: Solid
Percent Solids: 98.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.36	mg/Kg	☼	11/15/18 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*	*11/05/18 11:35*	*11/15/18 20:28*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-051118-240
Date Collected: 11/04/18 11:25
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-12
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.7**	**J**	9.1	4.5	1.5	mg/Kg	☼	11/13/18 05:01	1
Motor Oil (C20-C38)	26	U	27	26	8.8	mg/Kg	☼	11/13/18 05:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*		*45 - 130*	*11/07/18 16:21*	*11/13/18 05:01*	*1*
n-Octacosane	*76*		*25 - 162*	*11/07/18 16:21*	*11/13/18 05:01*	*1*

Client Sample ID: P-S3-051118-360
Date Collected: 11/05/18 11:35
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-13
Matrix: Solid
Percent Solids: 98.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.8**	**J**	7.2	3.6	1.2	mg/Kg	☼	11/13/18 05:23	1
Motor Oil (C20-C38)	21	U	22	21	7.1	mg/Kg	☼	11/13/18 05:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*69*		*45 - 130*	*11/07/18 16:21*	*11/13/18 05:23*	*1*
n-Octacosane	*90*		*25 - 162*	*11/07/18 16:21*	*11/13/18 05:23*	*1*

General Chemistry

Client Sample ID: P-S3-051118-240
Date Collected: 11/04/18 11:25
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-12
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.1		0.1	0.05	0.1	%		11/06/18 17:42	1

Client Sample ID: P-S3-051118-360
Date Collected: 11/05/18 11:35
Date Received: 11/06/18 08:55
Lab Sample ID: 280-116615-13
Matrix: Solid
Percent Solids: 98.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	1.3		0.1	0.05	0.1	%		11/06/18 17:42	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116615-12	P-S3-051118-240	93
280-116615-13	P-S3-051118-360	96
LCS 280-437770/1-A	Lab Control Sample	99
MB 280-437770/2-A	Method Blank	101

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116615-11	TB-S3-051118-01	96
LCS 280-437913/3	Lab Control Sample	97
MB 280-437913/5	Method Blank	96 Q

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-116615-12	P-S3-051118-240	60	76
280-116615-13	P-S3-051118-360	69	90
LCS 280-436699/2-A	Lab Control Sample	69	82
LCS 280-436699/3-A	Lab Control Sample	78	104
MB 280-436699/1-A	Method Blank	70	92

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/15/18 15:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*	*11/15/18 12:57*	*11/15/18 15:57*	*1*

Lab Sample ID: LCS 280-437770/1-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	5.50	5.32		mg/Kg		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: MB 280-437913/5
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/16/18 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*	*Q*	*82 - 110*		*11/16/18 13:27*	*1*

Lab Sample ID: LCS 280-437913/3
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	100		ug/L		100	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*82 - 110*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-436699/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436699

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.49	J	7.6	3.8	1.3	mg/Kg		11/12/18 23:35	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg		11/12/18 23:35	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-436699/1-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436699

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	11/07/18 16:21	11/12/18 23:35	1
n-Octacosane	92		25 - 162	11/07/18 16:21	11/12/18 23:35	1

Lab Sample ID: LCS 280-436699/2-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	121	96.1		mg/Kg		79	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	69		45 - 130
n-Octacosane	82		25 - 162

Lab Sample ID: LCS 280-436699/3-A
Matrix: Solid
Analysis Batch: 437229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	317	273		mg/Kg		86	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	78		45 - 130
n-Octacosane	104		25 - 162

GC VOA

Prep Batch: 437770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-12	P-S3-051118-240	Total/NA	Solid	5035	
280-116615-13	P-S3-051118-360	Total/NA	Solid	5035	
MB 280-437770/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-12	P-S3-051118-240	Total/NA	Solid	8015D GRO	437770
280-116615-13	P-S3-051118-360	Total/NA	Solid	8015D GRO	437770
MB 280-437770/2-A	Method Blank	Total/NA	Solid	8015D GRO	437770
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	437770

Analysis Batch: 437913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-11	TB-S3-051118-01	Total/NA	Water	8015D GRO	
MB 280-437913/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437913/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 436699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-12	P-S3-051118-240	Total/NA	Solid	3546	
280-116615-13	P-S3-051118-360	Total/NA	Solid	3546	
MB 280-436699/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 437229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-12	P-S3-051118-240	Total/NA	Solid	8015D DRO	436699
280-116615-13	P-S3-051118-360	Total/NA	Solid	8015D DRO	436699
MB 280-436699/1-A	Method Blank	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699
LCS 280-436699/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	436699

General Chemistry

Analysis Batch: 436543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116615-12	P-S3-051118-240	Total/NA	Solid	Moisture	
280-116615-13	P-S3-051118-360	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Client Sample ID: TB-S3-051118-01
Date Collected: 11/05/18 11:05
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437913	11/16/18 17:39	GPM	TAL DEN

Client Sample ID: P-S3-051118-240
Date Collected: 11/04/18 11:25
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S3-051118-240
Date Collected: 11/04/18 11:25
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-12
Matrix: Solid
Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.473 g	5 mL	437770	11/04/18 11:25	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 20:04	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 05:01	CSM	TAL DEN

Client Sample ID: P-S3-051118-360
Date Collected: 11/05/18 11:35
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			436543	11/06/18 17:42	SVC	TAL DEN

Client Sample ID: P-S3-051118-360
Date Collected: 11/05/18 11:35
Date Received: 11/06/18 08:55

Lab Sample ID: 280-116615-13
Matrix: Solid
Percent Solids: 98.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.595 g	5 mL	437770	11/05/18 11:35	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 20:28	GPM	TAL DEN
Total/NA	Prep	3546			16.8 g	1 mL	436699	11/07/18 16:21	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			437229	11/13/18 05:23	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116615-3

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Messenger	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): FedEx 4433 3393 0891	COC No: COC1-S3-TA-20181105
Client Contact: Pamela Moss	Phone: (508) 789-0624	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water			Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	F	N	N	F	A	A	R	N	A			X	
TB-S3-051118-01	05NOV18	1105	G	W	N	N	—	—	—	—	—	—	—	—	X	—	—	3	
P-S3-051118-240	04NOV18	1125	G	S	N	N	—	—	—	X	X	—	—	—	—	—	—	3	
P-S3-051118-360	05NOV18	1135	G	S	N	N	—	—	—	X	X	—	—	—	—	—	—	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client · ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Joshua Messenger	05NOV18 1230	EA		11/6/18 0855	TADEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116615-3

Login Number: 116615
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116899-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/30/2018 12:03:40 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116899-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology
Project: Kirtland BFF Vadose Zone Coring
Report Number: 280-116899-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 11/13/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.1 C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

The following samples were received at the laboratory after the 7 day holding time for extraction had expired: RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2. Samples were collected on 11/5/2018, received at the laboratory on 11/13/2108, and extracted on 11/14/2018. As instructed by the client, the data have been reported.

VOLATILE ORGANIC COMPOUNDS (GC)
Samples RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2) were analyzed for volatile organic compounds (GC) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)
Samples RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2) were analyzed for gasoline range organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/17/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ETHYLENE DIBROMIDE

Job ID: 280-116899-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2) were analyzed for Ethylene Dibromide in accordance with 8011. The samples were prepared on 11/16/2018 and analyzed on 11/19/2018 and 11/20/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2) were analyzed for Diesel Range Organics in accordance with 8015D DRO. The samples were prepared on 11/14/2018 and analyzed on 11/20/2018.

The following samples were received at the laboratory after the 7 day holding time for extraction had expired: RB-S4-051118-01 (280-116899-1) and RB-S4-051118-02 (280-116899-2. Samples were collected on 11/5/2018, received at the laboratory on 11/13/2108, and extracted on 11/14/2018. As instructed by the client, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Client Sample ID: RB-S4-051118-01 — Lab Sample ID: 280-116899-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.81	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	14	J	25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.11	J H	0.26	0.12	0.034	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.068	J H	0.52	0.13	0.058	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S4-051118-02 — Lab Sample ID: 280-116899-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.65	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	0.079	J H	0.25	0.12	0.032	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116899-1	RB-S4-051118-01	Water	11/05/18 09:43	11/13/18 12:37
280-116899-2	RB-S4-051118-02	Water	11/05/18 09:20	11/13/18 12:37

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S4-051118-01
Date Collected: 11/05/18 09:43
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		11/18/18 16:57	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/18/18 16:57	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 16:57	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/18/18 16:57	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/18/18 16:57	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/18/18 16:57	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/18/18 16:57	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/18/18 16:57	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/18/18 16:57	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/18/18 16:57	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 16:57	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/18/18 16:57	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/18/18 16:57	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 16:57	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 16:57	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 16:57	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 16:57	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 16:57	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/18/18 16:57	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/18/18 16:57	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 16:57	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 16:57	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 16:57	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 16:57	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 16:57	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 16:57	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 16:57	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/18/18 16:57	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/18/18 16:57	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 16:57	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 16:57	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/18/18 16:57	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/18/18 16:57	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/18/18 16:57	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 16:57	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S4-051118-01
Date Collected: 11/05/18 09:43
Date Received: 11/13/18 12:37
Lab Sample ID: 280-116899-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 16:57	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 16:57	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 16:57	1
Toluene	**0.81**	**J**	1.0	0.40	0.17	ug/L		11/18/18 16:57	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 16:57	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/18/18 16:57	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/18/18 16:57	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 16:57	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/18/18 16:57	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 16:57	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 16:57	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/18/18 16:57	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 16:57	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/18/18 16:57	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 16:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*11/18/18 16:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*		*11/18/18 16:57*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*11/18/18 16:57*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*11/18/18 16:57*	*1*

Client Sample ID: RB-S4-051118-02
Date Collected: 11/05/18 09:20
Date Received: 11/13/18 12:37
Lab Sample ID: 280-116899-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		11/18/18 17:17	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/18/18 17:17	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 17:17	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/18/18 17:17	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/18/18 17:17	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/18/18 17:17	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/18/18 17:17	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/18/18 17:17	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/18/18 17:17	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/18/18 17:17	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 17:17	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/18/18 17:17	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/18/18 17:17	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S4-051118-02
Date Collected: 11/05/18 09:20
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 17:17	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 17:17	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 17:17	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 17:17	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 17:17	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/18/18 17:17	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/18/18 17:17	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 17:17	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 17:17	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 17:17	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 17:17	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 17:17	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 17:17	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 17:17	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/18/18 17:17	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/18/18 17:17	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 17:17	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 17:17	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/18/18 17:17	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/18/18 17:17	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/18/18 17:17	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 17:17	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 17:17	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 17:17	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 17:17	1
Toluene	**0.65**	**J**	1.0	0.40	0.17	ug/L		11/18/18 17:17	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 17:17	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/18/18 17:17	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/18/18 17:17	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 17:17	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/18/18 17:17	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 17:17	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 17:17	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/18/18 17:17	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 17:17	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/18/18 17:17	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/18/18 17:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*		*11/18/18 17:17*	*1*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*11/18/18 17:17*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*11/18/18 17:17*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S4-051118-01
Date Collected: 11/05/18 09:43
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	14	J	25	25	10	ug/L		11/17/18 01:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*82 - 110*		*11/17/18 01:02*	*1*

Client Sample ID: RB-S4-051118-02
Date Collected: 11/05/18 09:20
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/17/18 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*82 - 110*		*11/17/18 01:25*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S4-051118-01
Date Collected: 11/05/18 09:43
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/20/18 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*122*		*70 - 130*	*11/16/18 13:56*	*11/20/18 18:37*	*1*

Client Sample ID: RB-S4-051118-02
Date Collected: 11/05/18 09:20
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		11/19/18 22:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*117*	*M*	*70 - 130*	*11/16/18 13:56*	*11/19/18 22:20*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S4-051118-01
Date Collected: 11/05/18 09:43
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.11	J H	0.26	0.12	0.034	mg/L		11/20/18 23:30	1
Motor Oil (C20-C38)	0.068	J H	0.52	0.13	0.058	mg/L		11/20/18 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*78*		*56 - 125*	*11/14/18 13:29*	*11/20/18 23:30*	*1*
n-Octacosane	*80*		*60 - 142*	*11/14/18 13:29*	*11/20/18 23:30*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S4-051118-02
Date Collected: 11/05/18 09:20
Date Received: 11/13/18 12:37

Lab Sample ID: 280-116899-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.079**	**J H**	0.25	0.12	0.032	mg/L		11/20/18 23:52	1
Motor Oil (C20-C38)	0.12	U H	0.50	0.12	0.056	mg/L		11/20/18 23:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*81*		*56 - 125*	*11/14/18 13:29*	*11/20/18 23:52*	*1*
n-Octacosane	*92*		*60 - 142*	*11/14/18 13:29*	*11/20/18 23:52*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-116899-1	RB-S4-051118-01	100	93	97	99
280-116899-2	RB-S4-051118-02	97	97	96	98
LCS 280-438049/5	Lab Control Sample	102	102	96	101
MB 280-438049/4	Method Blank	101	99	98	94

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116899-1	RB-S4-051118-01	95
280-116899-2	RB-S4-051118-02	98
LCS 280-437913/3	Lab Control Sample	97
MB 280-437913/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-116899-1	RB-S4-051118-01	122
280-116899-2	RB-S4-051118-02	117 M
LCS 280-437939/2-A	Lab Control Sample	115
LCSD 280-437939/3-A	Lab Control Sample Dup	114
MB 280-437939/4-A	Method Blank	112

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-116899-1	RB-S4-051118-01	78	80
280-116899-2	RB-S4-051118-02	81	92
LCS 280-437590/2-A	Lab Control Sample	78	87
LCSD 280-437590/3-A	Lab Control Sample Dup	82	93

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
MB 280-437590/1-A	Method Blank	82	89								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-438049/4
Matrix: Water
Analysis Batch: 438049

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/18/18 14:15	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/18/18 14:15	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 14:15	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/18/18 14:15	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/18/18 14:15	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/18/18 14:15	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/18/18 14:15	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/18/18 14:15	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/18/18 14:15	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/18/18 14:15	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 14:15	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/18/18 14:15	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/18/18 14:15	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 14:15	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 14:15	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 14:15	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 14:15	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/18/18 14:15	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/18/18 14:15	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/18/18 14:15	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 14:15	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 14:15	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 14:15	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 14:15	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/18/18 14:15	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 14:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 14:15	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/18/18 14:15	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/18/18 14:15	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 14:15	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 14:15	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/18/18 14:15	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/18/18 14:15	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/18/18 14:15	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/18/18 14:15	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-438049/4
Matrix: Water
Analysis Batch: 438049

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 14:15	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 14:15	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/18/18 14:15	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 14:15	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/18/18 14:15	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/18/18 14:15	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/18/18 14:15	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/18/18 14:15	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/18/18 14:15	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/18/18 14:15	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/18/18 14:15	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/18/18 14:15	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/18/18 14:15	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/18/18 14:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*89 - 112*		*11/18/18 14:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*		*11/18/18 14:15*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*11/18/18 14:15*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*11/18/18 14:15*	*1*

Lab Sample ID: LCS 280-438049/5
Matrix: Water
Analysis Batch: 438049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.4		ug/L		87	39 - 160
Benzene	5.00	5.38		ug/L		108	79 - 120
Bromobenzene	5.00	5.10		ug/L		102	80 - 120
Bromochloromethane	5.00	5.36		ug/L		107	78 - 123
Bromodichloromethane	5.00	5.54		ug/L		111	79 - 125
Bromoform	5.00	5.29		ug/L		106	66 - 130
Bromomethane	5.00	4.58		ug/L		92	53 - 141
2-Butanone (MEK)	20.0	22.6		ug/L		113	56 - 143
n-Butylbenzene	5.00	5.22		ug/L		104	75 - 128
sec-Butylbenzene	5.00	5.45		ug/L		109	77 - 126
tert-Butylbenzene	5.00	5.01		ug/L		100	78 - 124
Carbon disulfide	5.00	4.77		ug/L		95	64 - 133
Carbon tetrachloride	5.00	5.40		ug/L		108	72 - 136
Chlorobenzene	5.00	5.53		ug/L		111	82 - 118
Chloroethane	5.00	5.17		ug/L		103	60 - 138
Chloroform	5.00	5.45		ug/L		109	79 - 124
Chloromethane	5.00	4.72		ug/L		94	50 - 139
4-Chlorotoluene	5.00	5.56		ug/L		111	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438049/5
Matrix: Water
Analysis Batch: 438049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.55		ug/L		111	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.10		ug/L		102	62 - 128
Dichlorodifluoromethane	5.00	3.59		ug/L		72	32 - 152
Dibromomethane	5.00	5.44		ug/L		109	79 - 123
Ethylene Dibromide	5.00	5.57		ug/L		111	77 - 121
1,2-Dichlorobenzene	5.00	5.28		ug/L		106	80 - 119
1,3-Dichlorobenzene	5.00	5.17		ug/L		103	80 - 119
1,4-Dichlorobenzene	5.00	5.11		ug/L		102	79 - 118
1,1-Dichloroethane	5.00	5.43		ug/L		109	77 - 125
1,2-Dichloroethane	5.00	5.61		ug/L		112	73 - 128
1,1-Dichloroethene	5.00	4.83		ug/L		97	71 - 131
cis-1,2-Dichloroethene	5.00	5.29		ug/L		106	78 - 123
trans-1,2-Dichloroethene	5.00	5.47		ug/L		109	75 - 124
1,2-Dichloropropane	5.00	5.60		ug/L		112	78 - 122
1,3-Dichloropropane	5.00	5.45		ug/L		109	80 - 119
2,2-Dichloropropane	5.00	5.27		ug/L		105	60 - 139
1,1-Dichloropropene	5.00	5.38		ug/L		108	79 - 125
cis-1,3-Dichloropropene	5.00	5.84		ug/L		117	75 - 124
trans-1,3-Dichloropropene	5.00	5.59		ug/L		112	73 - 127
Ethylbenzene	5.00	5.52		ug/L		110	79 - 121
2-Hexanone	20.0	20.0		ug/L		100	57 - 139
Hexachlorobutadiene	5.00	5.02		ug/L		100	66 - 134
Isopropylbenzene	5.00	5.33		ug/L		107	72 - 131
4-Isopropyltoluene	5.00	5.31		ug/L		106	77 - 127
Methylene Chloride	5.00	4.72	J	ug/L		94	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	21.7		ug/L		108	67 - 130
Methyl tert-butyl ether	5.00	5.38		ug/L		108	71 - 124
Naphthalene	5.00	5.03		ug/L		101	61 - 128
N-Propylbenzene	5.00	5.43		ug/L		109	76 - 126
Styrene	5.00	5.77		ug/L		115	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.65		ug/L		113	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.38		ug/L		108	71 - 121
Tetrachloroethene	5.00	5.29		ug/L		106	74 - 129
Toluene	5.00	5.57		ug/L		111	80 - 121
1,2,3-Trichlorobenzene	5.00	4.84		ug/L		97	69 - 129
1,1,1-Trichloroethane	5.00	5.28		ug/L		106	74 - 131
1,1,2-Trichloroethane	5.00	5.68		ug/L		114	80 - 119
Trichloroethene	5.00	5.43		ug/L		109	79 - 123
Trichlorofluoromethane	5.00	4.71		ug/L		94	65 - 141
1,2,4-Trichlorobenzene	5.00	5.17		ug/L		103	69 - 130
1,2,3-Trichloropropane	5.00	5.30		ug/L		106	73 - 122
1,2,4-Trimethylbenzene	5.00	5.29		ug/L		106	76 - 124
1,3,5-Trimethylbenzene	5.00	5.19		ug/L		104	75 - 124
Vinyl chloride	5.00	5.10		ug/L		102	58 - 137
o-Xylene	5.00	5.68		ug/L		114	78 - 122
m-Xylene & p-Xylene	5.00	5.56		ug/L		111	80 - 121
2-Chlorotoluene	5.00	5.20		ug/L		104	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438049/5
Matrix: Water
Analysis Batch: 438049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437913/5
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/16/18 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*11/16/18 13:27*	*1*

Lab Sample ID: LCS 280-437913/3
Matrix: Water
Analysis Batch: 437913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	100		ug/L		100	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-437939/4-A
Matrix: Water
Analysis Batch: 438172

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437939

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/19/18 20:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*112*		*70 - 130*	*11/16/18 13:56*	*11/19/18 20:06*	*1*

Lab Sample ID: LCS 280-437939/2-A
Matrix: Water
Analysis Batch: 438172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.220	M	ug/L		88	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-437939/2-A
Matrix: Water
Analysis Batch: 438172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437939

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*115*		*70 - 130*

Lab Sample ID: LCSD 280-437939/3-A
Matrix: Water
Analysis Batch: 438172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437939

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.223	M	ug/L		89	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*114*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-437590/1-A
Matrix: Water
Analysis Batch: 438285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437590

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		11/20/18 14:48	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		11/20/18 14:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*56 - 125*	*11/14/18 13:29*	*11/20/18 14:48*	*1*
n-Octacosane	*89*		*60 - 142*	*11/14/18 13:29*	*11/20/18 14:48*	*1*

Lab Sample ID: LCS 280-437590/2-A
Matrix: Water
Analysis Batch: 438285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437590

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]			2.00	1.81		mg/L		91	36 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*56 - 125*
n-Octacosane	*87*		*60 - 142*

Lab Sample ID: LCSD 280-437590/3-A
Matrix: Water
Analysis Batch: 438285

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437590

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.89		mg/L		95	36 - 132	4	30

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 280-437590/3-A
Matrix: Water
Analysis Batch: 438285

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437590

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl (Surr)	82		56 - 125
n-Octacosane	93		60 - 142

GC/MS VOA

Analysis Batch: 438049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	8260B	
280-116899-2	RB-S4-051118-02	Total/NA	Water	8260B	
MB 280-438049/4	Method Blank	Total/NA	Water	8260B	
LCS 280-438049/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 437913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	8015D GRO	
280-116899-2	RB-S4-051118-02	Total/NA	Water	8015D GRO	
MB 280-437913/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-437913/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 437590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	3510C	
280-116899-2	RB-S4-051118-02	Total/NA	Water	3510C	
MB 280-437590/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-437590/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-437590/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 437939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	8011	
280-116899-2	RB-S4-051118-02	Total/NA	Water	8011	
MB 280-437939/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-437939/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-437939/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 438172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-2	RB-S4-051118-02	Total/NA	Water	8011	437939
MB 280-437939/4-A	Method Blank	Total/NA	Water	8011	437939
LCS 280-437939/2-A	Lab Control Sample	Total/NA	Water	8011	437939
LCSD 280-437939/3-A	Lab Control Sample Dup	Total/NA	Water	8011	437939

Analysis Batch: 438285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	8015D DRO	437590
280-116899-2	RB-S4-051118-02	Total/NA	Water	8015D DRO	437590
MB 280-437590/1-A	Method Blank	Total/NA	Water	8015D DRO	437590
LCS 280-437590/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	437590
LCSD 280-437590/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	437590

Analysis Batch: 438321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116899-1	RB-S4-051118-01	Total/NA	Water	8011	437939

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Client Sample ID: RB-S4-051118-01

Lab Sample ID: 280-116899-1

Date Collected: 11/05/18 09:43

Matrix: Water

Date Received: 11/13/18 12:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	438049	11/18/18 16:57	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437913	11/17/18 01:02	GPM	TAL DEN
Total/NA	Prep	8011			35 mL	35 mL	437939	11/16/18 13:56	SU	TAL DEN
Total/NA	Analysis	8011		1			438321	11/20/18 18:37	JLW	TAL DEN
Total/NA	Prep	3510C			965.1 mL	1 mL	437590	11/14/18 13:29	AAG	TAL DEN
Total/NA	Analysis	8015D DRO		1			438285	11/20/18 23:30	CSM	TAL DEN

Client Sample ID: RB-S4-051118-02

Lab Sample ID: 280-116899-2

Date Collected: 11/05/18 09:20

Matrix: Water

Date Received: 11/13/18 12:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	438049	11/18/18 17:17	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	437913	11/17/18 01:25	GPM	TAL DEN
Total/NA	Prep	8011			34.1 mL	35 mL	437939	11/16/18 13:56	SU	TAL DEN
Total/NA	Analysis	8011		1			438172	11/19/18 22:20	JLW	TAL DEN
Total/NA	Prep	3510C			1009.7 mL	1 mL	437590	11/14/18 13:29	AAG	TAL DEN
Total/NA	Analysis	8015D DRO		1			438285	11/20/18 23:52	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116899-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Correct Date - Pmoss 11/13/18

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4173 37972 FedEx	COC No: COC 1-54-TA-20181112
Client Contact: Pamela Moss	Phone: 575-430-5878	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water		Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A			
RB-54-051118-01	05/11/18	0943	G	W	N	N	—					X	X	X	X	—	10	
RB-54-051118-02	05/11/18	0920	G	W	N	N	—					X	X	X	X	—	10	
11/5/18 Pmoss 11/13/18																		

280-116899 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
X [signature]	11/12/18 1800	EA	[signature]	11/13/18 0900	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.4 +0.3, IR4, xFed by [signature], 11/13/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116899-1

Login Number: 116899
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-116903-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Darlene Bandy

Authorized for release by:
11/29/2018 12:07:59 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-116903-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-116903-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/13/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.1° C.

Receipt Exceptions

One of two Terracore vials for sample ID P-S2-08118-278 was received with a time given as 1118 on the corresponding label, and 1113 on the Chain of Custody. The sample has been logged per the chain of custody.

VOLATILE PETROLEUM HYDROCARBONS (GC)

Samples P-S2-061118-050 (280-116903-2), P-S2-061118-105 (280-116903-3) and P-S2-081118-278 (280-116903-4) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 11/06/2018 and 11/08/2018 and analyzed on 11/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample TB-S2-061118-01 (280-116903-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-116903-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

DIESEL RANGE ORGANICS (DRO)

Samples P-S2-061118-050 (280-116903-2), P-S2-061118-105 (280-116903-3) and P-S2-081118-278 (280-116903-4) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/19/2018 and analyzed on 11/22/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-438060/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection in the method blank was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-S2-061118-050 (280-116903-2), P-S2-061118-105 (280-116903-3) and P-S2-081118-278 (280-116903-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Client Sample ID: TB-S2-061118-01 — Lab Sample ID: 280-116903-1

No Detections.

Client Sample ID: P-S2-061118-050 — Lab Sample ID: 280-116903-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.5	J	8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S2-061118-105 — Lab Sample ID: 280-116903-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.9	J	8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S2-081118-278 — Lab Sample ID: 280-116903-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.2	J	7.8	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-116903-1	TB-S2-061118-01	Water	11/06/18 17:00	11/13/18 09:00
280-116903-2	P-S2-061118-050	Solid	11/06/18 10:56	11/13/18 09:00
280-116903-3	P-S2-061118-105	Solid	11/06/18 14:36	11/13/18 09:00
280-116903-4	P-S2-081118-278	Solid	11/08/18 11:13	11/13/18 09:00

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S2-061118-01 — **Lab Sample ID: 280-116903-1**
Date Collected: 11/06/18 17:00 — **Matrix: Water**
Date Received: 11/13/18 09:00

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/18/18 12:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*82 - 110*		*11/18/18 12:57*	*1*

Client Sample ID: P-S2-061118-050 — **Lab Sample ID: 280-116903-2**
Date Collected: 11/06/18 10:56 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 88.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.6	1.4	0.42	mg/Kg	☼	11/15/18 20:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*	*11/06/18 10:56*	*11/15/18 20:51*	*1*

Client Sample ID: P-S2-061118-105 — **Lab Sample ID: 280-116903-3**
Date Collected: 11/06/18 14:36 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 97.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.41	mg/Kg	☼	11/15/18 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*	*11/06/18 14:36*	*11/15/18 21:15*	*1*

Client Sample ID: P-S2-081118-278 — **Lab Sample ID: 280-116903-4**
Date Collected: 11/08/18 11:13 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.6	1.4	0.42	mg/Kg	☼	11/15/18 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/08/18 11:13*	*11/15/18 22:02*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S2-061118-050 — **Lab Sample ID: 280-116903-2**
Date Collected: 11/06/18 10:56 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 88.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.5**	**J**	8.0	4.0	1.4	mg/Kg	☼	11/22/18 02:42	1
Motor Oil (C20-C38)	24	U	24	24	7.9	mg/Kg	☼	11/22/18 02:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*45 - 130*	*11/19/18 06:40*	*11/22/18 02:42*	*1*
n-Octacosane	*55*		*25 - 162*	*11/19/18 06:40*	*11/22/18 02:42*	*1*

Client Sample ID: P-S2-061118-105 — **Lab Sample ID: 280-116903-3**
Date Collected: 11/06/18 14:36 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 97.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.9**	**J**	8.2	4.1	1.4	mg/Kg	☼	11/22/18 03:02	1
Motor Oil (C20-C38)	24	U	25	24	8.0	mg/Kg	☼	11/22/18 03:02	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*78*		*45 - 130*	*11/19/18 06:40*	*11/22/18 03:02*	*1*
n-Octacosane	*47*	*M*	*25 - 162*	*11/19/18 06:40*	*11/22/18 03:02*	*1*

Client Sample ID: P-S2-081118-278 — **Lab Sample ID: 280-116903-4**
Date Collected: 11/08/18 11:13 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.2**	**J**	7.8	3.9	1.3	mg/Kg	☼	11/22/18 04:42	1
Motor Oil (C20-C38)	23	U	23	23	7.6	mg/Kg	☼	11/22/18 04:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*78*		*45 - 130*	*11/19/18 06:40*	*11/22/18 04:42*	*1*
n-Octacosane	*71*	*M*	*25 - 162*	*11/19/18 06:40*	*11/22/18 04:42*	*1*

General Chemistry

Client Sample ID: P-S2-061118-050 — **Lab Sample ID: 280-116903-2**
Date Collected: 11/06/18 10:56 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 88.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.6**		0.1	0.05	0.1	%		11/13/18 17:46	1

Client Sample ID: P-S2-061118-105 — **Lab Sample ID: 280-116903-3**
Date Collected: 11/06/18 14:36 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 97.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**2.4**		0.1	0.05	0.1	%		11/13/18 17:46	1

Client Sample ID: P-S2-081118-278 — **Lab Sample ID: 280-116903-4**
Date Collected: 11/08/18 11:13 — **Matrix: Solid**
Date Received: 11/13/18 09:00 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.9**		0.1	0.05	0.1	%		11/13/18 17:46	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-116903-2	P-S2-061118-050	98
280-116903-3	P-S2-061118-105	91
280-116903-4	P-S2-081118-278	90
LCS 280-437770/1-A	Lab Control Sample	99
MB 280-437770/2-A	Method Blank	101

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-116903-1	TB-S2-061118-01	100
LCS 280-438033/3	Lab Control Sample	94
MB 280-438033/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-116903-2	P-S2-061118-050	65	55
280-116903-3	P-S2-061118-105	78	47 M
280-116903-3 MS	P-S2-061118-105	81	75 M
280-116903-3 MS	P-S2-061118-105	89	55 M
280-116903-3 MSD	P-S2-061118-105	78	57 M
280-116903-3 MSD	P-S2-061118-105	86	63
280-116903-4	P-S2-081118-278	78	71 M
LCS 280-438060/2-A	Lab Control Sample	84	37 M
LCS 280-438060/3-A	Lab Control Sample	89	57
MB 280-438060/1-A	Method Blank	78	46 M

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-437770/2-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437770

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/15/18 15:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*	*11/15/18 12:57*	*11/15/18 15:57*	*1*

Lab Sample ID: LCS 280-437770/1-A
Matrix: Solid
Analysis Batch: 437796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	5.50	5.32		mg/Kg		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: MB 280-438033/5
Matrix: Water
Analysis Batch: 438033

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/17/18 14:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*11/17/18 14:22*	*1*

Lab Sample ID: LCS 280-438033/3
Matrix: Water
Analysis Batch: 438033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	101	86.0		ug/L		85	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*94*		*82 - 110*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-438060/1-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438060

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.53	J	7.1	3.6	1.2	mg/Kg		11/22/18 01:42	1
Motor Oil (C20-C38)	21	U	21	21	7.0	mg/Kg		11/22/18 01:42	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-438060/1-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438060

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	78		45 - 130	11/19/18 06:40	11/22/18 01:42	1
n-Octacosane	46	M	25 - 162	11/19/18 06:40	11/22/18 01:42	1

Lab Sample ID: LCS 280-438060/2-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	126	108		mg/Kg		86	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	84		45 - 130
n-Octacosane	37	M	25 - 162

Lab Sample ID: LCS 280-438060/3-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	306	305		mg/Kg		100	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	89		45 - 130
n-Octacosane	57		25 - 162

Lab Sample ID: 280-116903-3 MS
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: P-S2-061118-105
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	3.9	J	137	121		mg/Kg	☼	86	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	81		45 - 130
n-Octacosane	75	M	25 - 162

Lab Sample ID: 280-116903-3 MS
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: P-S2-061118-105
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	24	U	336	314		mg/Kg	☼	93	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	89		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-116903-3 MS
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: P-S2-061118-105
Prep Type: Total/NA
Prep Batch: 438060

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane	*55*	*M*	*25 - 162*

Lab Sample ID: 280-116903-3 MSD
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: P-S2-061118-105
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	3.9	J	136	112		mg/Kg	☼	80	38 - 132	8	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*57*	*M*	*25 - 162*

Lab Sample ID: 280-116903-3 MSD
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: P-S2-061118-105
Prep Type: Total/NA
Prep Batch: 438060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	24	U	336	301		mg/Kg	☼	90	45 - 130	4	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*63*		*25 - 162*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

GC VOA

Prep Batch: 437770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-2	P-S2-061118-050	Total/NA	Solid	5035	
280-116903-3	P-S2-061118-105	Total/NA	Solid	5035	
280-116903-4	P-S2-081118-278	Total/NA	Solid	5035	
MB 280-437770/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 437796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-2	P-S2-061118-050	Total/NA	Solid	8015D GRO	437770
280-116903-3	P-S2-061118-105	Total/NA	Solid	8015D GRO	437770
280-116903-4	P-S2-081118-278	Total/NA	Solid	8015D GRO	437770
MB 280-437770/2-A	Method Blank	Total/NA	Solid	8015D GRO	437770
LCS 280-437770/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	437770

Analysis Batch: 438033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-1	TB-S2-061118-01	Total/NA	Water	8015D GRO	
MB 280-438033/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-438033/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-2	P-S2-061118-050	Total/NA	Solid	3546	
280-116903-3	P-S2-061118-105	Total/NA	Solid	3546	
280-116903-4	P-S2-081118-278	Total/NA	Solid	3546	
MB 280-438060/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-438060/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-438060/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-116903-3 MS	P-S2-061118-105	Total/NA	Solid	3546	
280-116903-3 MS	P-S2-061118-105	Total/NA	Solid	3546	
280-116903-3 MSD	P-S2-061118-105	Total/NA	Solid	3546	
280-116903-3 MSD	P-S2-061118-105	Total/NA	Solid	3546	

Analysis Batch: 438400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-2	P-S2-061118-050	Total/NA	Solid	8015D DRO	438060
280-116903-3	P-S2-061118-105	Total/NA	Solid	8015D DRO	438060
280-116903-4	P-S2-081118-278	Total/NA	Solid	8015D DRO	438060
MB 280-438060/1-A	Method Blank	Total/NA	Solid	8015D DRO	438060
LCS 280-438060/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438060
LCS 280-438060/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438060
280-116903-3 MS	P-S2-061118-105	Total/NA	Solid	8015D DRO	438060
280-116903-3 MS	P-S2-061118-105	Total/NA	Solid	8015D DRO	438060
280-116903-3 MSD	P-S2-061118-105	Total/NA	Solid	8015D DRO	438060
280-116903-3 MSD	P-S2-061118-105	Total/NA	Solid	8015D DRO	438060

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

General Chemistry

Analysis Batch: 437457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-116903-2	P-S2-061118-050	Total/NA	Solid	Moisture	
280-116903-3	P-S2-061118-105	Total/NA	Solid	Moisture	
280-116903-4	P-S2-081118-278	Total/NA	Solid	Moisture	

Client Sample ID: TB-S2-061118-01

Lab Sample ID: 280-116903-1

Date Collected: 11/06/18 17:00

Matrix: Water

Date Received: 11/13/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	438033	11/18/18 12:57	GPM	TAL DEN

Client Sample ID: P-S2-061118-050

Lab Sample ID: 280-116903-2

Date Collected: 11/06/18 10:56

Matrix: Solid

Date Received: 11/13/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437457	11/13/18 17:46	EC	TAL DEN

Client Sample ID: P-S2-061118-050

Lab Sample ID: 280-116903-2

Date Collected: 11/06/18 10:56

Matrix: Solid

Date Received: 11/13/18 09:00

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.821 g	5 mL	437770	11/06/18 10:56	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 20:51	GPM	TAL DEN
Total/NA	Prep	3546			16.9 g	1 mL	438060	11/19/18 06:40	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			438400	11/22/18 02:42	CSM	TAL DEN

Client Sample ID: P-S2-061118-105

Lab Sample ID: 280-116903-3

Date Collected: 11/06/18 14:36

Matrix: Solid

Date Received: 11/13/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437457	11/13/18 17:46	EC	TAL DEN

Client Sample ID: P-S2-061118-105

Lab Sample ID: 280-116903-3

Date Collected: 11/06/18 14:36

Matrix: Solid

Date Received: 11/13/18 09:00

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.168 g	5 mL	437770	11/06/18 14:36	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 21:15	GPM	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	438060	11/19/18 06:40	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			438400	11/22/18 03:02	CSM	TAL DEN

Client Sample ID: P-S2-081118-278

Lab Sample ID: 280-116903-4

Date Collected: 11/08/18 11:13

Matrix: Solid

Date Received: 11/13/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437457	11/13/18 17:46	EC	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Client Sample ID: P-S2-081118-278
Date Collected: 11/08/18 11:13
Date Received: 11/13/18 09:00

Lab Sample ID: 280-116903-4
Matrix: Solid
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.142 g	5 mL	437770	11/08/18 11:13	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	437796	11/15/18 22:02	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	438060	11/19/18 06:40	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			438400	11/22/18 04:42	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-116903-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

P/Z correct Sample ID and Date Pmoss 11/13/18

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443733382 7690	COC No: COC 1-52-TA-20181112
Client Contact: Pamela Moss	Phone: 575-430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: Pm 11/13/18			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification (061118 Pm 11/13/18)	Sample Date (11/6/18)	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-52-121118-01	11/12/18	1700	G	W	V	N								X	X	2	
P-52-061118-050	11/6/18	1056	G	S	N	N				X	X					3	
P-52-061118-105	11/6/18	1436	G	S	N	N				X	X					3	
P-52-081118-278	11/8/18	1117	G	S	N	N				X	X					3	

280-116903 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
X [signature]	11/12/18 1800	EA	[signature]	11/13/18 0900	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.4, +0.7, IR9, x Fered by SG, 11/13/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-116903-1

Login Number: 116903
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117064-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/11/2018 11:08:14 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117064-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117064-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/16/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.1° C.

Receipt Exceptions

Samples 280-117064-2 and 280-117064-3 list a collection date of 11/13/18 at 1009. Containers were not received at the lab until 11/16 at 0910, and were received outside the 48 hour holding time for DI water terracores.

One of Two VOA vials were noted as containing a bubble greater than 6mm for the following samples and analysis: Sample ID TB-S2-151118 for methods 8260B, 8011 EDB and 8015D_GRO.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S2-131118-338 (280-117064-2), V-S2-141118-404 (280-117064-4) and V-S2-151118-419 (280-117064-6) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/13/2018, 11/14/2018 and 11/15/2018 and analyzed on 11/23/2018.

2-Hexanone was detected in method blank MB 280-438586/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". This is considered acceptable because the detection was below one-half the LOQ.

Job ID: 280-117064-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Acetone, a common laboratory contaminant, was detected in method blank MB 280-438586/1-A at level exceeding the LOQ. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. Samples V-S2-131118-338 (280-117064-2), V-S2-141118-404 (280-117064-4) had detections below the LOD; however, sample V-S2-151118-419 (280-117064-6) had a detection >LOQ but less than 10 times the concentration in the MB. The samples were not re-analyzed because the holding time had expired. As instructed by the client, the data have been qualified and reported.

The continuing calibration verification (CCV) associated with batch 280-438555 recovered above the upper control limit for Bromomethane (+21.6%D). The bias was high and the samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S2-151118-01 (280-117064-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S2-131118-338 (280-117064-2), V-S2-141118-404 (280-117064-4) and V-S2-151118-419 (280-117064-6) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/08/2018.

Compound 1,2-Dibromo-3-Chloropropane, 1,2-Dibromopropane, 1,2,3-Trichloropropane, and 1,2-Dibromoethane eluted outside the retention time window on both analytical columns for the following sample: (ICV 280-439490/13). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S2-151118-01 (280-117064-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/23/2018 and analyzed on 11/30/2018.

Compound 1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: TB-S2-151118-01 (280-117064-1). This retention time shift was taken into account when reviewing the sample(s) for target compounds. All analytes were non-detect.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S2-131118-338 (280-117064-3), P-S2-141118-404 (280-117064-5) and P-S2-151118-419 (280-117064-7) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/13/2018, 11/14/2018 and 11/15/2018 and analyzed on 11/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S2-151118-01 (280-117064-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/26/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

samples P-S2-131118-338 (280-117064-3), P-S2-141118-404 (280-117064-5) and P-S2-151118-419 (280-117064-7) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/20/2018 and 11/28/2018 and analyzed on 11/21/2018 and 11/30/2018.

Job ID: 280-117064-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

o-Terphenyl (Surr) failed the surrogate recovery criteria low for P-S2-151118-419 (280-117064-7). Associated results have been flagged "Q". Refer to the QC report for details. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-438213/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. and has been flagged "J". Refer to the QC report for details. The detection was greater than one-half the LOQ. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. The samples were re-extracted and reanalyzed; however, the method blank for the re-extraction batch, MB 280-438976/1-A, also had a detection greater than one-half the RL. As instructed by the client, the data have been qualified and reported. Sample P-S2-131118-338 (280-117064-3) is reported from the original batch as it was out of hold in the re-extraction batch. Samples P-S2-141118-404 (280-117064-5) and P-S2-151118-419 (280-117064-7) are reported from the re-extraction batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S2-131118-338 (280-117064-2), P-S2-131118-338 (280-117064-3), V-S2-141118-404 (280-117064-4), P-S2-141118-404 (280-117064-5), V-S2-151118-419 (280-117064-6) and P-S2-151118-419 (280-117064-7) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/16/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Client Sample ID: TB-S2-151118-01 — Lab Sample ID: 280-117064-1

No Detections.

Client Sample ID: V-S2-131118-338 — Lab Sample ID: 280-117064-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	10	J B	21	14	5.7	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	3.1	J	5.3	3.4	1.7	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-131118-338 — Lab Sample ID: 280-117064-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.3	J B	8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S2-141118-404 — Lab Sample ID: 280-117064-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	14	J B	23	15	6.1	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	5.0	J	5.7	3.6	1.8	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-141118-404 — Lab Sample ID: 280-117064-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.4	J B	7.7	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S2-151118-419 — Lab Sample ID: 280-117064-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	24	B	22	14	6.0	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-151118-419 — Lab Sample ID: 280-117064-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	20	Q B	7.9	4.0	1.3	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	20	J	24	23	7.7	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117064-1	TB-S2-151118-01	Water	11/15/18 14:00	11/16/18 09:10
280-117064-2	V-S2-131118-338	Solid	11/13/18 10:09	11/16/18 09:10
280-117064-3	P-S2-131118-338	Solid	11/13/18 10:09	11/16/18 09:10
280-117064-4	V-S2-141118-404	Solid	11/14/18 12:02	11/16/18 09:10
280-117064-5	P-S2-141118-404	Solid	11/14/18 12:02	11/16/18 09:10
280-117064-6	V-S2-151118-419	Solid	11/15/18 08:54	11/16/18 09:10
280-117064-7	P-S2-151118-419	Solid	11/15/18 08:54	11/16/18 09:10

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S2-151118-01
Date Collected: 11/15/18 14:00
Date Received: 11/16/18 09:10

Lab Sample ID: 280-117064-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/29/18 14:31	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/29/18 14:31	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 14:31	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/29/18 14:31	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/29/18 14:31	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/29/18 14:31	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/29/18 14:31	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/29/18 14:31	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/29/18 14:31	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/29/18 14:31	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 14:31	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/29/18 14:31	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/29/18 14:31	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 14:31	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 14:31	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 14:31	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 14:31	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 14:31	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/29/18 14:31	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/29/18 14:31	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 14:31	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 14:31	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 14:31	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 14:31	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 14:31	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 14:31	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 14:31	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/29/18 14:31	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/29/18 14:31	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 14:31	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 14:31	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		11/29/18 14:31	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/29/18 14:31	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/29/18 14:31	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 14:31	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S2-151118-01
Date Collected: 11/15/18 14:00
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 14:31	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 14:31	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 14:31	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 14:31	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/29/18 14:31	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/29/18 14:31	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 14:31	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/29/18 14:31	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 14:31	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 14:31	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/29/18 14:31	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 14:31	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/29/18 14:31	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*89 - 112*		*11/29/18 14:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*81 - 118*		*11/29/18 14:31*	*1*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*		*11/29/18 14:31*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*11/29/18 14:31*	*1*

Client Sample ID: V-S2-131118-338
Date Collected: 11/13/18 10:09
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-2
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.3	1.7	0.60	ug/Kg	☼	11/23/18 17:11	1
1,1,1-Trichloroethane	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/23/18 17:11	1
1,1,2,2-Tetrachloroethane	1.7	U	5.3	1.7	0.65	ug/Kg	☼	11/23/18 17:11	1
1,1,2-Trichloroethane	3.4	U	5.3	3.4	0.94	ug/Kg	☼	11/23/18 17:11	1
1,1-Dichloroethane	0.85	U	5.3	0.85	0.22	ug/Kg	☼	11/23/18 17:11	1
1,1-Dichloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/23/18 17:11	1
1,1-Dichloropropene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/23/18 17:11	1
1,2,3-Trichlorobenzene	1.7	U	5.3	1.7	0.80	ug/Kg	☼	11/23/18 17:11	1
1,2,3-Trichloropropane	3.4	U	5.3	3.4	0.86	ug/Kg	☼	11/23/18 17:11	1
1,2,4-Trichlorobenzene	1.7	U	5.3	1.7	0.78	ug/Kg	☼	11/23/18 17:11	1
1,2,4-Trimethylbenzene	3.4	U	5.3	3.4	0.62	ug/Kg	☼	11/23/18 17:11	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.64	ug/Kg	☼	11/23/18 17:11	1
1,2-Dichlorobenzene	1.7	U	5.3	1.7	0.48	ug/Kg	☼	11/23/18 17:11	1
1,2-Dichloroethane	1.7	U	5.3	1.7	0.74	ug/Kg	☼	11/23/18 17:11	1
1,2-Dichloroethene, Total	1.7	U	5.3	1.7	0.41	ug/Kg	☼	11/23/18 17:11	1
1,2-Dichloropropane	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/23/18 17:11	1
1,3,5-Trimethylbenzene	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/23/18 17:11	1
1,3-Dichlorobenzene	1.7	U	5.3	1.7	0.51	ug/Kg	☼	11/23/18 17:11	1
1,3-Dichloropropane	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/23/18 17:11	1
1,4-Dichlorobenzene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/23/18 17:11	1
2,2-Dichloropropane	1.7	U	5.3	1.7	0.47	ug/Kg	☼	11/23/18 17:11	1
2-Butanone (MEK)	6.8	U	21	6.8	1.9	ug/Kg	☼	11/23/18 17:11	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-131118-338
Date Collected: 11/13/18 10:09
Date Received: 11/16/18 09:10

Lab Sample ID: 280-117064-2
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.7	U	5.3	1.7	0.54	ug/Kg	☼	11/23/18 17:11	1
2-Hexanone	14	U	21	14	5.2	ug/Kg	☼	11/23/18 17:11	1
4-Chlorotoluene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	11/23/18 17:11	1
4-Isopropyltoluene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/23/18 17:11	1
4-Methyl-2-pentanone (MIBK)	14	U	21	14	4.6	ug/Kg	☼	11/23/18 17:11	1
Acetone	**10**	**J B**	21	14	5.7	ug/Kg	☼	11/23/18 17:11	1
Benzene	1.7	U	5.3	1.7	0.50	ug/Kg	☼	11/23/18 17:11	1
Bromobenzene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	11/23/18 17:11	1
Bromoform	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/23/18 17:11	1
Bromomethane	1.7	U Q	11	1.7	0.53	ug/Kg	☼	11/23/18 17:11	1
Carbon disulfide	1.7	U	5.3	1.7	0.45	ug/Kg	☼	11/23/18 17:11	1
Carbon tetrachloride	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/23/18 17:11	1
Chlorobenzene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	11/23/18 17:11	1
Bromochloromethane	0.85	U	5.3	0.85	0.32	ug/Kg	☼	11/23/18 17:11	1
Dibromochloromethane	1.7	U	5.3	1.7	0.61	ug/Kg	☼	11/23/18 17:11	1
Chloroethane	3.4	U	11	3.4	0.95	ug/Kg	☼	11/23/18 17:11	1
Chloroform	0.85	U	11	0.85	0.31	ug/Kg	☼	11/23/18 17:11	1
Chloromethane	1.7	U	11	1.7	0.82	ug/Kg	☼	11/23/18 17:11	1
cis-1,2-Dichloroethene	1.7	U	5.3	1.7	0.60	ug/Kg	☼	11/23/18 17:11	1
cis-1,3-Dichloropropene	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/23/18 17:11	1
Dibromomethane	3.4	U	5.3	3.4	0.89	ug/Kg	☼	11/23/18 17:11	1
Bromodichloromethane	0.85	U	5.3	0.85	0.23	ug/Kg	☼	11/23/18 17:11	1
Dichlorodifluoromethane	1.7	U	11	1.7	0.55	ug/Kg	☼	11/23/18 17:11	1
Ethylbenzene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/23/18 17:11	1
Ethylene Dibromide	1.7	U	5.3	1.7	0.55	ug/Kg	☼	11/23/18 17:11	1
Hexachlorobutadiene	1.7	U	5.3	1.7	0.59	ug/Kg	☼	11/23/18 17:11	1
Isopropylbenzene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/23/18 17:11	1
Methyl tert-butyl ether	0.85	U	21	0.85	0.36	ug/Kg	☼	11/23/18 17:11	1
Methylene Chloride	**3.1**	**J**	5.3	3.4	1.7	ug/Kg	☼	11/23/18 17:11	1
m-Xylene & p-Xylene	3.4	U	3.4	3.4	1.1	ug/Kg	☼	11/23/18 17:11	1
Naphthalene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/23/18 17:11	1
n-Butylbenzene	1.7	U	5.3	1.7	0.60	ug/Kg	☼	11/23/18 17:11	1
N-Propylbenzene	1.7	U	5.3	1.7	0.62	ug/Kg	☼	11/23/18 17:11	1
o-Xylene	1.7	U	5.3	1.7	0.65	ug/Kg	☼	11/23/18 17:11	1
sec-Butylbenzene	1.7	U	5.3	1.7	0.82	ug/Kg	☼	11/23/18 17:11	1
Styrene	1.7	U	5.3	1.7	0.67	ug/Kg	☼	11/23/18 17:11	1
tert-Butylbenzene	1.7	U	5.3	1.7	0.53	ug/Kg	☼	11/23/18 17:11	1
Tetrachloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	11/23/18 17:11	1
Toluene	1.7	U	5.3	1.7	0.73	ug/Kg	☼	11/23/18 17:11	1
trans-1,2-Dichloroethene	0.85	U	5.3	0.85	0.41	ug/Kg	☼	11/23/18 17:11	1
trans-1,3-Dichloropropene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	11/23/18 17:11	1
Trichloroethene	0.85	U	5.3	0.85	0.24	ug/Kg	☼	11/23/18 17:11	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	11/23/18 17:11	1
Vinyl chloride	3.4	U	5.3	3.4	1.4	ug/Kg	☼	11/23/18 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/13/18 10:09*	*11/23/18 17:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/13/18 10:09*	*11/23/18 17:11*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*11/13/18 10:09*	*11/23/18 17:11*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/13/18 10:09*	*11/23/18 17:11*	*1*

Client Sample ID: V-S2-141118-404
Date Collected: 11/14/18 12:02
Date Received: 11/16/18 09:10

Lab Sample ID: 280-117064-4
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.7	1.8	0.64	ug/Kg	☼	11/23/18 17:31	1
1,1,1-Trichloroethane	1.8	U	5.7	1.8	0.59	ug/Kg	☼	11/23/18 17:31	1
1,1,2,2-Tetrachloroethane	1.8	U	5.7	1.8	0.69	ug/Kg	☼	11/23/18 17:31	1
1,1,2-Trichloroethane	3.6	U	5.7	3.6	1.0	ug/Kg	☼	11/23/18 17:31	1
1,1-Dichloroethane	0.91	U	5.7	0.91	0.24	ug/Kg	☼	11/23/18 17:31	1
1,1-Dichloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/23/18 17:31	1
1,1-Dichloropropene	1.8	U	5.7	1.8	0.62	ug/Kg	☼	11/23/18 17:31	1
1,2,3-Trichlorobenzene	1.8	U	5.7	1.8	0.85	ug/Kg	☼	11/23/18 17:31	1
1,2,3-Trichloropropane	3.6	U	5.7	3.6	0.92	ug/Kg	☼	11/23/18 17:31	1
1,2,4-Trichlorobenzene	1.8	U	5.7	1.8	0.83	ug/Kg	☼	11/23/18 17:31	1
1,2,4-Trimethylbenzene	3.6	U	5.7	3.6	0.66	ug/Kg	☼	11/23/18 17:31	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.68	ug/Kg	☼	11/23/18 17:31	1
1,2-Dichlorobenzene	1.8	U	5.7	1.8	0.51	ug/Kg	☼	11/23/18 17:31	1
1,2-Dichloroethane	1.8	U	5.7	1.8	0.80	ug/Kg	☼	11/23/18 17:31	1
1,2-Dichloroethene, Total	1.8	U	5.7	1.8	0.44	ug/Kg	☼	11/23/18 17:31	1
1,2-Dichloropropane	1.8	U	5.7	1.8	0.63	ug/Kg	☼	11/23/18 17:31	1
1,3,5-Trimethylbenzene	1.8	U	5.7	1.8	0.65	ug/Kg	☼	11/23/18 17:31	1
1,3-Dichlorobenzene	1.8	U	5.7	1.8	0.55	ug/Kg	☼	11/23/18 17:31	1
1,3-Dichloropropane	1.8	U	5.7	1.8	0.58	ug/Kg	☼	11/23/18 17:31	1
1,4-Dichlorobenzene	1.8	U	5.7	1.8	0.89	ug/Kg	☼	11/23/18 17:31	1
2,2-Dichloropropane	1.8	U	5.7	1.8	0.50	ug/Kg	☼	11/23/18 17:31	1
2-Butanone (MEK)	7.3	U	23	7.3	2.1	ug/Kg	☼	11/23/18 17:31	1
2-Chlorotoluene	1.8	U	5.7	1.8	0.58	ug/Kg	☼	11/23/18 17:31	1
2-Hexanone	15	U	23	15	5.6	ug/Kg	☼	11/23/18 17:31	1
4-Chlorotoluene	1.8	U	5.7	1.8	0.89	ug/Kg	☼	11/23/18 17:31	1
4-Isopropyltoluene	1.8	U	5.7	1.8	0.56	ug/Kg	☼	11/23/18 17:31	1
4-Methyl-2-pentanone (MIBK)	15	U	23	15	5.0	ug/Kg	☼	11/23/18 17:31	1
Acetone	**14**	**J B**	23	15	6.1	ug/Kg	☼	11/23/18 17:31	1
Benzene	1.8	U	5.7	1.8	0.54	ug/Kg	☼	11/23/18 17:31	1
Bromobenzene	1.8	U	5.7	1.8	0.56	ug/Kg	☼	11/23/18 17:31	1
Bromoform	0.91	U	5.7	0.91	0.26	ug/Kg	☼	11/23/18 17:31	1
Bromomethane	1.8	U Q	11	1.8	0.57	ug/Kg	☼	11/23/18 17:31	1
Carbon disulfide	1.8	U	5.7	1.8	0.48	ug/Kg	☼	11/23/18 17:31	1
Carbon tetrachloride	1.8	U	5.7	1.8	0.72	ug/Kg	☼	11/23/18 17:31	1
Chlorobenzene	1.8	U	5.7	1.8	0.62	ug/Kg	☼	11/23/18 17:31	1
Bromochloromethane	0.91	U	5.7	0.91	0.34	ug/Kg	☼	11/23/18 17:31	1
Dibromochloromethane	1.8	U	5.7	1.8	0.65	ug/Kg	☼	11/23/18 17:31	1
Chloroethane	3.6	U	11	3.6	1.0	ug/Kg	☼	11/23/18 17:31	1
Chloroform	0.91	U	11	0.91	0.33	ug/Kg	☼	11/23/18 17:31	1
Chloromethane	1.8	U	11	1.8	0.88	ug/Kg	☼	11/23/18 17:31	1
cis-1,2-Dichloroethene	1.8	U	5.7	1.8	0.64	ug/Kg	☼	11/23/18 17:31	1
cis-1,3-Dichloropropene	3.6	U	5.7	3.6	1.5	ug/Kg	☼	11/23/18 17:31	1
Dibromomethane	3.6	U	5.7	3.6	0.96	ug/Kg	☼	11/23/18 17:31	1
Bromodichloromethane	0.91	U	5.7	0.91	0.25	ug/Kg	☼	11/23/18 17:31	1
Dichlorodifluoromethane	1.8	U	11	1.8	0.59	ug/Kg	☼	11/23/18 17:31	1
Ethylbenzene	1.8	U	5.7	1.8	0.76	ug/Kg	☼	11/23/18 17:31	1
Ethylene Dibromide	1.8	U	5.7	1.8	0.59	ug/Kg	☼	11/23/18 17:31	1
Hexachlorobutadiene	1.8	U	5.7	1.8	0.63	ug/Kg	☼	11/23/18 17:31	1
Isopropylbenzene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/23/18 17:31	1
Methyl tert-butyl ether	0.91	U	23	0.91	0.39	ug/Kg	☼	11/23/18 17:31	1
Methylene Chloride	**5.0**	**J**	5.7	3.6	1.8	ug/Kg	☼	11/23/18 17:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-141118-404
Date Collected: 11/14/18 12:02
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-4
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	11/23/18 17:31	1
Naphthalene	1.8	U	5.7	1.8	0.72	ug/Kg	☼	11/23/18 17:31	1
n-Butylbenzene	1.8	U	5.7	1.8	0.64	ug/Kg	☼	11/23/18 17:31	1
N-Propylbenzene	1.8	U	5.7	1.8	0.66	ug/Kg	☼	11/23/18 17:31	1
o-Xylene	1.8	U	5.7	1.8	0.69	ug/Kg	☼	11/23/18 17:31	1
sec-Butylbenzene	1.8	U	5.7	1.8	0.88	ug/Kg	☼	11/23/18 17:31	1
Styrene	1.8	U	5.7	1.8	0.72	ug/Kg	☼	11/23/18 17:31	1
tert-Butylbenzene	1.8	U	5.7	1.8	0.57	ug/Kg	☼	11/23/18 17:31	1
Tetrachloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/23/18 17:31	1
Toluene	1.8	U	5.7	1.8	0.79	ug/Kg	☼	11/23/18 17:31	1
trans-1,2-Dichloroethene	0.91	U	5.7	0.91	0.44	ug/Kg	☼	11/23/18 17:31	1
trans-1,3-Dichloropropene	1.8	U	5.7	1.8	0.76	ug/Kg	☼	11/23/18 17:31	1
Trichloroethene	0.91	U	5.7	0.91	0.26	ug/Kg	☼	11/23/18 17:31	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	11/23/18 17:31	1
Vinyl chloride	3.6	U	5.7	3.6	1.5	ug/Kg	☼	11/23/18 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*11/14/18 12:02*	*11/23/18 17:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*11/14/18 12:02*	*11/23/18 17:31*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*11/14/18 12:02*	*11/23/18 17:31*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*11/14/18 12:02*	*11/23/18 17:31*	*1*

Client Sample ID: V-S2-151118-419
Date Collected: 11/15/18 08:54
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-6
Matrix: Solid
Percent Solids: 95.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/23/18 17:51	1
1,1,1-Trichloroethane	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/23/18 17:51	1
1,1,2,2-Tetrachloroethane	1.8	U	5.6	1.8	0.68	ug/Kg	☼	11/23/18 17:51	1
1,1,2-Trichloroethane	3.6	U	5.6	3.6	0.98	ug/Kg	☼	11/23/18 17:51	1
1,1-Dichloroethane	0.89	U	5.6	0.89	0.23	ug/Kg	☼	11/23/18 17:51	1
1,1-Dichloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/23/18 17:51	1
1,1-Dichloropropene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	11/23/18 17:51	1
1,2,3-Trichlorobenzene	1.8	U	5.6	1.8	0.84	ug/Kg	☼	11/23/18 17:51	1
1,2,3-Trichloropropane	3.6	U	5.6	3.6	0.90	ug/Kg	☼	11/23/18 17:51	1
1,2,4-Trichlorobenzene	1.8	U	5.6	1.8	0.81	ug/Kg	☼	11/23/18 17:51	1
1,2,4-Trimethylbenzene	3.6	U	5.6	3.6	0.65	ug/Kg	☼	11/23/18 17:51	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.67	ug/Kg	☼	11/23/18 17:51	1
1,2-Dichlorobenzene	1.8	U	5.6	1.8	0.50	ug/Kg	☼	11/23/18 17:51	1
1,2-Dichloroethane	1.8	U	5.6	1.8	0.78	ug/Kg	☼	11/23/18 17:51	1
1,2-Dichloroethene, Total	1.8	U	5.6	1.8	0.43	ug/Kg	☼	11/23/18 17:51	1
1,2-Dichloropropane	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/23/18 17:51	1
1,3,5-Trimethylbenzene	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/23/18 17:51	1
1,3-Dichlorobenzene	1.8	U	5.6	1.8	0.53	ug/Kg	☼	11/23/18 17:51	1
1,3-Dichloropropane	1.8	U	5.6	1.8	0.57	ug/Kg	☼	11/23/18 17:51	1
1,4-Dichlorobenzene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	11/23/18 17:51	1
2,2-Dichloropropane	1.8	U	5.6	1.8	0.49	ug/Kg	☼	11/23/18 17:51	1
2-Butanone (MEK)	7.1	U	22	7.1	2.0	ug/Kg	☼	11/23/18 17:51	1
2-Chlorotoluene	1.8	U	5.6	1.8	0.57	ug/Kg	☼	11/23/18 17:51	1
2-Hexanone	14	U	22	14	5.4	ug/Kg	☼	11/23/18 17:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-151118-419
Date Collected: 11/15/18 08:54
Date Received: 11/16/18 09:10

Lab Sample ID: 280-117064-6
Matrix: Solid
Percent Solids: 95.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Chlorotoluene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	11/23/18 17:51	1
4-Isopropyltoluene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	11/23/18 17:51	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.9	ug/Kg	☼	11/23/18 17:51	1
Acetone	**24**	**B**	22	14	6.0	ug/Kg	☼	11/23/18 17:51	1
Benzene	1.8	U	5.6	1.8	0.52	ug/Kg	☼	11/23/18 17:51	1
Bromobenzene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	11/23/18 17:51	1
Bromoform	0.89	U	5.6	0.89	0.26	ug/Kg	☼	11/23/18 17:51	1
Bromomethane	1.8	U Q	11	1.8	0.56	ug/Kg	☼	11/23/18 17:51	1
Carbon disulfide	1.8	U	5.6	1.8	0.47	ug/Kg	☼	11/23/18 17:51	1
Carbon tetrachloride	1.8	U	5.6	1.8	0.70	ug/Kg	☼	11/23/18 17:51	1
Chlorobenzene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	11/23/18 17:51	1
Bromochloromethane	0.89	U	5.6	0.89	0.33	ug/Kg	☼	11/23/18 17:51	1
Dibromochloromethane	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/23/18 17:51	1
Chloroethane	3.6	U	11	3.6	0.99	ug/Kg	☼	11/23/18 17:51	1
Chloroform	0.89	U	11	0.89	0.32	ug/Kg	☼	11/23/18 17:51	1
Chloromethane	1.8	U	11	1.8	0.86	ug/Kg	☼	11/23/18 17:51	1
cis-1,2-Dichloroethene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/23/18 17:51	1
cis-1,3-Dichloropropene	3.6	U	5.6	3.6	1.4	ug/Kg	☼	11/23/18 17:51	1
Dibromomethane	3.6	U	5.6	3.6	0.94	ug/Kg	☼	11/23/18 17:51	1
Bromodichloromethane	0.89	U	5.6	0.89	0.24	ug/Kg	☼	11/23/18 17:51	1
Dichlorodifluoromethane	1.8	U	11	1.8	0.58	ug/Kg	☼	11/23/18 17:51	1
Ethylbenzene	1.8	U	5.6	1.8	0.75	ug/Kg	☼	11/23/18 17:51	1
Ethylene Dibromide	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/23/18 17:51	1
Hexachlorobutadiene	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/23/18 17:51	1
Isopropylbenzene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/23/18 17:51	1
Methyl tert-butyl ether	0.89	U	22	0.89	0.38	ug/Kg	☼	11/23/18 17:51	1
Methylene Chloride	3.6	U	5.6	3.6	1.8	ug/Kg	☼	11/23/18 17:51	1
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	11/23/18 17:51	1
Naphthalene	1.8	U	5.6	1.8	0.70	ug/Kg	☼	11/23/18 17:51	1
n-Butylbenzene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/23/18 17:51	1
N-Propylbenzene	1.8	U	5.6	1.8	0.65	ug/Kg	☼	11/23/18 17:51	1
o-Xylene	1.8	U	5.6	1.8	0.68	ug/Kg	☼	11/23/18 17:51	1
sec-Butylbenzene	1.8	U	5.6	1.8	0.86	ug/Kg	☼	11/23/18 17:51	1
Styrene	1.8	U	5.6	1.8	0.70	ug/Kg	☼	11/23/18 17:51	1
tert-Butylbenzene	1.8	U	5.6	1.8	0.56	ug/Kg	☼	11/23/18 17:51	1
Tetrachloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/23/18 17:51	1
Toluene	1.8	U	5.6	1.8	0.77	ug/Kg	☼	11/23/18 17:51	1
trans-1,2-Dichloroethene	0.89	U	5.6	0.89	0.43	ug/Kg	☼	11/23/18 17:51	1
trans-1,3-Dichloropropene	1.8	U	5.6	1.8	0.75	ug/Kg	☼	11/23/18 17:51	1
Trichloroethene	0.89	U	5.6	0.89	0.26	ug/Kg	☼	11/23/18 17:51	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	11/23/18 17:51	1
Vinyl chloride	3.6	U	5.6	3.6	1.5	ug/Kg	☼	11/23/18 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/15/18 08:54*	*11/23/18 17:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*	*11/15/18 08:54*	*11/23/18 17:51*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*11/15/18 08:54*	*11/23/18 17:51*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*11/15/18 08:54*	*11/23/18 17:51*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S2-151118-01
Date Collected: 11/15/18 14:00
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/26/18 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*82 - 110*		*11/26/18 19:43*	*1*

Client Sample ID: P-S2-131118-338
Date Collected: 11/13/18 10:09
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-3
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.39	mg/Kg	☼	11/24/18 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*11/13/18 10:09*	*11/24/18 12:12*	*1*

Client Sample ID: P-S2-141118-404
Date Collected: 11/14/18 12:02
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-5
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.5	1.3	0.40	mg/Kg	☼	11/24/18 12:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*	*11/14/18 12:02*	*11/24/18 12:36*	*1*

Client Sample ID: P-S2-151118-419
Date Collected: 11/15/18 08:54
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-7
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.35	mg/Kg	☼	11/24/18 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*106*		*77 - 123*	*11/15/18 08:54*	*11/24/18 13:00*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S2-151118-01
Date Collected: 11/15/18 14:00
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/30/18 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*122*	*M*	*70 - 130*	*11/23/18 10:06*	*11/30/18 21:30*	*1*

Client Sample ID: V-S2-131118-338
Date Collected: 11/13/18 10:09
Date Received: 11/16/18 09:10
Lab Sample ID: 280-117064-2
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.016	ug/Kg	☼	12/08/18 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*124*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 13:56*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S2-141118-404 — **Lab Sample ID: 280-117064-4**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.015	ug/Kg	☼	12/08/18 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*112*		*55 - 130*	*11/27/18 10:27*	*12/08/18 14:34*	*1*

Client Sample ID: V-S2-151118-419 — **Lab Sample ID: 280-117064-6**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	12/08/18 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*126*		*55 - 130*	*11/27/18 10:27*	*12/08/18 14:53*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S2-131118-338 — **Lab Sample ID: 280-117064-3**
Date Collected: 11/13/18 10:09 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.3**	**J B**	8.0	4.0	1.4	mg/Kg	☼	11/21/18 20:39	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	11/21/18 20:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*45 - 130*	*11/20/18 06:41*	*11/21/18 20:39*	*1*
n-Octacosane	*81*	*M*	*25 - 162*	*11/20/18 06:41*	*11/21/18 20:39*	*1*

Client Sample ID: P-S2-141118-404 — **Lab Sample ID: 280-117064-5**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.4**	**J B**	7.7	3.9	1.3	mg/Kg	☼	11/30/18 00:37	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg	☼	11/30/18 00:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*61*		*45 - 130*	*11/28/18 08:14*	*11/30/18 00:37*	*1*
n-Octacosane	*69*		*25 - 162*	*11/28/18 08:14*	*11/30/18 00:37*	*1*

Client Sample ID: P-S2-151118-419 — **Lab Sample ID: 280-117064-7**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**20**	**Q B**	7.9	4.0	1.3	mg/Kg	☼	11/30/18 01:42	1
Motor Oil (C20-C38)	**20**	**J**	24	23	7.7	mg/Kg	☼	11/30/18 01:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*37*	*Q*	*45 - 130*	*11/28/18 08:14*	*11/30/18 01:42*	*1*
n-Octacosane	*37*		*25 - 162*	*11/28/18 08:14*	*11/30/18 01:42*	*1*

General Chemistry

Client Sample ID: V-S2-131118-338 — **Lab Sample ID: 280-117064-2**
Date Collected: 11/13/18 10:09 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.8		0.1	0.05	0.1	%		11/16/18 18:31	1

Client Sample ID: P-S2-131118-338 — **Lab Sample ID: 280-117064-3**
Date Collected: 11/13/18 10:09 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.6		0.1	0.05	0.1	%		11/16/18 18:31	1

Client Sample ID: V-S2-141118-404 — **Lab Sample ID: 280-117064-4**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.6		0.1	0.05	0.1	%		11/16/18 18:31	1

Client Sample ID: P-S2-141118-404 — **Lab Sample ID: 280-117064-5**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.6		0.1	0.05	0.1	%		11/16/18 18:31	1

Client Sample ID: V-S2-151118-419 — **Lab Sample ID: 280-117064-6**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.1		0.1	0.05	0.1	%		11/16/18 18:31	1

Client Sample ID: P-S2-151118-419 — **Lab Sample ID: 280-117064-7**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.6		0.1	0.05	0.1	%		11/16/18 18:31	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117064-2	V-S2-131118-338	101	91	97	96
280-117064-4	V-S2-141118-404	104	92	98	102
280-117064-6	V-S2-151118-419	100	89	94	94
LCS 280-438586/2-A	Lab Control Sample	101	90	98	96
LCSD 280-438586/3-A	Lab Control Sample Dup	103	88	98	94
MB 280-438586/1-A	Method Blank	102	91	95	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117064-1	TB-S2-151118-01	93	96	90	100
LCS 280-439152/4	Lab Control Sample	101	101	90	98
MB 280-439152/6	Method Blank	105	102	99	108

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117064-3	P-S2-131118-338	95
280-117064-5	P-S2-141118-404	101
280-117064-7	P-S2-151118-419	106
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117064-1	TB-S2-151118-01	85
LCS 280-438772/3	Lab Control Sample	99
MB 280-438772/4	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117064-2	V-S2-131118-338	124 M
280-117064-4	V-S2-141118-404	112
280-117064-6	V-S2-151118-419	126
LCS 280-438886/2-A	Lab Control Sample	103 M
LCSD 280-438886/3-A	Lab Control Sample Dup	90 M
MB 280-438886/4-A	Method Blank	114 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117064-1	TB-S2-151118-01	122 M
LCS 280-438573/2-A	Lab Control Sample	108
LCSD 280-438573/3-A	Lab Control Sample Dup	103
MB 280-438573/4-A	Method Blank	110

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117064-3	P-S2-131118-338	71	81 M
280-117064-5	P-S2-141118-404	61	69
280-117064-7	P-S2-151118-419	37 Q	37
LCS 280-438213/2-A	Lab Control Sample	70	72 M
LCS 280-438213/3-A	Lab Control Sample	84	68
LCS 280-438976/2-A	Lab Control Sample	64	71
LCS 280-438976/3-A	Lab Control Sample	64	74

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
MB 280-438213/1-A	Method Blank	78	111 M								
MB 280-438976/1-A	Method Blank	63	64								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-438586/1-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438586

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/23/18 10:52	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/23/18 10:52	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/23/18 10:52	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/23/18 10:52	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/23/18 10:52	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/23/18 10:52	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/23/18 10:52	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/23/18 10:52	1
Acetone	22.0		20	13	5.4	ug/Kg		11/23/18 10:52	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/23/18 10:52	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/23/18 10:52	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/23/18 10:52	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/23/18 10:52	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/23/18 10:52	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/23/18 10:52	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/23/18 10:52	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/23/18 10:52	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/23/18 10:52	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/23/18 10:52	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/23/18 10:52	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/23/18 10:52	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/23/18 10:52	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/23/18 10:52	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/23/18 10:52	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/23/18 10:52	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/23/18 10:52	1
2-Hexanone	8.08	J	20	13	4.9	ug/Kg		11/23/18 10:52	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/23/18 10:52	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/23/18 10:52	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/23/18 10:52	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/23/18 10:52	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/23/18 10:52	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/23/18 10:52	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		11/23/18 10:52	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/23/18 10:52	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/23/18 10:52	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/23/18 10:52	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/23/18 10:52	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/23/18 10:52	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/23/18 10:52	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/23/18 10:52	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/23/18 10:52	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/23/18 10:52	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/23/18 10:52	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/23/18 10:52	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/23/18 10:52	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/23/18 10:52	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/23/18 10:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-438586/1-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438586

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/23/18 10:52	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/23/18 10:52	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/23/18 10:52	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/23/18 10:52	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/23/18 10:52	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/23/18 10:52	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/23/18 10:52	1
1,2,4-Trimethylbenzene	3.2	U M	5.0	3.2	0.58	ug/Kg		11/23/18 10:52	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/23/18 10:52	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		11/23/18 10:52	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/23/18 10:52	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/23/18 10:52	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/23/18 10:52	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/23/18 10:52	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/23/18 10:52	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/23/18 10:52	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/23/18 10:52	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/23/18 10:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*85 - 116*	*11/23/18 07:00*	*11/23/18 10:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/23/18 07:00*	*11/23/18 10:52*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*11/23/18 07:00*	*11/23/18 10:52*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*11/23/18 07:00*	*11/23/18 10:52*	*1*

Lab Sample ID: LCS 280-438586/2-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	56.8		ug/Kg		114	61 - 132
2-Butanone (MEK)	200	263		ug/Kg		131	51 - 148
1,2-Dichlorobenzene	50.0	52.5		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	50.0	51.9		ug/Kg		104	77 - 121
4-Chlorotoluene	50.0	52.5		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	52.7		ug/Kg		105	75 - 120
1,1-Dichloroethane	50.0	50.1		ug/Kg		100	76 - 125
1,2-Dichloroethane	50.0	53.4		ug/Kg		107	73 - 128
Acetone	200	254		ug/Kg		127	36 - 164
1,1-Dichloroethene	50.0	53.5		ug/Kg		107	70 - 131
Benzene	50.0	52.7		ug/Kg		105	77 - 121
Bromobenzene	50.0	56.0		ug/Kg		112	78 - 121
Bromoform	50.0	62.2		ug/Kg		124	67 - 132
Bromomethane	50.0	58.2		ug/Kg		116	53 - 143
1,2-Dichloropropane	50.0	54.4		ug/Kg		109	76 - 123
Carbon disulfide	50.0	52.2		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	57.6		ug/Kg		115	77 - 121
Carbon tetrachloride	50.0	48.2		ug/Kg		96	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438586/2-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438586

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	48.7		ug/Kg		97	67 - 133
Chlorobenzene	50.0	53.1		ug/Kg		106	79 - 120
1,1-Dichloropropene	50.0	52.6		ug/Kg		105	76 - 125
Bromochloromethane	50.0	55.0		ug/Kg		110	78 - 125
Dibromochloromethane	50.0	58.7		ug/Kg		117	74 - 126
Chloroethane	50.0	50.1		ug/Kg		100	59 - 139
Chloroform	50.0	51.2		ug/Kg		102	78 - 123
2-Hexanone	200	265		ug/Kg		132	53 - 145
Chloromethane	50.0	48.0		ug/Kg		96	50 - 136
cis-1,2-Dichloroethene	50.0	52.5		ug/Kg		105	77 - 123
cis-1,3-Dichloropropene	50.0	60.7		ug/Kg		121	74 - 126
4-Isopropyltoluene	50.0	53.0		ug/Kg		106	73 - 127
Dibromomethane	50.0	54.7		ug/Kg		109	78 - 125
Bromodichloromethane	50.0	54.6		ug/Kg		109	75 - 127
4-Methyl-2-pentanone (MIBK)	200	248		ug/Kg		124	65 - 135
Dichlorodifluoromethane	50.0	33.9		ug/Kg		68	29 - 149
Ethylbenzene	50.0	54.3		ug/Kg		109	76 - 122
Ethylene Dibromide	50.0	60.3		ug/Kg		121	78 - 122
Hexachlorobutadiene	50.0	48.3		ug/Kg		97	61 - 135
Isopropylbenzene	50.0	54.8		ug/Kg		110	68 - 134
1,1,1,2-Tetrachloroethane	50.0	52.4		ug/Kg		105	78 - 125
Methyl tert-butyl ether	50.0	53.9		ug/Kg		108	73 - 125
1,1,2,2-Tetrachloroethane	50.0	57.2		ug/Kg		114	70 - 124
Methylene Chloride	50.0	53.1		ug/Kg		106	70 - 128
Naphthalene	50.0	58.6		ug/Kg		117	62 - 129
1,2,3-Trichlorobenzene	50.0	55.0		ug/Kg		110	66 - 130
n-Butylbenzene	50.0	52.8		ug/Kg		106	70 - 128
1,1,1-Trichloroethane	50.0	48.9		ug/Kg		98	73 - 130
N-Propylbenzene	50.0	52.5		ug/Kg		105	73 - 125
1,1,2-Trichloroethane	50.0	56.9		ug/Kg		114	78 - 121
sec-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 126
Styrene	50.0	55.0		ug/Kg		110	76 - 124
1,2,4-Trichlorobenzene	50.0	56.4		ug/Kg		113	67 - 129
tert-Butylbenzene	50.0	54.4		ug/Kg		109	73 - 125
1,2,3-Trichloropropane	50.0	62.2		ug/Kg		124	73 - 125
Tetrachloroethene	50.0	51.2		ug/Kg		102	73 - 128
1,2,4-Trimethylbenzene	50.0	52.9		ug/Kg		106	75 - 123
Toluene	50.0	53.4		ug/Kg		107	77 - 121
1,3,5-Trimethylbenzene	50.0	53.1		ug/Kg		106	73 - 124
trans-1,2-Dichloroethene	50.0	53.4		ug/Kg		107	74 - 125
trans-1,3-Dichloropropene	50.0	59.7		ug/Kg		119	71 - 130
o-Xylene	50.0	54.4		ug/Kg		109	77 - 123
Trichloroethene	50.0	52.7		ug/Kg		105	77 - 123
m-Xylene & p-Xylene	50.0	53.8		ug/Kg		108	77 - 124
Trichlorofluoromethane	50.0	48.9		ug/Kg		98	62 - 140
Vinyl chloride	50.0	49.6		ug/Kg		99	56 - 135
2-Chlorotoluene	50.0	56.1		ug/Kg		112	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-438586/2-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438586

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*96*		*78 - 119*

Lab Sample ID: LCSD 280-438586/3-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438586

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	53.6		ug/Kg		107	61 - 132	6	20
2-Butanone (MEK)			200	229		ug/Kg		114	51 - 148	14	20
1,2-Dichlorobenzene			50.0	54.3		ug/Kg		109	78 - 121	3	20
1,3-Dichlorobenzene			50.0	54.7		ug/Kg		109	77 - 121	5	20
4-Chlorotoluene			50.0	57.3		ug/Kg		115	72 - 124	9	20
1,4-Dichlorobenzene			50.0	54.8		ug/Kg		110	75 - 120	4	20
1,1-Dichloroethane			50.0	53.4		ug/Kg		107	76 - 125	6	20
1,2-Dichloroethane			50.0	52.9		ug/Kg		106	73 - 128	1	20
Acetone			200	235		ug/Kg		117	36 - 164	8	20
1,1-Dichloroethene			50.0	52.9		ug/Kg		106	70 - 131	1	20
Benzene			50.0	55.2		ug/Kg		110	77 - 121	5	20
Bromobenzene			50.0	59.1		ug/Kg		118	78 - 121	5	20
Bromoform			50.0	60.5		ug/Kg		121	67 - 132	3	20
Bromomethane			50.0	55.5		ug/Kg		111	53 - 143	5	20
1,2-Dichloropropane			50.0	55.8		ug/Kg		112	76 - 123	3	20
Carbon disulfide			50.0	51.9		ug/Kg		104	63 - 132	1	20
1,3-Dichloropropane			50.0	55.6		ug/Kg		111	77 - 121	3	20
Carbon tetrachloride			50.0	49.5		ug/Kg		99	70 - 135	3	20
2,2-Dichloropropane			50.0	49.1		ug/Kg		98	67 - 133	1	20
Chlorobenzene			50.0	54.9		ug/Kg		110	79 - 120	3	20
1,1-Dichloropropene			50.0	52.8		ug/Kg		106	76 - 125	0	20
Bromochloromethane			50.0	56.4		ug/Kg		113	78 - 125	2	20
Dibromochloromethane			50.0	60.1		ug/Kg		120	74 - 126	2	20
Chloroethane			50.0	47.5		ug/Kg		95	59 - 139	5	20
Chloroform			50.0	53.0		ug/Kg		106	78 - 123	3	20
2-Hexanone			200	239		ug/Kg		120	53 - 145	10	20
Chloromethane			50.0	45.0		ug/Kg		90	50 - 136	6	20
cis-1,2-Dichloroethene			50.0	55.4		ug/Kg		111	77 - 123	5	20
cis-1,3-Dichloropropene			50.0	62.6		ug/Kg		125	74 - 126	3	20
4-Isopropyltoluene			50.0	54.8		ug/Kg		110	73 - 127	3	20
Dibromomethane			50.0	55.3		ug/Kg		111	78 - 125	1	20
Bromodichloromethane			50.0	54.8		ug/Kg		110	75 - 127	0	20
4-Methyl-2-pentanone (MIBK)			200	233		ug/Kg		116	65 - 135	6	20
Dichlorodifluoromethane			50.0	31.5		ug/Kg		63	29 - 149	7	20
Ethylbenzene			50.0	56.6		ug/Kg		113	76 - 122	4	20
Ethylene Dibromide			50.0	58.5		ug/Kg		117	78 - 122	3	20
Hexachlorobutadiene			50.0	49.4		ug/Kg		99	61 - 135	2	20
Isopropylbenzene			50.0	56.9		ug/Kg		114	68 - 134	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-438586/3-A
Matrix: Solid
Analysis Batch: 438555

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438586

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	54.6		ug/Kg		109	78 - 125	4	20
Methyl tert-butyl ether			50.0	53.0		ug/Kg		106	73 - 125	2	20
1,1,2,2-Tetrachloroethane			50.0	56.7		ug/Kg		113	70 - 124	1	20
Methylene Chloride			50.0	53.9		ug/Kg		108	70 - 128	2	20
Naphthalene			50.0	55.6		ug/Kg		111	62 - 129	5	20
1,2,3-Trichlorobenzene			50.0	52.8		ug/Kg		106	66 - 130	4	20
n-Butylbenzene			50.0	56.0		ug/Kg		112	70 - 128	6	20
1,1,1-Trichloroethane			50.0	50.2		ug/Kg		100	73 - 130	3	20
N-Propylbenzene			50.0	56.7		ug/Kg		113	73 - 125	8	20
1,1,2-Trichloroethane			50.0	56.1		ug/Kg		112	78 - 121	1	20
sec-Butylbenzene			50.0	57.1		ug/Kg		114	73 - 126	7	20
Styrene			50.0	58.7		ug/Kg		117	76 - 124	7	20
1,2,4-Trichlorobenzene			50.0	54.6		ug/Kg		109	67 - 129	3	20
tert-Butylbenzene			50.0	55.7		ug/Kg		111	73 - 125	2	20
1,2,3-Trichloropropane			50.0	59.8		ug/Kg		120	73 - 125	4	20
Tetrachloroethene			50.0	53.7		ug/Kg		107	73 - 128	5	20
1,2,4-Trimethylbenzene			50.0	55.3		ug/Kg		111	75 - 123	4	20
Toluene			50.0	55.1		ug/Kg		110	77 - 121	3	20
1,3,5-Trimethylbenzene			50.0	55.0		ug/Kg		110	73 - 124	4	20
trans-1,2-Dichloroethene			50.0	57.5		ug/Kg		115	74 - 125	7	20
trans-1,3-Dichloropropene			50.0	59.4		ug/Kg		119	71 - 130	0	20
o-Xylene			50.0	58.6		ug/Kg		117	77 - 123	8	20
Trichloroethene			50.0	55.1		ug/Kg		110	77 - 123	4	20
m-Xylene & p-Xylene			50.0	55.7		ug/Kg		111	77 - 124	3	20
Trichlorofluoromethane			50.0	47.9		ug/Kg		96	62 - 140	2	20
Vinyl chloride			50.0	49.1		ug/Kg		98	56 - 135	1	20
2-Chlorotoluene			50.0	58.6		ug/Kg		117	75 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Lab Sample ID: MB 280-439152/6
Matrix: Water
Analysis Batch: 439152

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/29/18 13:44	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/29/18 13:44	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 13:44	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 13:44	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 13:44	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 13:44	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 13:44	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/29/18 13:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439152/6
Matrix: Water
Analysis Batch: 439152

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/29/18 13:44	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/29/18 13:44	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 13:44	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/29/18 13:44	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 13:44	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/29/18 13:44	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 13:44	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/29/18 13:44	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 13:44	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 13:44	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/29/18 13:44	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/29/18 13:44	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/29/18 13:44	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/29/18 13:44	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 13:44	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 13:44	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/29/18 13:44	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/29/18 13:44	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 13:44	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/29/18 13:44	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 13:44	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 13:44	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/29/18 13:44	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 13:44	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/29/18 13:44	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 13:44	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 13:44	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/29/18 13:44	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/29/18 13:44	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 13:44	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/29/18 13:44	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 13:44	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 13:44	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439152/6
Matrix: Water
Analysis Batch: 439152

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 13:44	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 13:44	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 13:44	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 13:44	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/29/18 13:44	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/29/18 13:44	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/29/18 13:44	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 13:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*89 - 112*		*11/29/18 13:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*11/29/18 13:44*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*11/29/18 13:44*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 119*		*11/29/18 13:44*	*1*

Lab Sample ID: LCS 280-439152/4
Matrix: Water
Analysis Batch: 439152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.18		ug/L		104	62 - 128
2-Butanone (MEK)	20.0	22.1		ug/L		111	56 - 143
1,2-Dichlorobenzene	5.00	4.81		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.88		ug/L		98	80 - 119
4-Chlorotoluene	5.00	4.71		ug/L		94	78 - 122
1,4-Dichlorobenzene	5.00	4.61		ug/L		92	79 - 118
1,1-Dichloroethane	5.00	5.91		ug/L		118	77 - 125
1,2-Dichloroethane	5.00	5.67		ug/L		113	73 - 128
Acetone	20.0	25.7		ug/L		129	39 - 160
1,1-Dichloroethene	5.00	5.71		ug/L		114	71 - 131
Benzene	5.00	5.41		ug/L		108	79 - 120
Bromobenzene	5.00	4.82		ug/L		96	80 - 120
Bromoform	5.00	5.34		ug/L		107	66 - 130
Bromomethane	5.00	5.22		ug/L		104	53 - 141
1,2-Dichloropropane	5.00	6.11		ug/L		122	78 - 122
Carbon disulfide	5.00	5.80		ug/L		116	64 - 133
1,3-Dichloropropane	5.00	4.90		ug/L		98	80 - 119
Carbon tetrachloride	5.00	5.82		ug/L		116	72 - 136
2,2-Dichloropropane	5.00	6.13		ug/L		123	60 - 139
Chlorobenzene	5.00	5.03		ug/L		101	82 - 118
1,1-Dichloropropene	5.00	5.81		ug/L		116	79 - 125
Bromochloromethane	5.00	5.58		ug/L		112	78 - 123
Dibromochloromethane	5.00	4.76		ug/L		95	74 - 126
Chloroethane	5.00	5.22		ug/L		104	60 - 138
Chloroform	5.00	5.64		ug/L		113	79 - 124
2-Hexanone	20.0	20.5		ug/L		102	57 - 139
Chloromethane	5.00	4.93		ug/L		99	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439152/4
Matrix: Water
Analysis Batch: 439152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.69		ug/L		114	78 - 123
cis-1,3-Dichloropropene	5.00	5.35		ug/L		107	75 - 124
4-Isopropyltoluene	5.00	5.09		ug/L		102	77 - 127
Dibromomethane	5.00	5.69		ug/L		114	79 - 123
Bromodichloromethane	5.00	5.79		ug/L		116	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	22.6		ug/L		113	67 - 130
Dichlorodifluoromethane	5.00	3.64		ug/L		73	32 - 152
Ethylbenzene	5.00	5.16		ug/L		103	79 - 121
Ethylene Dibromide	5.00	5.03		ug/L		101	77 - 121
Hexachlorobutadiene	5.00	5.30		ug/L		106	66 - 134
Isopropylbenzene	5.00	5.01		ug/L		100	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.09		ug/L		102	78 - 124
Methyl tert-butyl ether	5.00	5.70		ug/L		114	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.85		ug/L		97	71 - 121
Methylene Chloride	5.00	5.33		ug/L		107	74 - 124
Naphthalene	5.00	4.98		ug/L		100	61 - 128
1,2,3-Trichlorobenzene	5.00	4.93		ug/L		99	69 - 129
n-Butylbenzene	5.00	5.01		ug/L		100	75 - 128
1,1,1-Trichloroethane	5.00	5.85		ug/L		117	74 - 131
N-Propylbenzene	5.00	5.13		ug/L		103	76 - 126
1,1,2-Trichloroethane	5.00	5.83		ug/L		117	80 - 119
sec-Butylbenzene	5.00	5.02		ug/L		100	77 - 126
Styrene	5.00	4.77		ug/L		95	78 - 123
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 130
tert-Butylbenzene	5.00	5.10		ug/L		102	78 - 124
1,2,3-Trichloropropane	5.00	5.00		ug/L		100	73 - 122
Tetrachloroethene	5.00	4.94		ug/L		99	74 - 129
1,2,4-Trimethylbenzene	5.00	4.93		ug/L		99	76 - 124
Toluene	5.00	5.89		ug/L		118	80 - 121
1,3,5-Trimethylbenzene	5.00	5.08		ug/L		102	75 - 124
trans-1,2-Dichloroethene	5.00	5.80		ug/L		116	75 - 124
trans-1,3-Dichloropropene	5.00	6.02		ug/L		120	73 - 127
o-Xylene	5.00	5.20		ug/L		104	78 - 122
Trichloroethene	5.00	5.61		ug/L		112	79 - 123
m-Xylene & p-Xylene	5.00	5.02		ug/L		100	80 - 121
Trichlorofluoromethane	5.00	5.52		ug/L		110	65 - 141
Vinyl chloride	5.00	5.22		ug/L		104	58 - 137
2-Chlorotoluene	5.00	4.98		ug/L		100	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	4.28	4.38	M	mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-438772/4
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/26/18 15:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*82 - 110*		*11/26/18 15:04*	*1*

Lab Sample ID: LCS 280-438772/3
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	78.4	70.7	M	ug/L		90	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-438573/4-A
Matrix: Water
Analysis Batch: 438593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438573

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		11/23/18 15:08	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-438573/4-A
Matrix: Water
Analysis Batch: 438593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438573

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	110		70 - 130	11/23/18 10:06	11/23/18 15:08	1

Lab Sample ID: LCS 280-438573/2-A
Matrix: Water
Analysis Batch: 438593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.213		ug/L		85	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	108		70 - 130

Lab Sample ID: LCSD 280-438573/3-A
Matrix: Water
Analysis Batch: 438593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438573

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.208		ug/L		83	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	103		70 - 130

Lab Sample ID: MB 280-438886/4-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438886

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/08/18 11:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	114	M	55 - 130	11/27/18 10:27	12/08/18 11:04	1

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.731		ug/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	103	M	55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.670		ug/Kg		77	70 - 130	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*90*	*M*	*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-438213/1-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438213

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.37	J	8.0	4.0	1.4	mg/Kg		11/21/18 18:58	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		11/21/18 18:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*78*		*45 - 130*	*11/20/18 06:41*	*11/21/18 18:58*	*1*
n-Octacosane	*111*	*M*	*25 - 162*	*11/20/18 06:41*	*11/21/18 18:58*	*1*

Lab Sample ID: LCS 280-438213/2-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438213

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]			120	84.4		mg/Kg		71	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*45 - 130*
n-Octacosane	*72*	*M*	*25 - 162*

Lab Sample ID: LCS 280-438213/3-A
Matrix: Solid
Analysis Batch: 438400

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438213

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)			299	251		mg/Kg		84	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*84*		*45 - 130*
n-Octacosane	*68*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-438976/1-A
Matrix: Solid
Analysis Batch: 439300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438976

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.23	J	7.9	4.0	1.4	mg/Kg		11/29/18 23:09	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		11/29/18 23:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/28/18 08:14*	*11/29/18 23:09*	*1*
n-Octacosane	*64*		*25 - 162*	*11/28/18 08:14*	*11/29/18 23:09*	*1*

Lab Sample ID: LCS 280-438976/2-A
Matrix: Solid
Analysis Batch: 439300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	127	108		mg/Kg		86	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*71*		*25 - 162*

Lab Sample ID: LCS 280-438976/3-A
Matrix: Solid
Analysis Batch: 439300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	197		mg/Kg		63	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

GC/MS VOA

Analysis Batch: 438555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-2	V-S2-131118-338	Total/NA	Solid	8260B	438586
280-117064-4	V-S2-141118-404	Total/NA	Solid	8260B	438586
280-117064-6	V-S2-151118-419	Total/NA	Solid	8260B	438586
MB 280-438586/1-A	Method Blank	Total/NA	Solid	8260B	438586
LCS 280-438586/2-A	Lab Control Sample	Total/NA	Solid	8260B	438586
LCSD 280-438586/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	438586

Prep Batch: 438586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-2	V-S2-131118-338	Total/NA	Solid	5035	
280-117064-4	V-S2-141118-404	Total/NA	Solid	5035	
280-117064-6	V-S2-151118-419	Total/NA	Solid	5035	
MB 280-438586/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438586/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-438586/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 439152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-1	TB-S2-151118-01	Total/NA	Water	8260B	
MB 280-439152/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439152/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-3	P-S2-131118-338	Total/NA	Solid	5035	
280-117064-5	P-S2-141118-404	Total/NA	Solid	5035	
280-117064-7	P-S2-151118-419	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-3	P-S2-131118-338	Total/NA	Solid	8015D GRO	438635
280-117064-5	P-S2-141118-404	Total/NA	Solid	8015D GRO	438635
280-117064-7	P-S2-151118-419	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635

Analysis Batch: 438772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-1	TB-S2-151118-01	Total/NA	Water	8015D GRO	
MB 280-438772/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-438772/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-3	P-S2-131118-338	Total/NA	Solid	3546	
MB 280-438213/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-438213/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-438213/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 438400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-3	P-S2-131118-338	Total/NA	Solid	8015D DRO	438213
MB 280-438213/1-A	Method Blank	Total/NA	Solid	8015D DRO	438213
LCS 280-438213/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438213
LCS 280-438213/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438213

Prep Batch: 438573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-1	TB-S2-151118-01	Total/NA	Water	8011	
MB 280-438573/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-438573/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-438573/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 438593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-438573/4-A	Method Blank	Total/NA	Water	8011	438573
LCS 280-438573/2-A	Lab Control Sample	Total/NA	Water	8011	438573
LCSD 280-438573/3-A	Lab Control Sample Dup	Total/NA	Water	8011	438573

Prep Batch: 438886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-2	V-S2-131118-338	Total/NA	Solid	8011	
280-117064-4	V-S2-141118-404	Total/NA	Solid	8011	
280-117064-6	V-S2-151118-419	Total/NA	Solid	8011	
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 438976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-5	P-S2-141118-404	Total/NA	Solid	3546	
280-117064-7	P-S2-151118-419	Total/NA	Solid	3546	
MB 280-438976/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-438976/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-438976/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 439300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-5	P-S2-141118-404	Total/NA	Solid	8015D DRO	438976
280-117064-7	P-S2-151118-419	Total/NA	Solid	8015D DRO	438976
MB 280-438976/1-A	Method Blank	Total/NA	Solid	8015D DRO	438976
LCS 280-438976/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438976
LCS 280-438976/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	438976

GC Semi VOA (Continued)

Analysis Batch: 439490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-1	TB-S2-151118-01	Total/NA	Water	8011	438573

Analysis Batch: 440435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-2	V-S2-131118-338	Total/NA	Solid	8011	438886
280-117064-4	V-S2-141118-404	Total/NA	Solid	8011	438886
280-117064-6	V-S2-151118-419	Total/NA	Solid	8011	438886
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	438886
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	438886
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	438886

General Chemistry

Analysis Batch: 437967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117064-2	V-S2-131118-338	Total/NA	Solid	Moisture	
280-117064-3	P-S2-131118-338	Total/NA	Solid	Moisture	
280-117064-4	V-S2-141118-404	Total/NA	Solid	Moisture	
280-117064-5	P-S2-141118-404	Total/NA	Solid	Moisture	
280-117064-6	V-S2-151118-419	Total/NA	Solid	Moisture	
280-117064-7	P-S2-151118-419	Total/NA	Solid	Moisture	

Client Sample ID: TB-S2-151118-01

Lab Sample ID: 280-117064-1

Date Collected: 11/15/18 14:00

Matrix: Water

Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439152	11/29/18 14:31	DPI	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	438772	11/26/18 19:43	GPM	TAL DEN
Total/NA	Prep	8011			34.7 mL	35 mL	438573	11/23/18 10:06	SU	TAL DEN
Total/NA	Analysis	8011		1			439490	11/30/18 21:30	JLW	TAL DEN

Client Sample ID: V-S2-131118-338

Lab Sample ID: 280-117064-2

Date Collected: 11/13/18 10:09

Matrix: Solid

Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: V-S2-131118-338

Lab Sample ID: 280-117064-2

Date Collected: 11/13/18 10:09

Matrix: Solid

Date Received: 11/16/18 09:10

Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.886 g	5 mL	438586	11/13/18 10:09	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	438555	11/23/18 17:11	JLS	TAL DEN
Total/NA	Prep	8011			10.04 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 13:56	JLW	TAL DEN

Client Sample ID: P-S2-131118-338

Lab Sample ID: 280-117064-3

Date Collected: 11/13/18 10:09

Matrix: Solid

Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: P-S2-131118-338

Lab Sample ID: 280-117064-3

Date Collected: 11/13/18 10:09

Matrix: Solid

Date Received: 11/16/18 09:10

Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.532 g	5 mL	438635	11/13/18 10:09	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 12:12	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	438213	11/20/18 06:41	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			438400	11/21/18 20:39	CSM	TAL DEN

Client Sample ID: V-S2-141118-404 — **Lab Sample ID: 280-117064-4**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: V-S2-141118-404 — **Lab Sample ID: 280-117064-4**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.508 g	5 mL	438586	11/14/18 12:02	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	438555	11/23/18 17:31	JLS	TAL DEN
Total/NA	Prep	8011			10.04 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 14:34	JLW	TAL DEN

Client Sample ID: P-S2-141118-404 — **Lab Sample ID: 280-117064-5**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: P-S2-141118-404 — **Lab Sample ID: 280-117064-5**
Date Collected: 11/14/18 12:02 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 97.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.31 g	5 mL	438635	11/14/18 12:02	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 12:36	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	438976	11/28/18 08:14	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			439300	11/30/18 00:37	CSM	TAL DEN

Client Sample ID: V-S2-151118-419 — **Lab Sample ID: 280-117064-6**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: V-S2-151118-419 — **Lab Sample ID: 280-117064-6**
Date Collected: 11/15/18 08:54 — **Matrix: Solid**
Date Received: 11/16/18 09:10 — **Percent Solids: 95.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.683 g	5 mL	438586	11/15/18 08:54	JLS	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Client Sample ID: V-S2-151118-419

Lab Sample ID: 280-117064-6
Date Collected: 11/15/18 08:54
Matrix: Solid
Date Received: 11/16/18 09:10
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 g	5 mL	438555	11/23/18 17:51	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 14:53	JLW	TAL DEN

Client Sample ID: P-S2-151118-419

Lab Sample ID: 280-117064-7
Date Collected: 11/15/18 08:54
Matrix: Solid
Date Received: 11/16/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			437967	11/16/18 18:31	EC	TAL DEN

Client Sample ID: P-S2-151118-419

Lab Sample ID: 280-117064-7
Date Collected: 11/15/18 08:54
Matrix: Solid
Date Received: 11/16/18 09:10
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.073 g	5 mL	438635	11/15/18 08:54	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 13:00	GPM	TAL DEN
Total/NA	Prep	3546			15.9 g	1 mL	438976	11/28/18 08:14	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			439300	11/30/18 01:42	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117064-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKenzie	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3393 0928	COC No: COC1-52-TA-208115
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-52-151118-01	11/13/18	1400	G	W	N	N	—					X	X	-	X	6	
V-52-131118-338	11/13/18	1009	G	S	N	N	X	X	X	—						5	
P-52-131118-338	11/13/18	1009	G	S	N	N	—			X	X	—				3	
V-52-141118-404	11/14/18	1202	G	S	N	N	X	X	X	—						5	
P-52-141118-404	11/14/18	1202	G	S	N	N	—			X	X	—				3	
V-52-151118-419	11/15/18	0854	G	S	N	N	X	X	X	—						5	
P-52-151118-419	11/15/18	0854	G	S	N	N	—			X	X	—				3	

280-117064 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assess
☐ Return To Client ☒ Disposa

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Kevin McKenzie	11/15/18 1800	EA	Received by: Jon Hall	11/16/18 0910	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
Δ Yes Δ No		3.1 +1.0 IR #5 transfer by JD

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117064-1

Login Number: 117064
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117130-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/11/2018 9:21:34 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117130-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117130-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/17/2018 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.6º C and 3.8º C.

Receipt Exceptions

The chain of custody was somewhat unclear. The client provided a revised chain of custody. Both original and revised chains of custody are included in this report.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S2-161118-510 (280-117130-2) and V-S2-161158-510 (280-117130-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/16/2018 and analyzed on 11/28/2018.

1,2,4-Trimethylbenzene was detected in method blank MB 280-439038/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". This is considered acceptable since the detection was less than one-half the LOQ.

Acetone, a common laboratory contaminant, was detected in method blank MB 280-439038/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. The detection was greater than one-half the LOQ; however, as Acetone is a common laboratory contaminant, it is controlled to the LOQ instead of to one-half the LOQ.

Job ID: 280-117130-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Several analytes failed the recovery criteria low for the MS/MSD of sample V-S2-161118-510 (280-117130-2) in batch 280-439004. 1,1-Dichloroethene, Carbon disulfide, Methylene Chloride and Toluene exceeded the RPD limit. Associated results have been flagged "J1". Refer to the QC report for details. The data were checked for missed peaks, and the multi-analyte spike demonstrates that the samples were spiked correctly. Sample matrix interference is suspected. The acceptable LCS data indicate that the analytical system was operating within control.

The continuing calibration verification (CCV) associated with batch 280-439004 recovered outside acceptance criteria, low biased, for Dichlorodifluoromethane (-29.2%D). The failing compound is considered a poor performer and is allowed up to 30%D. Associated results have been flagged "Q". Report data with NCM and flags. The following samples are associated: V-S2-161118-510 (280-117130-2), V-S2-161158-510 (280-117130-4) and (CCV 280-439004/12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S2-161118-02 (280-117130-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/30/2018.

The continuing calibration verification (CCV) associated with batch 280-439348 recovered above the upper control limit for Styrene (+21.0%D). Associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The following samples are impacted: TB-S2-161118-02 (280-117130-1) and (CCV 280-439348/2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S2-161118-510 (280-117130-2) and V-S2-161158-510 (280-117130-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/08/2018.

1,2-Dibromopropane failed the surrogate recovery criteria high for V-S2-161118-510MS (280-117130-2MS). Associated results have been flagged "Q". Refer to the QC report for details. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

In batch 440435, the 1,2-Dibromopropane surrogate recovery for the following samples was outside acceptance limits (high biased) on the confirmation column due to matrix interference: V-S2-161118-510 (280-117130-2) and V-S2-161158-510 (280-117130-4). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S2-161118-02 (280-117130-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S2-161118-510 (280-117130-3) and P-S2-161158-510 (280-117130-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/16/2018 and analyzed on 11/24/2018.

Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria low for the MS of sample P-S2-161118-510 (280-117130-3) in batch 280-438644. Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria high for the MSD. Gasoline Range Organics (GRO) -C6-C10 exceeded the RPD limit. Associated results have been flagged "J1". Refer to the QC report for details. Sample non-homogeneity is suspected. The acceptable LCS data indicate that the analytical system was operating within control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-117130-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S2-161118-02 (280-117130-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S2-161118-510 (280-117130-3) and P-S2-161158-510 (280-117130-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/30/2018 and analyzed on 12/05/2018.

Per client request, samples were silica gel cleaned prior to analysis: P-S2-161118-510 (280-117130-3), P-S2-161118-510 (280-117130-3[MS]), P-S2-161118-510 (280-117130-3[MSD]), P-S2-161158-510 (280-117130-5), (LCS 280-439507/2-A), (LCS 280-439507/3-A) and (MB 280-439507/1-A).

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439507/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S2-161118-510 (280-117130-2), P-S2-161118-510 (280-117130-3), V-S2-161158-510 (280-117130-4) and P-S2-161158-510 (280-117130-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/21/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S2-161118-02 — Lab Sample ID: 280-117130-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	12	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S2-161118-510 — Lab Sample ID: 280-117130-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	51	J1	7.2	4.6	0.84	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	24	J1	7.2	2.3	0.82	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	5.9	J	7.2	2.3	0.71	ug/Kg	1	☼	8260B	Total/NA
Acetone	91	B	29	19	7.8	ug/Kg	1	☼	8260B	Total/NA
Benzene	50		7.2	2.3	0.68	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	32	J1	7.2	2.3	0.97	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	11		7.2	2.3	0.85	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	8.0	J1	7.2	4.6	2.3	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	83	J1	4.6	4.6	1.5	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	8.3		7.2	2.3	0.91	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	13	J1	7.2	2.3	0.81	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	18	J1	7.2	2.3	0.84	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	31	J1	7.2	2.3	0.88	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	12		7.2	2.3	1.1	ug/Kg	1	☼	8260B	Total/NA
Toluene	63	J1	7.2	2.3	1.0	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-161118-510 — Lab Sample ID: 280-117130-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2.9	M J1	1.3	1.2	0.36	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	4.2	J	8.4	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S2-161158-510 — Lab Sample ID: 280-117130-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	3.4	J	5.2	3.4	0.61	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	1.4	J	5.2	1.7	0.60	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	17	J	21	6.7	1.9	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	0.77	J	5.2	1.7	0.51	ug/Kg	1	☼	8260B	Total/NA
Acetone	77	B	21	13	5.6	ug/Kg	1	☼	8260B	Total/NA
Benzene	76		5.2	1.7	0.49	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	5.0	J	5.2	1.7	0.70	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.7	J	5.2	3.4	1.7	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	5.6		3.4	3.4	1.1	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	1.8	J	5.2	1.7	0.66	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	0.87	J	5.2	1.7	0.59	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	1.3	J	5.2	1.7	0.61	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	3.0	J	5.2	1.7	0.64	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	0.98	J	5.2	1.7	0.81	ug/Kg	1	☼	8260B	Total/NA
Toluene	7.9		5.2	1.7	0.72	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-161158-510 — Lab Sample ID: 280-117130-5

This Detection Summary does not include radiochemical test results.

Client Sample ID: P-S2-161158-510 (Continued)

Lab Sample ID: 280-117130-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	7.6	M	1.3	1.2	0.35	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	6.5	J	7.8	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117130-1	TB-S2-161118-02	Water	11/16/18 15:30	11/17/18 09:45
280-117130-2	V-S2-161118-510	Solid	11/16/18 10:30	11/17/18 09:45
280-117130-3	P-S2-161118-510	Solid	11/16/18 10:30	11/17/18 09:45
280-117130-4	V-S2-161158-510	Solid	11/16/18 10:30	11/17/18 09:45
280-117130-5	P-S2-161158-510	Solid	11/16/18 10:30	11/17/18 09:45

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S2-161118-02
Date Collected: 11/16/18 15:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/30/18 04:09	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/30/18 04:09	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:09	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/30/18 04:09	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/30/18 04:09	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/30/18 04:09	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/30/18 04:09	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/30/18 04:09	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/30/18 04:09	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/30/18 04:09	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:09	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/30/18 04:09	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/30/18 04:09	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:09	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:09	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 04:09	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:09	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 04:09	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/30/18 04:09	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/30/18 04:09	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:09	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:09	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:09	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:09	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:09	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:09	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:09	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/30/18 04:09	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/30/18 04:09	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:09	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 04:09	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/30/18 04:09	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/30/18 04:09	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/30/18 04:09	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:09	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Styrene	0.40	U Q	1.0	0.40	0.17	ug/L		11/30/18 04:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S2-161118-02
Date Collected: 11/16/18 15:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:09	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:09	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 04:09	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:09	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/30/18 04:09	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/30/18 04:09	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:09	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/30/18 04:09	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:09	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:09	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/30/18 04:09	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:09	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/30/18 04:09	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/30/18 04:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*		*11/30/18 04:09*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*11/30/18 04:09*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*11/30/18 04:09*	*1*

Client Sample ID: V-S2-161118-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-2
Matrix: Solid
Percent Solids: 89.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.3	U	7.2	2.3	0.81	ug/Kg	☼	11/28/18 18:27	1
1,1,1-Trichloroethane	2.3	U	7.2	2.3	0.75	ug/Kg	☼	11/28/18 18:27	1
1,1,2,2-Tetrachloroethane	2.3	U M	7.2	2.3	0.88	ug/Kg	☼	11/28/18 18:27	1
1,1,2-Trichloroethane	4.6	U M	7.2	4.6	1.3	ug/Kg	☼	11/28/18 18:27	1
1,1-Dichloroethane	1.2	U	7.2	1.2	0.30	ug/Kg	☼	11/28/18 18:27	1
1,1-Dichloroethene	2.3	U J1	7.2	2.3	0.85	ug/Kg	☼	11/28/18 18:27	1
1,1-Dichloropropene	2.3	U	7.2	2.3	0.78	ug/Kg	☼	11/28/18 18:27	1
1,2,3-Trichlorobenzene	2.3	U	7.2	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
1,2,3-Trichloropropane	4.6	U M	7.2	4.6	1.2	ug/Kg	☼	11/28/18 18:27	1
1,2,4-Trichlorobenzene	2.3	U	7.2	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
1,2,4-Trimethylbenzene	**51**	**J1**	7.2	4.6	0.84	ug/Kg	☼	11/28/18 18:27	1
1,2-Dibromo-3-Chloropropane	2.3	U	14	2.3	0.87	ug/Kg	☼	11/28/18 18:27	1
1,2-Dichlorobenzene	2.3	U	7.2	2.3	0.65	ug/Kg	☼	11/28/18 18:27	1
1,2-Dichloroethane	2.3	U M	7.2	2.3	1.0	ug/Kg	☼	11/28/18 18:27	1
1,2-Dichloroethene, Total	2.3	U	7.2	2.3	0.56	ug/Kg	☼	11/28/18 18:27	1
1,2-Dichloropropane	2.3	U	7.2	2.3	0.79	ug/Kg	☼	11/28/18 18:27	1
1,3,5-Trimethylbenzene	**24**	**J1**	7.2	2.3	0.82	ug/Kg	☼	11/28/18 18:27	1
1,3-Dichlorobenzene	2.3	U	7.2	2.3	0.69	ug/Kg	☼	11/28/18 18:27	1
1,3-Dichloropropane	2.3	U	7.2	2.3	0.74	ug/Kg	☼	11/28/18 18:27	1
1,4-Dichlorobenzene	2.3	U	7.2	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
2,2-Dichloropropane	2.3	U	7.2	2.3	0.64	ug/Kg	☼	11/28/18 18:27	1
2-Butanone (MEK)	9.3	U M	29	9.3	2.6	ug/Kg	☼	11/28/18 18:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-161118-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-2
Matrix: Solid
Percent Solids: 89.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	2.3	U M	7.2	2.3	0.74	ug/Kg	☼	11/28/18 18:27	1
2-Hexanone	19	U M	29	19	7.1	ug/Kg	☼	11/28/18 18:27	1
4-Chlorotoluene	2.3	U M	7.2	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
4-Isopropyltoluene	**5.9**	**J**	7.2	2.3	0.71	ug/Kg	☼	11/28/18 18:27	1
4-Methyl-2-pentanone (MIBK)	19	U M	29	19	6.3	ug/Kg	☼	11/28/18 18:27	1
Acetone	**91**	**B**	29	19	7.8	ug/Kg	☼	11/28/18 18:27	1
Benzene	**50**		7.2	2.3	0.68	ug/Kg	☼	11/28/18 18:27	1
Bromobenzene	2.3	U	7.2	2.3	0.71	ug/Kg	☼	11/28/18 18:27	1
Bromoform	1.2	U	7.2	1.2	0.33	ug/Kg	☼	11/28/18 18:27	1
Bromomethane	2.3	U	14	2.3	0.72	ug/Kg	☼	11/28/18 18:27	1
Carbon disulfide	2.3	U J1	7.2	2.3	0.61	ug/Kg	☼	11/28/18 18:27	1
Carbon tetrachloride	2.3	U	7.2	2.3	0.91	ug/Kg	☼	11/28/18 18:27	1
Chlorobenzene	2.3	U	7.2	2.3	0.78	ug/Kg	☼	11/28/18 18:27	1
Bromochloromethane	1.2	U	7.2	1.2	0.43	ug/Kg	☼	11/28/18 18:27	1
Dibromochloromethane	2.3	U	7.2	2.3	0.82	ug/Kg	☼	11/28/18 18:27	1
Chloroethane	4.6	U	14	4.6	1.3	ug/Kg	☼	11/28/18 18:27	1
Chloroform	1.2	U	14	1.2	0.42	ug/Kg	☼	11/28/18 18:27	1
Chloromethane	2.3	U	14	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
cis-1,2-Dichloroethene	2.3	U	7.2	2.3	0.81	ug/Kg	☼	11/28/18 18:27	1
cis-1,3-Dichloropropene	4.6	U	7.2	4.6	1.9	ug/Kg	☼	11/28/18 18:27	1
Dibromomethane	4.6	U	7.2	4.6	1.2	ug/Kg	☼	11/28/18 18:27	1
Bromodichloromethane	1.2	U M	7.2	1.2	0.32	ug/Kg	☼	11/28/18 18:27	1
Dichlorodifluoromethane	2.3	U Q	14	2.3	0.75	ug/Kg	☼	11/28/18 18:27	1
Ethylbenzene	**32**	**J1**	7.2	2.3	0.97	ug/Kg	☼	11/28/18 18:27	1
Ethylene Dibromide	2.3	U	7.2	2.3	0.75	ug/Kg	☼	11/28/18 18:27	1
Hexachlorobutadiene	2.3	U	7.2	2.3	0.79	ug/Kg	☼	11/28/18 18:27	1
Isopropylbenzene	**11**		7.2	2.3	0.85	ug/Kg	☼	11/28/18 18:27	1
Methyl tert-butyl ether	1.2	U	29	1.2	0.49	ug/Kg	☼	11/28/18 18:27	1
Methylene Chloride	**8.0**	**J1**	7.2	4.6	2.3	ug/Kg	☼	11/28/18 18:27	1
m-Xylene & p-Xylene	**83**	**J1**	4.6	4.6	1.5	ug/Kg	☼	11/28/18 18:27	1
Naphthalene	**8.3**		7.2	2.3	0.91	ug/Kg	☼	11/28/18 18:27	1
n-Butylbenzene	**13**	**J1**	7.2	2.3	0.81	ug/Kg	☼	11/28/18 18:27	1
N-Propylbenzene	**18**	**J1**	7.2	2.3	0.84	ug/Kg	☼	11/28/18 18:27	1
o-Xylene	**31**	**J1**	7.2	2.3	0.88	ug/Kg	☼	11/28/18 18:27	1
sec-Butylbenzene	**12**		7.2	2.3	1.1	ug/Kg	☼	11/28/18 18:27	1
Styrene	2.3	U	7.2	2.3	0.91	ug/Kg	☼	11/28/18 18:27	1
tert-Butylbenzene	2.3	U	7.2	2.3	0.72	ug/Kg	☼	11/28/18 18:27	1
Tetrachloroethene	2.3	U	7.2	2.3	0.85	ug/Kg	☼	11/28/18 18:27	1
Toluene	**63**	**J1**	7.2	2.3	1.0	ug/Kg	☼	11/28/18 18:27	1
trans-1,2-Dichloroethene	1.2	U	7.2	1.2	0.56	ug/Kg	☼	11/28/18 18:27	1
trans-1,3-Dichloropropene	2.3	U	7.2	2.3	0.97	ug/Kg	☼	11/28/18 18:27	1
Trichloroethene	1.2	U	7.2	1.2	0.33	ug/Kg	☼	11/28/18 18:27	1
Trichlorofluoromethane	4.6	U	14	4.6	1.5	ug/Kg	☼	11/28/18 18:27	1
Vinyl chloride	4.6	U	7.2	4.6	1.9	ug/Kg	☼	11/28/18 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*115*		*85 - 116*	*11/16/18 10:30*	*11/28/18 18:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*11/16/18 10:30*	*11/28/18 18:27*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*11/16/18 10:30*	*11/28/18 18:27*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 119*	*11/16/18 10:30*	*11/28/18 18:27*	*1*

Client Sample ID: V-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-4
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.2	1.7	0.59	ug/Kg	☼	11/28/18 11:40	1
1,1,1-Trichloroethane	1.7	U	5.2	1.7	0.55	ug/Kg	☼	11/28/18 11:40	1
1,1,2,2-Tetrachloroethane	1.7	U M	5.2	1.7	0.64	ug/Kg	☼	11/28/18 11:40	1
1,1,2-Trichloroethane	3.4	U M	5.2	3.4	0.92	ug/Kg	☼	11/28/18 11:40	1
1,1-Dichloroethane	0.84	U	5.2	0.84	0.22	ug/Kg	☼	11/28/18 11:40	1
1,1-Dichloroethene	1.7	U	5.2	1.7	0.62	ug/Kg	☼	11/28/18 11:40	1
1,1-Dichloropropene	1.7	U	5.2	1.7	0.57	ug/Kg	☼	11/28/18 11:40	1
1,2,3-Trichlorobenzene	1.7	U	5.2	1.7	0.79	ug/Kg	☼	11/28/18 11:40	1
1,2,3-Trichloropropane	3.4	U	5.2	3.4	0.85	ug/Kg	☼	11/28/18 11:40	1
1,2,4-Trichlorobenzene	1.7	U	5.2	1.7	0.77	ug/Kg	☼	11/28/18 11:40	1
1,2,4-Trimethylbenzene	**3.4**	**J**	5.2	3.4	0.61	ug/Kg	☼	11/28/18 11:40	1
1,2-Dibromo-3-Chloropropane	1.7	U	10	1.7	0.63	ug/Kg	☼	11/28/18 11:40	1
1,2-Dichlorobenzene	1.7	U	5.2	1.7	0.47	ug/Kg	☼	11/28/18 11:40	1
1,2-Dichloroethane	1.7	U	5.2	1.7	0.73	ug/Kg	☼	11/28/18 11:40	1
1,2-Dichloroethene, Total	1.7	U	5.2	1.7	0.41	ug/Kg	☼	11/28/18 11:40	1
1,2-Dichloropropane	1.7	U M	5.2	1.7	0.58	ug/Kg	☼	11/28/18 11:40	1
1,3,5-Trimethylbenzene	**1.4**	**J**	5.2	1.7	0.60	ug/Kg	☼	11/28/18 11:40	1
1,3-Dichlorobenzene	1.7	U	5.2	1.7	0.50	ug/Kg	☼	11/28/18 11:40	1
1,3-Dichloropropane	1.7	U	5.2	1.7	0.53	ug/Kg	☼	11/28/18 11:40	1
1,4-Dichlorobenzene	1.7	U	5.2	1.7	0.82	ug/Kg	☼	11/28/18 11:40	1
2,2-Dichloropropane	1.7	U	5.2	1.7	0.46	ug/Kg	☼	11/28/18 11:40	1
2-Butanone (MEK)	**17**	**J**	21	6.7	1.9	ug/Kg	☼	11/28/18 11:40	1
2-Chlorotoluene	1.7	U	5.2	1.7	0.53	ug/Kg	☼	11/28/18 11:40	1
2-Hexanone	13	U M	21	13	5.1	ug/Kg	☼	11/28/18 11:40	1
4-Chlorotoluene	1.7	U	5.2	1.7	0.82	ug/Kg	☼	11/28/18 11:40	1
4-Isopropyltoluene	**0.77**	**J**	5.2	1.7	0.51	ug/Kg	☼	11/28/18 11:40	1
4-Methyl-2-pentanone (MIBK)	13	U M	21	13	4.6	ug/Kg	☼	11/28/18 11:40	1
Acetone	**77**	**B**	21	13	5.6	ug/Kg	☼	11/28/18 11:40	1
Benzene	**76**		5.2	1.7	0.49	ug/Kg	☼	11/28/18 11:40	1
Bromobenzene	1.7	U	5.2	1.7	0.51	ug/Kg	☼	11/28/18 11:40	1
Bromoform	0.84	U	5.2	0.84	0.24	ug/Kg	☼	11/28/18 11:40	1
Bromomethane	1.7	U	10	1.7	0.52	ug/Kg	☼	11/28/18 11:40	1
Carbon disulfide	1.7	U M	5.2	1.7	0.44	ug/Kg	☼	11/28/18 11:40	1
Carbon tetrachloride	1.7	U	5.2	1.7	0.66	ug/Kg	☼	11/28/18 11:40	1
Chlorobenzene	1.7	U	5.2	1.7	0.57	ug/Kg	☼	11/28/18 11:40	1
Bromochloromethane	0.84	U	5.2	0.84	0.31	ug/Kg	☼	11/28/18 11:40	1
Dibromochloromethane	1.7	U	5.2	1.7	0.60	ug/Kg	☼	11/28/18 11:40	1
Chloroethane	3.4	U	10	3.4	0.93	ug/Kg	☼	11/28/18 11:40	1
Chloroform	0.84	U	10	0.84	0.30	ug/Kg	☼	11/28/18 11:40	1
Chloromethane	1.7	U	10	1.7	0.81	ug/Kg	☼	11/28/18 11:40	1
cis-1,2-Dichloroethene	1.7	U	5.2	1.7	0.59	ug/Kg	☼	11/28/18 11:40	1
cis-1,3-Dichloropropene	3.4	U	5.2	3.4	1.4	ug/Kg	☼	11/28/18 11:40	1
Dibromomethane	3.4	U	5.2	3.4	0.88	ug/Kg	☼	11/28/18 11:40	1
Bromodichloromethane	0.84	U M	5.2	0.84	0.23	ug/Kg	☼	11/28/18 11:40	1
Dichlorodifluoromethane	1.7	U Q	10	1.7	0.55	ug/Kg	☼	11/28/18 11:40	1
Ethylbenzene	**5.0**	**J**	5.2	1.7	0.70	ug/Kg	☼	11/28/18 11:40	1
Ethylene Dibromide	1.7	U	5.2	1.7	0.55	ug/Kg	☼	11/28/18 11:40	1
Hexachlorobutadiene	1.7	U	5.2	1.7	0.58	ug/Kg	☼	11/28/18 11:40	1
Isopropylbenzene	1.7	U M	5.2	1.7	0.62	ug/Kg	☼	11/28/18 11:40	1
Methyl tert-butyl ether	0.84	U	21	0.84	0.36	ug/Kg	☼	11/28/18 11:40	1
Methylene Chloride	**2.7**	**J**	5.2	3.4	1.7	ug/Kg	☼	11/28/18 11:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-161158-510 — **Lab Sample ID: 280-117130-4**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 88.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	**5.6**		3.4	3.4	1.1	ug/Kg	☼	11/28/18 11:40	1
Naphthalene	**1.8**	**J**	5.2	1.7	0.66	ug/Kg	☼	11/28/18 11:40	1
n-Butylbenzene	**0.87**	**J**	5.2	1.7	0.59	ug/Kg	☼	11/28/18 11:40	1
N-Propylbenzene	**1.3**	**J**	5.2	1.7	0.61	ug/Kg	☼	11/28/18 11:40	1
o-Xylene	**3.0**	**J**	5.2	1.7	0.64	ug/Kg	☼	11/28/18 11:40	1
sec-Butylbenzene	**0.98**	**J**	5.2	1.7	0.81	ug/Kg	☼	11/28/18 11:40	1
Styrene	1.7	U	5.2	1.7	0.66	ug/Kg	☼	11/28/18 11:40	1
tert-Butylbenzene	1.7	U	5.2	1.7	0.52	ug/Kg	☼	11/28/18 11:40	1
Tetrachloroethene	1.7	U	5.2	1.7	0.62	ug/Kg	☼	11/28/18 11:40	1
Toluene	**7.9**		5.2	1.7	0.72	ug/Kg	☼	11/28/18 11:40	1
trans-1,2-Dichloroethene	0.84	U	5.2	0.84	0.41	ug/Kg	☼	11/28/18 11:40	1
trans-1,3-Dichloropropene	1.7	U	5.2	1.7	0.70	ug/Kg	☼	11/28/18 11:40	1
Trichloroethene	0.84	U	5.2	0.84	0.24	ug/Kg	☼	11/28/18 11:40	1
Trichlorofluoromethane	3.4	U	10	3.4	1.1	ug/Kg	☼	11/28/18 11:40	1
Vinyl chloride	3.4	U	5.2	3.4	1.4	ug/Kg	☼	11/28/18 11:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/16/18 10:30*	*11/28/18 11:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*11/16/18 10:30*	*11/28/18 11:40*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*11/16/18 10:30*	*11/28/18 11:40*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 119*	*11/16/18 10:30*	*11/28/18 11:40*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S2-161118-02 — **Lab Sample ID: 280-117130-1**
Date Collected: 11/16/18 15:30 — **Matrix: Water**
Date Received: 11/17/18 09:45

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**12**	**J**	25	25	10	ug/L		11/29/18 11:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*82 - 110*		*11/29/18 11:38*	*1*

Client Sample ID: P-S2-161118-510 — **Lab Sample ID: 280-117130-3**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 89.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2.9**	**M J1**	1.3	1.2	0.36	mg/Kg	☼	11/24/18 13:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*	*11/16/18 10:30*	*11/24/18 13:23*	*1*

Client Sample ID: P-S2-161158-510 — **Lab Sample ID: 280-117130-5**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**7.6**	**M**	1.3	1.2	0.35	mg/Kg	☼	11/24/18 14:35	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	116		77 - 123	11/16/18 10:30	11/24/18 14:35	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S2-161118-02 — **Lab Sample ID: 280-117130-1**
Date Collected: 11/16/18 15:30 — **Matrix: Water**
Date Received: 11/17/18 09:45

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		12/06/18 16:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	104		70 - 130	11/27/18 10:48	12/06/18 16:58	1

Client Sample ID: V-S2-161118-510 — **Lab Sample ID: 280-117130-2**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 89.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U	0.11	0.042	0.017	ug/Kg	☼	12/08/18 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	126	M	55 - 130	11/27/18 10:27	12/08/18 15:12	1

Client Sample ID: V-S2-161158-510 — **Lab Sample ID: 280-117130-4**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 88.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	12/08/18 16:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	114	M	55 - 130	11/27/18 10:27	12/08/18 16:09	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S2-161118-510 — **Lab Sample ID: 280-117130-3**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 89.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.2**	**J**	8.4	4.2	1.4	mg/Kg	☼	12/05/18 15:47	1
Motor Oil (C20-C38)	25	U	25	25	8.2	mg/Kg	☼	12/05/18 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	58		45 - 130	11/30/18 19:50	12/05/18 15:47	1
n-Octacosane	95		25 - 162	11/30/18 19:50	12/05/18 15:47	1

Client Sample ID: P-S2-161158-510 — **Lab Sample ID: 280-117130-5**
Date Collected: 11/16/18 10:30 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**6.5**	**J**	7.8	3.9	1.3	mg/Kg	☼	12/05/18 18:19	1
Motor Oil (C20-C38)	23	U	23	23	7.6	mg/Kg	☼	12/05/18 18:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	66		45 - 130	11/30/18 19:50	12/05/18 18:19	1
n-Octacosane	95		25 - 162	11/30/18 19:50	12/05/18 18:19	1

General Chemistry

Client Sample ID: V-S2-161118-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-2
Matrix: Solid
Percent Solids: 89.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.1		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: P-S2-161118-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-3
Matrix: Solid
Percent Solids: 89.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.9		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: V-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-4
Matrix: Solid
Percent Solids: 88.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.3		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: P-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-5
Matrix: Solid
Percent Solids: 90.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.1		0.1	0.05	0.1	%		11/21/18 19:05	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117130-2	V-S2-161118-510	115	82	99	93
280-117130-2 MS	V-S2-161118-510	103	84	94	95
280-117130-2 MSD	V-S2-161118-510	99	81	90	89
280-117130-4	V-S2-161158-510	100	82	93	91
LCS 280-439038/2-A	Lab Control Sample	102	78	94	89
LCSD 280-439038/3-A	Lab Control Sample Dup	99	82	96	90
MB 280-439038/1-A	Method Blank	98	85	93	90

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117130-1	TB-S2-161118-02	97	87	95	95
LCS 280-439348/5	Lab Control Sample	97	87	92	91
MB 280-439348/4	Method Blank	97	82	92	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117130-3	P-S2-161118-510	91
280-117130-3 MS	P-S2-161118-510	97
280-117130-3 MSD	P-S2-161118-510	120
280-117130-5	P-S2-161158-510	116
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117130-1	TB-S2-161118-02	92
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117130-2	V-S2-161118-510	126 M
280-117130-2 MS	V-S2-161118-510	170 M Q
280-117130-2 MSD	V-S2-161118-510	116 M
280-117130-4	V-S2-161158-510	114 M
LCS 280-438886/2-A	Lab Control Sample	103 M
LCSD 280-438886/3-A	Lab Control Sample Dup	90 M
MB 280-438886/4-A	Method Blank	114 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117130-1	TB-S2-161118-02	104
LCS 280-438900/2-A	Lab Control Sample	104
LCSD 280-438900/3-A	Lab Control Sample Dup	106
MB 280-438900/4-A	Method Blank	105

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117130-3	P-S2-161118-510	58	95
280-117130-3 MS	P-S2-161118-510	67	100
280-117130-3 MS	P-S2-161118-510	75	108
280-117130-3 MSD	P-S2-161118-510	70	98
280-117130-3 MSD	P-S2-161118-510	73	105
280-117130-5	P-S2-161158-510	66	95

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
LCS 280-439507/2-A	Lab Control Sample	64	101								
LCS 280-439507/3-A	Lab Control Sample	81	116								
MB 280-439507/1-A	Method Blank	63	107								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439038/1-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439038

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/28/18 10:39	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/28/18 10:39	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/28/18 10:39	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/28/18 10:39	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/28/18 10:39	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/28/18 10:39	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/28/18 10:39	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/28/18 10:39	1
Acetone	19.5	J	20	13	5.4	ug/Kg		11/28/18 10:39	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/28/18 10:39	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/28/18 10:39	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/28/18 10:39	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/28/18 10:39	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/28/18 10:39	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/28/18 10:39	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/28/18 10:39	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/28/18 10:39	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/28/18 10:39	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/28/18 10:39	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/28/18 10:39	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/28/18 10:39	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/28/18 10:39	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/28/18 10:39	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/28/18 10:39	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		11/28/18 10:39	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/28/18 10:39	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/28/18 10:39	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/28/18 10:39	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/28/18 10:39	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/28/18 10:39	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		11/28/18 10:39	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/28/18 10:39	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/28/18 10:39	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/28/18 10:39	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/28/18 10:39	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/28/18 10:39	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/28/18 10:39	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/28/18 10:39	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/28/18 10:39	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/28/18 10:39	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/28/18 10:39	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439038/1-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439038

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/28/18 10:39	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/28/18 10:39	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/28/18 10:39	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/28/18 10:39	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/28/18 10:39	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
1,2,4-Trimethylbenzene	0.699	J	5.0	3.2	0.58	ug/Kg		11/28/18 10:39	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/28/18 10:39	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/28/18 10:39	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/28/18 10:39	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/28/18 10:39	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/28/18 10:39	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/28/18 10:39	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/28/18 10:39	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/28/18 10:39	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/28/18 10:39	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/28/18 10:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*11/28/18 07:00*	*11/28/18 10:39*	*1*

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	50.4		ug/Kg		101	61 - 132
2-Butanone (MEK)	200	196		ug/Kg		98	51 - 148
1,2-Dichlorobenzene	50.0	48.2		ug/Kg		96	78 - 121
1,3-Dichlorobenzene	50.0	47.0		ug/Kg		94	77 - 121
4-Chlorotoluene	50.0	50.0		ug/Kg		100	72 - 124
1,4-Dichlorobenzene	50.0	47.2		ug/Kg		94	75 - 120
1,1-Dichloroethane	50.0	47.2		ug/Kg		94	76 - 125
1,2-Dichloroethane	50.0	45.8		ug/Kg		92	73 - 128
Acetone	200	198		ug/Kg		99	36 - 164
1,1-Dichloroethene	50.0	51.5		ug/Kg		103	70 - 131
Benzene	50.0	49.1		ug/Kg		98	77 - 121
Bromobenzene	50.0	51.3		ug/Kg		103	78 - 121
Bromoform	50.0	51.6		ug/Kg		103	67 - 132
Bromomethane	50.0	53.7		ug/Kg		107	53 - 143
1,2-Dichloropropane	50.0	50.2		ug/Kg		100	76 - 123
Carbon disulfide	50.0	49.2		ug/Kg		98	63 - 132
1,3-Dichloropropane	50.0	52.8		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	43.7		ug/Kg		87	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	44.3		ug/Kg		89	67 - 133
Chlorobenzene	50.0	51.1		ug/Kg		102	79 - 120
1,1-Dichloropropene	50.0	46.6		ug/Kg		93	76 - 125
Bromochloromethane	50.0	52.3		ug/Kg		105	78 - 125
Dibromochloromethane	50.0	56.1		ug/Kg		112	74 - 126
Chloroethane	50.0	49.0		ug/Kg		98	59 - 139
Chloroform	50.0	46.1		ug/Kg		92	78 - 123
2-Hexanone	200	215		ug/Kg		108	53 - 145
Chloromethane	50.0	38.6		ug/Kg		77	50 - 136
cis-1,2-Dichloroethene	50.0	50.7		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	59.2		ug/Kg		118	74 - 126
4-Isopropyltoluene	50.0	48.6		ug/Kg		97	73 - 127
Dibromomethane	50.0	48.8		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	48.9		ug/Kg		98	75 - 127
4-Methyl-2-pentanone (MIBK)	200	200		ug/Kg		100	65 - 135
Dichlorodifluoromethane	50.0	21.9		ug/Kg		44	29 - 149
Ethylbenzene	50.0	52.4		ug/Kg		105	76 - 122
Ethylene Dibromide	50.0	55.5		ug/Kg		111	78 - 122
Hexachlorobutadiene	50.0	43.8		ug/Kg		88	61 - 135
Isopropylbenzene	50.0	49.9		ug/Kg		100	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.0		ug/Kg		106	78 - 125
Methyl tert-butyl ether	50.0	49.9		ug/Kg		100	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.3		ug/Kg		101	70 - 124
Methylene Chloride	50.0	51.8		ug/Kg		104	70 - 128
Naphthalene	50.0	51.9		ug/Kg		104	62 - 129
1,2,3-Trichlorobenzene	50.0	47.2		ug/Kg		94	66 - 130
n-Butylbenzene	50.0	47.3		ug/Kg		95	70 - 128
1,1,1-Trichloroethane	50.0	45.2		ug/Kg		90	73 - 130
N-Propylbenzene	50.0	47.9		ug/Kg		96	73 - 125
1,1,2-Trichloroethane	50.0	49.8		ug/Kg		100	78 - 121
sec-Butylbenzene	50.0	50.5		ug/Kg		101	73 - 126
Styrene	50.0	48.5		ug/Kg		97	76 - 124
1,2,4-Trichlorobenzene	50.0	48.7		ug/Kg		97	67 - 129
tert-Butylbenzene	50.0	49.0		ug/Kg		98	73 - 125
1,2,3-Trichloropropane	50.0	54.2		ug/Kg		108	73 - 125
Tetrachloroethene	50.0	50.7		ug/Kg		101	73 - 128
1,2,4-Trimethylbenzene	50.0	47.5		ug/Kg		95	75 - 123
Toluene	50.0	48.6		ug/Kg		97	77 - 121
1,3,5-Trimethylbenzene	50.0	48.7		ug/Kg		97	73 - 124
trans-1,2-Dichloroethene	50.0	50.8		ug/Kg		102	74 - 125
trans-1,3-Dichloropropene	50.0	50.7		ug/Kg		101	71 - 130
o-Xylene	50.0	48.3		ug/Kg		97	77 - 123
Trichloroethene	50.0	47.2		ug/Kg		94	77 - 123
m-Xylene & p-Xylene	50.0	51.6		ug/Kg		103	77 - 124
Trichlorofluoromethane	50.0	44.4		ug/Kg		89	62 - 140
Vinyl chloride	50.0	42.1		ug/Kg		84	56 - 135
2-Chlorotoluene	50.0	50.8		ug/Kg		102	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*78*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*89*		*78 - 119*

Lab Sample ID: LCSD 280-439038/3-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439038

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	53.7		ug/Kg		107	61 - 132	6	20
2-Butanone (MEK)			200	214		ug/Kg		107	51 - 148	9	20
1,2-Dichlorobenzene			50.0	49.7		ug/Kg		99	78 - 121	3	20
1,3-Dichlorobenzene			50.0	49.1		ug/Kg		98	77 - 121	4	20
4-Chlorotoluene			50.0	50.5		ug/Kg		101	72 - 124	1	20
1,4-Dichlorobenzene			50.0	48.3		ug/Kg		97	75 - 120	2	20
1,1-Dichloroethane			50.0	46.5		ug/Kg		93	76 - 125	2	20
1,2-Dichloroethane			50.0	47.5		ug/Kg		95	73 - 128	4	20
Acetone			200	211		ug/Kg		106	36 - 164	7	20
1,1-Dichloroethene			50.0	49.7		ug/Kg		99	70 - 131	4	20
Benzene			50.0	48.5		ug/Kg		97	77 - 121	1	20
Bromobenzene			50.0	52.3		ug/Kg		105	78 - 121	2	20
Bromoform			50.0	56.2		ug/Kg		112	67 - 132	9	20
Bromomethane			50.0	56.7		ug/Kg		113	53 - 143	5	20
1,2-Dichloropropane			50.0	49.4		ug/Kg		99	76 - 123	2	20
Carbon disulfide			50.0	47.3		ug/Kg		95	63 - 132	4	20
1,3-Dichloropropane			50.0	50.6		ug/Kg		101	77 - 121	4	20
Carbon tetrachloride			50.0	44.3		ug/Kg		89	70 - 135	1	20
2,2-Dichloropropane			50.0	43.7		ug/Kg		87	67 - 133	1	20
Chlorobenzene			50.0	49.2		ug/Kg		98	79 - 120	4	20
1,1-Dichloropropene			50.0	46.3		ug/Kg		93	76 - 125	1	20
Bromochloromethane			50.0	50.1		ug/Kg		100	78 - 125	4	20
Dibromochloromethane			50.0	53.4		ug/Kg		107	74 - 126	5	20
Chloroethane			50.0	51.4		ug/Kg		103	59 - 139	5	20
Chloroform			50.0	45.7		ug/Kg		91	78 - 123	1	20
2-Hexanone			200	224		ug/Kg		112	53 - 145	4	20
Chloromethane			50.0	41.5		ug/Kg		83	50 - 136	7	20
cis-1,2-Dichloroethene			50.0	48.8		ug/Kg		98	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	56.9		ug/Kg		114	74 - 126	4	20
4-Isopropyltoluene			50.0	50.6		ug/Kg		101	73 - 127	4	20
Dibromomethane			50.0	48.6		ug/Kg		97	78 - 125	0	20
Bromodichloromethane			50.0	48.5		ug/Kg		97	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)			200	220		ug/Kg		110	65 - 135	10	20
Dichlorodifluoromethane			50.0	24.1		ug/Kg		48	29 - 149	9	20
Ethylbenzene			50.0	50.2		ug/Kg		100	76 - 122	4	20
Ethylene Dibromide			50.0	53.3		ug/Kg		107	78 - 122	4	20
Hexachlorobutadiene			50.0	46.5		ug/Kg		93	61 - 135	6	20
Isopropylbenzene			50.0	50.9		ug/Kg		102	68 - 134	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439038/3-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439038

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	50.2		ug/Kg		100	78 - 125	6	20
Methyl tert-butyl ether			50.0	51.1		ug/Kg		102	73 - 125	2	20
1,1,2,2-Tetrachloroethane			50.0	51.8		ug/Kg		104	70 - 124	3	20
Methylene Chloride			50.0	50.7		ug/Kg		101	70 - 128	2	20
Naphthalene			50.0	54.7		ug/Kg		109	62 - 129	5	20
1,2,3-Trichlorobenzene			50.0	50.2		ug/Kg		100	66 - 130	6	20
n-Butylbenzene			50.0	49.2		ug/Kg		98	70 - 128	4	20
1,1,1-Trichloroethane			50.0	44.9		ug/Kg		90	73 - 130	1	20
N-Propylbenzene			50.0	50.3		ug/Kg		101	73 - 125	5	20
1,1,2-Trichloroethane			50.0	49.9		ug/Kg		100	78 - 121	0	20
sec-Butylbenzene			50.0	52.1		ug/Kg		104	73 - 126	3	20
Styrene			50.0	51.9		ug/Kg		104	76 - 124	7	20
1,2,4-Trichlorobenzene			50.0	51.7		ug/Kg		103	67 - 129	6	20
tert-Butylbenzene			50.0	50.1		ug/Kg		100	73 - 125	2	20
1,2,3-Trichloropropane			50.0	57.7		ug/Kg		115	73 - 125	6	20
Tetrachloroethene			50.0	47.8		ug/Kg		96	73 - 128	6	20
1,2,4-Trimethylbenzene			50.0	49.2		ug/Kg		98	75 - 123	4	20
Toluene			50.0	47.9		ug/Kg		96	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	50.3		ug/Kg		101	73 - 124	3	20
trans-1,2-Dichloroethene			50.0	50.2		ug/Kg		100	74 - 125	1	20
trans-1,3-Dichloropropene			50.0	51.7		ug/Kg		103	71 - 130	2	20
o-Xylene			50.0	51.3		ug/Kg		103	77 - 123	6	20
Trichloroethene			50.0	48.9		ug/Kg		98	77 - 123	4	20
m-Xylene & p-Xylene			50.0	48.3		ug/Kg		97	77 - 124	7	20
Trichlorofluoromethane			50.0	47.6		ug/Kg		95	62 - 140	7	20
Vinyl chloride			50.0	44.1		ug/Kg		88	56 - 135	5	20
2-Chlorotoluene			50.0	52.5		ug/Kg		105	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*90*		*78 - 119*

Lab Sample ID: 280-117130-2 MS
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	2.3	U	48.8	48.2		ug/Kg	☼	99	78 - 125
1,1,1-Trichloroethane	2.3	U	48.8	43.3		ug/Kg	☼	89	73 - 130
1,1,2,2-Tetrachloroethane	2.3	U M	48.8	48.4		ug/Kg	☼	99	70 - 124
1,1,2-Trichloroethane	4.6	U M	48.8	58.3		ug/Kg	☼	119	78 - 121
1,1-Dichloroethane	1.2	U	48.8	44.7		ug/Kg	☼	92	76 - 125
1,1-Dichloroethene	2.3	U J1	48.8	56.4		ug/Kg	☼	115	70 - 131
1,1-Dichloropropene	2.3	U	48.8	44.1		ug/Kg	☼	90	76 - 125
1,2,3-Trichlorobenzene	2.3	U	48.8	48.3		ug/Kg	☼	99	66 - 130
1,2,3-Trichloropropane	4.6	U M	48.8	53.3		ug/Kg	☼	109	73 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117130-2 MS
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	2.3	U	48.8	51.3		ug/Kg	☼	105	67 - 129
1,2,4-Trimethylbenzene	51	J1	48.8	53.3	J1	ug/Kg	☼	4	75 - 123
1,2-Dibromo-3-Chloropropane	2.3	U	48.8	49.6		ug/Kg	☼	102	61 - 132
1,2-Dichlorobenzene	2.3	U	48.8	48.9		ug/Kg	☼	100	78 - 121
1,2-Dichloroethane	2.3	U M	48.8	46.2		ug/Kg	☼	95	73 - 128
1,2-Dichloropropane	2.3	U	48.8	47.8		ug/Kg	☼	98	76 - 123
1,3,5-Trimethylbenzene	24	J1	48.8	51.2	J1	ug/Kg	☼	56	73 - 124
1,3-Dichlorobenzene	2.3	U	48.8	47.8		ug/Kg	☼	98	77 - 121
1,3-Dichloropropane	2.3	U	48.8	47.8		ug/Kg	☼	98	77 - 121
1,4-Dichlorobenzene	2.3	U	48.8	48.1		ug/Kg	☼	98	75 - 120
2,2-Dichloropropane	2.3	U	48.8	42.8		ug/Kg	☼	88	67 - 133
2-Butanone (MEK)	9.3	U M	195	207		ug/Kg	☼	106	51 - 148
2-Chlorotoluene	2.3	U M	48.8	50.6		ug/Kg	☼	104	75 - 122
2-Hexanone	19	U M	195	237		ug/Kg	☼	121	53 - 145
4-Chlorotoluene	2.3	U M	48.8	49.6		ug/Kg	☼	102	72 - 124
4-Isopropyltoluene	5.9	J	48.8	49.2		ug/Kg	☼	89	73 - 127
4-Methyl-2-pentanone (MIBK)	19	U M	195	212		ug/Kg	☼	108	65 - 135
Acetone	91	B	195	278		ug/Kg	☼	96	36 - 164
Benzene	50		48.8	100		ug/Kg	☼	103	77 - 121
Bromobenzene	2.3	U	48.8	49.4		ug/Kg	☼	101	78 - 121
Bromoform	1.2	U	48.8	55.3		ug/Kg	☼	113	67 - 132
Bromomethane	2.3	U	48.8	58.9		ug/Kg	☼	121	53 - 143
Carbon disulfide	2.3	U J1	48.8	52.8		ug/Kg	☼	108	63 - 132
Carbon tetrachloride	2.3	U	48.8	43.6		ug/Kg	☼	89	70 - 135
Chlorobenzene	2.3	U	48.8	47.8		ug/Kg	☼	98	79 - 120
Bromochloromethane	1.2	U	48.8	48.5		ug/Kg	☼	99	78 - 125
Dibromochloromethane	2.3	U	48.8	50.9		ug/Kg	☼	104	74 - 126
Chloroethane	4.6	U	48.8	54.1		ug/Kg	☼	111	59 - 139
Chloroform	1.2	U	48.8	43.8		ug/Kg	☼	90	78 - 123
Chloromethane	2.3	U	48.8	42.1		ug/Kg	☼	86	50 - 136
cis-1,2-Dichloroethene	2.3	U	48.8	47.2		ug/Kg	☼	97	77 - 123
cis-1,3-Dichloropropene	4.6	U	48.8	53.2		ug/Kg	☼	109	74 - 126
Dibromomethane	4.6	U	48.8	45.8		ug/Kg	☼	94	78 - 125
Bromodichloromethane	1.2	U M	48.8	47.3		ug/Kg	☼	97	75 - 127
Dichlorodifluoromethane	2.3	U Q	48.8	23.4		ug/Kg	☼	48	29 - 149
Ethylbenzene	32	J1	48.8	54.0	J1	ug/Kg	☼	46	76 - 122
Ethylene Dibromide	2.3	U	48.8	50.8		ug/Kg	☼	104	78 - 122
Hexachlorobutadiene	2.3	U	48.8	43.8		ug/Kg	☼	90	61 - 135
Isopropylbenzene	11		48.8	50.0		ug/Kg	☼	80	68 - 134
Methyl tert-butyl ether	1.2	U	48.8	54.0		ug/Kg	☼	111	73 - 125
Methylene Chloride	8.0	J1	48.8	58.2		ug/Kg	☼	103	70 - 128
m-Xylene & p-Xylene	83	J1	48.8	59.4	J1	ug/Kg	☼	-47	77 - 124
Naphthalene	8.3		48.8	54.7		ug/Kg	☼	95	62 - 129
n-Butylbenzene	13	J1	48.8	49.7		ug/Kg	☼	76	70 - 128
N-Propylbenzene	18	J1	48.8	49.4	J1	ug/Kg	☼	64	73 - 125
o-Xylene	31	J1	48.8	56.1	J1	ug/Kg	☼	52	77 - 123
sec-Butylbenzene	12		48.8	50.1		ug/Kg	☼	79	73 - 126
Styrene	2.3	U	48.8	52.6		ug/Kg	☼	108	76 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117130-2 MS
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butylbenzene	2.3	U	48.8	48.5		ug/Kg	☼	99	73 - 125
Tetrachloroethene	2.3	U	48.8	46.7		ug/Kg	☼	96	73 - 128
Toluene	63	J1	48.8	61.2	J1	ug/Kg	☼	-4	77 - 121
trans-1,2-Dichloroethene	1.2	U	48.8	55.1		ug/Kg	☼	113	74 - 125
trans-1,3-Dichloropropene	2.3	U	48.8	50.2		ug/Kg	☼	103	71 - 130
Trichloroethene	1.2	U	48.8	45.9		ug/Kg	☼	94	77 - 123
Trichlorofluoromethane	4.6	U	48.8	47.2		ug/Kg	☼	97	62 - 140
Vinyl chloride	4.6	U	48.8	45.6		ug/Kg	☼	93	56 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*84*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: 280-117130-2 MSD
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	2.3	U	46.5	47.0		ug/Kg	☼	101	78 - 125	2	20
1,1,1-Trichloroethane	2.3	U	46.5	41.9		ug/Kg	☼	90	73 - 130	3	20
1,1,2,2-Tetrachloroethane	2.3	U M	46.5	45.5		ug/Kg	☼	98	70 - 124	6	20
1,1,2-Trichloroethane	4.6	U M	46.5	51.6		ug/Kg	☼	111	78 - 121	12	20
1,1-Dichloroethane	1.2	U	46.5	42.5		ug/Kg	☼	91	76 - 125	5	20
1,1-Dichloroethene	2.3	U J1	46.5	45.7	J1	ug/Kg	☼	98	70 - 131	21	20
1,1-Dichloropropene	2.3	U	46.5	42.0		ug/Kg	☼	90	76 - 125	5	20
1,2,3-Trichlorobenzene	2.3	U	46.5	46.5		ug/Kg	☼	100	66 - 130	4	20
1,2,3-Trichloropropane	4.6	U M	46.5	48.1		ug/Kg	☼	103	73 - 125	10	20
1,2,4-Trichlorobenzene	2.3	U	46.5	48.6		ug/Kg	☼	105	67 - 129	5	20
1,2,4-Trimethylbenzene	51	J1	46.5	45.2	J1	ug/Kg	☼	-13	75 - 123	16	20
1,2-Dibromo-3-Chloropropane	2.3	U	46.5	46.5		ug/Kg	☼	100	61 - 132	7	20
1,2-Dichlorobenzene	2.3	U	46.5	45.7		ug/Kg	☼	98	78 - 121	7	20
1,2-Dichloroethane	2.3	U M	46.5	43.8		ug/Kg	☼	94	73 - 128	5	20
1,2-Dichloropropane	2.3	U	46.5	44.9		ug/Kg	☼	97	76 - 123	6	20
1,3,5-Trimethylbenzene	24	J1	46.5	45.7	J1	ug/Kg	☼	47	73 - 124	11	20
1,3-Dichlorobenzene	2.3	U	46.5	44.5		ug/Kg	☼	96	77 - 121	7	20
1,3-Dichloropropane	2.3	U	46.5	46.5		ug/Kg	☼	100	77 - 121	3	20
1,4-Dichlorobenzene	2.3	U	46.5	44.2		ug/Kg	☼	95	75 - 120	8	20
2,2-Dichloropropane	2.3	U	46.5	39.4		ug/Kg	☼	85	67 - 133	8	20
2-Butanone (MEK)	9.3	U M	186	193		ug/Kg	☼	104	51 - 148	7	20
2-Chlorotoluene	2.3	U M	46.5	47.9		ug/Kg	☼	103	75 - 122	5	20
2-Hexanone	19	U M	186	223		ug/Kg	☼	120	53 - 145	6	20
4-Chlorotoluene	2.3	U M	46.5	46.5		ug/Kg	☼	100	72 - 124	7	20
4-Isopropyltoluene	5.9	J	46.5	45.9		ug/Kg	☼	86	73 - 127	7	20
4-Methyl-2-pentanone (MIBK)	19	U M	186	194		ug/Kg	☼	104	65 - 135	9	20
Acetone	91	B	186	239		ug/Kg	☼	80	36 - 164	15	20
Benzene	50		46.5	99.2		ug/Kg	☼	106	77 - 121	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117130-2 MSD
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromobenzene	2.3	U	46.5	48.5		ug/Kg	☼	104	78 - 121	2	20
Bromoform	1.2	U	46.5	52.1		ug/Kg	☼	112	67 - 132	6	20
Bromomethane	2.3	U	46.5	53.7		ug/Kg	☼	116	53 - 143	9	20
Carbon disulfide	2.3	U J1	46.5	42.5	J1	ug/Kg	☼	91	63 - 132	22	20
Carbon tetrachloride	2.3	U	46.5	41.3		ug/Kg	☼	89	70 - 135	5	20
Chlorobenzene	2.3	U	46.5	45.4		ug/Kg	☼	98	79 - 120	5	20
Bromochloromethane	1.2	U	46.5	46.5		ug/Kg	☼	100	78 - 125	4	20
Dibromochloromethane	2.3	U	46.5	50.3		ug/Kg	☼	108	74 - 126	1	20
Chloroethane	4.6	U	46.5	50.1		ug/Kg	☼	108	59 - 139	8	20
Chloroform	1.2	U	46.5	41.1		ug/Kg	☼	88	78 - 123	6	20
Chloromethane	2.3	U	46.5	36.8		ug/Kg	☼	79	50 - 136	13	20
cis-1,2-Dichloroethene	2.3	U	46.5	44.2		ug/Kg	☼	95	77 - 123	7	20
cis-1,3-Dichloropropene	4.6	U	46.5	50.7		ug/Kg	☼	109	74 - 126	5	20
Dibromomethane	4.6	U	46.5	43.4		ug/Kg	☼	93	78 - 125	5	20
Bromodichloromethane	1.2	U M	46.5	44.3		ug/Kg	☼	95	75 - 127	7	20
Dichlorodifluoromethane	2.3	U Q	46.5	21.6		ug/Kg	☼	46	29 - 149	8	20
Ethylbenzene	32	J1	46.5	49.2	J1	ug/Kg	☼	38	76 - 122	9	20
Ethylene Dibromide	2.3	U	46.5	48.5		ug/Kg	☼	104	78 - 122	4	20
Hexachlorobutadiene	2.3	U	46.5	43.8		ug/Kg	☼	94	61 - 135	0	20
Isopropylbenzene	11		46.5	46.5		ug/Kg	☼	76	68 - 134	7	20
Methyl tert-butyl ether	1.2	U	46.5	45.7		ug/Kg	☼	98	73 - 125	17	20
Methylene Chloride	8.0	J1	46.5	44.6	J1	ug/Kg	☼	79	70 - 128	26	20
m-Xylene & p-Xylene	83	J1	46.5	49.1	J1	ug/Kg	☼	-72	77 - 124	19	20
Naphthalene	8.3		46.5	50.2		ug/Kg	☼	90	62 - 129	9	20
n-Butylbenzene	13	J1	46.5	44.5	J1	ug/Kg	☼	68	70 - 128	11	20
N-Propylbenzene	18	J1	46.5	44.8	J1	ug/Kg	☼	57	73 - 125	10	20
o-Xylene	31	J1	46.5	48.8	J1	ug/Kg	☼	38	77 - 123	14	20
sec-Butylbenzene	12		46.5	45.3		ug/Kg	☼	73	73 - 126	10	20
Styrene	2.3	U	46.5	49.1		ug/Kg	☼	106	76 - 124	7	20
tert-Butylbenzene	2.3	U	46.5	45.2		ug/Kg	☼	97	73 - 125	7	20
Tetrachloroethene	2.3	U	46.5	44.5		ug/Kg	☼	96	73 - 128	5	20
Toluene	63	J1	46.5	49.7	J1	ug/Kg	☼	-29	77 - 121	21	20
trans-1,2-Dichloroethene	1.2	U	46.5	45.4		ug/Kg	☼	98	74 - 125	19	20
trans-1,3-Dichloropropene	2.3	U	46.5	48.1		ug/Kg	☼	103	71 - 130	4	20
Trichloroethene	1.2	U	46.5	43.0		ug/Kg	☼	92	77 - 123	7	20
Trichlorofluoromethane	4.6	U	46.5	43.8		ug/Kg	☼	94	62 - 140	7	20
Vinyl chloride	4.6	U	46.5	39.7		ug/Kg	☼	85	56 - 135	14	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*
4-Bromofluorobenzene (Surr)	*90*		*79 - 119*
Dibromofluoromethane (Surr)	*89*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439348/4
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/29/18 22:05	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/29/18 22:05	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 22:05	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 22:05	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/29/18 22:05	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/29/18 22:05	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/29/18 22:05	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/29/18 22:05	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/29/18 22:05	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/29/18 22:05	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/29/18 22:05	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/29/18 22:05	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/29/18 22:05	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/29/18 22:05	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 22:05	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/29/18 22:05	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/29/18 22:05	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/29/18 22:05	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/29/18 22:05	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/29/18 22:05	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/29/18 22:05	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439348/4
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/29/18 22:05	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/29/18 22:05	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 22:05	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/29/18 22:05	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/29/18 22:05	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/29/18 22:05	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/29/18 22:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*81 - 118*		*11/29/18 22:05*	*1*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*11/29/18 22:05*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 119*		*11/29/18 22:05*	*1*

Lab Sample ID: LCS 280-439348/5
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.93	J	ug/L		99	62 - 128
2-Butanone (MEK)	20.0	19.2		ug/L		96	56 - 143
1,2-Dichlorobenzene	5.00	5.24		ug/L		105	80 - 119
1,3-Dichlorobenzene	5.00	5.35		ug/L		107	80 - 119
4-Chlorotoluene	5.00	5.55		ug/L		111	78 - 122
1,4-Dichlorobenzene	5.00	5.11		ug/L		102	79 - 118
1,1-Dichloroethane	5.00	4.96		ug/L		99	77 - 125
1,2-Dichloroethane	5.00	4.65		ug/L		93	73 - 128
Acetone	20.0	17.5		ug/L		87	39 - 160
1,1-Dichloroethene	5.00	5.10		ug/L		102	71 - 131
Benzene	5.00	4.99		ug/L		100	79 - 120
Bromobenzene	5.00	5.23		ug/L		105	80 - 120
Bromoform	5.00	4.90		ug/L		98	66 - 130
Bromomethane	5.00	4.78		ug/L		96	53 - 141
1,2-Dichloropropane	5.00	5.20		ug/L		104	78 - 122
Carbon disulfide	5.00	4.93		ug/L		99	64 - 133
1,3-Dichloropropane	5.00	4.91		ug/L		98	80 - 119
Carbon tetrachloride	5.00	4.61		ug/L		92	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439348/5
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	4.63		ug/L		93	60 - 139
Chlorobenzene	5.00	5.23		ug/L		105	82 - 118
1,1-Dichloropropene	5.00	4.87		ug/L		97	79 - 125
Bromochloromethane	5.00	5.10		ug/L		102	78 - 123
Dibromochloromethane	5.00	5.06		ug/L		101	74 - 126
Chloroethane	5.00	4.77		ug/L		95	60 - 138
Chloroform	5.00	4.85		ug/L		97	79 - 124
2-Hexanone	20.0	18.6		ug/L		93	57 - 139
Chloromethane	5.00	3.76		ug/L		75	50 - 139
cis-1,2-Dichloroethene	5.00	5.13		ug/L		103	78 - 123
cis-1,3-Dichloropropene	5.00	5.39		ug/L		108	75 - 124
4-Isopropyltoluene	5.00	5.18		ug/L		104	77 - 127
Dibromomethane	5.00	4.83		ug/L		97	79 - 123
Bromodichloromethane	5.00	4.81		ug/L		96	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.0		ug/L		95	67 - 130
Dichlorodifluoromethane	5.00	2.42		ug/L		48	32 - 152
Ethylbenzene	5.00	5.34		ug/L		107	79 - 121
Ethylene Dibromide	5.00	4.96		ug/L		99	77 - 121
Hexachlorobutadiene	5.00	5.14		ug/L		103	66 - 134
Isopropylbenzene	5.00	5.21		ug/L		104	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.28		ug/L		106	78 - 124
Methyl tert-butyl ether	5.00	4.75	J	ug/L		95	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.17		ug/L		103	71 - 121
Methylene Chloride	5.00	4.75	J	ug/L		95	74 - 124
Naphthalene	5.00	4.89		ug/L		98	61 - 128
1,2,3-Trichlorobenzene	5.00	4.96		ug/L		99	69 - 129
n-Butylbenzene	5.00	5.02		ug/L		100	75 - 128
1,1,1-Trichloroethane	5.00	4.68		ug/L		94	74 - 131
N-Propylbenzene	5.00	5.49		ug/L		110	76 - 126
1,1,2-Trichloroethane	5.00	5.30		ug/L		106	80 - 119
sec-Butylbenzene	5.00	5.53		ug/L		111	77 - 126
Styrene	5.00	5.45		ug/L		109	78 - 123
1,2,4-Trichlorobenzene	5.00	5.03		ug/L		101	69 - 130
tert-Butylbenzene	5.00	5.25		ug/L		105	78 - 124
1,2,3-Trichloropropane	5.00	5.08		ug/L		102	73 - 122
Tetrachloroethene	5.00	5.13		ug/L		103	74 - 129
1,2,4-Trimethylbenzene	5.00	5.04		ug/L		101	76 - 124
Toluene	5.00	5.05		ug/L		101	80 - 121
1,3,5-Trimethylbenzene	5.00	5.02		ug/L		100	75 - 124
trans-1,2-Dichloroethene	5.00	5.23		ug/L		105	75 - 124
trans-1,3-Dichloropropene	5.00	4.79		ug/L		96	73 - 127
o-Xylene	5.00	5.48		ug/L		110	78 - 122
Trichloroethene	5.00	4.93		ug/L		99	79 - 123
m-Xylene & p-Xylene	5.00	5.31		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	4.49		ug/L		90	65 - 141
Vinyl chloride	5.00	4.41		ug/L		88	58 - 137
2-Chlorotoluene	5.00	5.25		ug/L		105	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439348/5
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*
Dibromofluoromethane (Surr)	*91*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.38	M	mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: 280-117130-3 MS
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	2.9	M J1	4.17	4.49	M J1	mg/Kg	☼	38	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*

Lab Sample ID: 280-117130-3 MSD
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	2.9	M J1	4.68	13.4	M J1	mg/Kg	☼	223	79 - 122	99	30

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: 280-117130-3 MSD
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 438635

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	*120*		*77 - 123*

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.2		ug/L		105	78 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-438886/4-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438886

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/08/18 11:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*114*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 11:04*	*1*

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.731		ug/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	*103*	*M*	*55 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.670		ug/Kg		77	70 - 130	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*90*	*M*	*55 - 130*

Lab Sample ID: 280-117130-2 MS
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.042	U	0.971	0.777		ug/Kg	☼	80	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*170*	*M Q*	*55 - 130*

Lab Sample ID: 280-117130-2 MSD
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: V-S2-161118-510
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.042	U	0.972	0.696	M	ug/Kg	☼	72	70 - 130	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*116*	*M*	*55 - 130*

Lab Sample ID: MB 280-438900/4-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438900

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/06/18 16:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*105*		*70 - 130*	*11/27/18 10:48*	*12/06/18 16:01*	*1*

Lab Sample ID: LCS 280-438900/2-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438900

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.227		ug/L		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*70 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-438900/3-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438900

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.224		ug/L		89	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*106*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439507/1-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439507

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.32	J	8.0	4.0	1.4	mg/Kg		12/05/18 14:41	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/05/18 14:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/30/18 19:50*	*12/05/18 14:41*	*1*
n-Octacosane	*107*		*25 - 162*	*11/30/18 19:50*	*12/05/18 14:41*	*1*

Lab Sample ID: LCS 280-439507/2-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			133	89.6		mg/Kg		67	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-439507/3-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			334	297		mg/Kg		89	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*81*		*45 - 130*
n-Octacosane	*116*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-117130-3 MS
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	4.2	J	135	103		mg/Kg	☼	73	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*67*		*45 - 130*
n-Octacosane	*100*		*25 - 162*

Lab Sample ID: 280-117130-3 MS
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	25	U	345	295		mg/Kg	☼	85	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*75*		*45 - 130*
n-Octacosane	*108*		*25 - 162*

Lab Sample ID: 280-117130-3 MSD
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.2	J	140	115		mg/Kg	☼	79	38 - 132	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*45 - 130*
n-Octacosane	*98*		*25 - 162*

Lab Sample ID: 280-117130-3 MSD
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S2-161118-510
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	25	U	368	313		mg/Kg	☼	85	45 - 130	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*45 - 130*
n-Octacosane	*105*		*25 - 162*

GC/MS VOA

Analysis Batch: 439004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-2	V-S2-161118-510	Total/NA	Solid	8260B	439038
280-117130-4	V-S2-161158-510	Total/NA	Solid	8260B	439038
MB 280-439038/1-A	Method Blank	Total/NA	Solid	8260B	439038
LCS 280-439038/2-A	Lab Control Sample	Total/NA	Solid	8260B	439038
LCSD 280-439038/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439038
280-117130-2 MS	V-S2-161118-510	Total/NA	Solid	8260B	439038
280-117130-2 MSD	V-S2-161118-510	Total/NA	Solid	8260B	439038

Prep Batch: 439038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-2	V-S2-161118-510	Total/NA	Solid	5035	
280-117130-4	V-S2-161158-510	Total/NA	Solid	5035	
MB 280-439038/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439038/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439038/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
280-117130-2 MS	V-S2-161118-510	Total/NA	Solid	5035	
280-117130-2 MSD	V-S2-161118-510	Total/NA	Solid	5035	

Analysis Batch: 439348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-1	TB-S2-161118-02	Total/NA	Water	8260B	
MB 280-439348/4	Method Blank	Total/NA	Water	8260B	
LCS 280-439348/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-3	P-S2-161118-510	Total/NA	Solid	5035	
280-117130-5	P-S2-161158-510	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	5035	
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-3	P-S2-161118-510	Total/NA	Solid	8015D GRO	438635
280-117130-5	P-S2-161158-510	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	8015D GRO	438635
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	8015D GRO	438635

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-1	TB-S2-161118-02	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-2	V-S2-161118-510	Total/NA	Solid	8011	
280-117130-4	V-S2-161158-510	Total/NA	Solid	8011	
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-117130-2 MS	V-S2-161118-510	Total/NA	Solid	8011	
280-117130-2 MSD	V-S2-161118-510	Total/NA	Solid	8011	

Prep Batch: 438900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-1	TB-S2-161118-02	Total/NA	Water	8011	
MB 280-438900/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-438900/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-438900/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-3	P-S2-161118-510	Total/NA	Solid	3546	
280-117130-5	P-S2-161158-510	Total/NA	Solid	3546	
MB 280-439507/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	3546	
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	3546	
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	3546	
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	3546	

Analysis Batch: 439945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-3	P-S2-161118-510	Total/NA	Solid	8015D DRO	439507
280-117130-5	P-S2-161158-510	Total/NA	Solid	8015D DRO	439507
MB 280-439507/1-A	Method Blank	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	8015D DRO	439507
280-117130-3 MS	P-S2-161118-510	Total/NA	Solid	8015D DRO	439507
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	8015D DRO	439507
280-117130-3 MSD	P-S2-161118-510	Total/NA	Solid	8015D DRO	439507

Analysis Batch: 440220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-1	TB-S2-161118-02	Total/NA	Water	8011	438900
MB 280-438900/4-A	Method Blank	Total/NA	Water	8011	438900
LCS 280-438900/2-A	Lab Control Sample	Total/NA	Water	8011	438900
LCSD 280-438900/3-A	Lab Control Sample Dup	Total/NA	Water	8011	438900

Analysis Batch: 440435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-2	V-S2-161118-510	Total/NA	Solid	8011	438886
280-117130-4	V-S2-161158-510	Total/NA	Solid	8011	438886
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	438886

GC Semi VOA (Continued)

Analysis Batch: 440435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	438886
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	438886
280-117130-2 MS	V-S2-161118-510	Total/NA	Solid	8011	438886
280-117130-2 MSD	V-S2-161118-510	Total/NA	Solid	8011	438886

General Chemistry

Analysis Batch: 438507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-2	V-S2-161118-510	Total/NA	Solid	Moisture	
280-117130-3	P-S2-161118-510	Total/NA	Solid	Moisture	
280-117130-4	V-S2-161158-510	Total/NA	Solid	Moisture	
280-117130-5	P-S2-161158-510	Total/NA	Solid	Moisture	

Client Sample ID: TB-S2-161118-02

Lab Sample ID: 280-117130-1

Date Collected: 11/16/18 15:30

Matrix: Water

Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439348	11/30/18 04:09	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/29/18 11:38	GPM	TAL DEN
Total/NA	Prep	8011			34.1 mL	35 mL	438900	11/27/18 10:48	SU	TAL DEN
Total/NA	Analysis	8011		1			440220	12/06/18 16:58	JLW	TAL DEN

Client Sample ID: V-S2-161118-510

Lab Sample ID: 280-117130-2

Date Collected: 11/16/18 10:30

Matrix: Solid

Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: V-S2-161118-510

Lab Sample ID: 280-117130-2

Date Collected: 11/16/18 10:30

Matrix: Solid

Date Received: 11/17/18 09:45

Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.849 g	5 mL	439038	11/16/18 10:30	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439004	11/28/18 18:27	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 15:12	JLW	TAL DEN

Client Sample ID: P-S2-161118-510

Lab Sample ID: 280-117130-3

Date Collected: 11/16/18 10:30

Matrix: Solid

Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: P-S2-161118-510

Lab Sample ID: 280-117130-3

Date Collected: 11/16/18 10:30

Matrix: Solid

Date Received: 11/17/18 09:45

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.785 g	5 mL	438635	11/16/18 10:30	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 13:23	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 15:47	CSM	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Client Sample ID: V-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: V-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-4
Matrix: Solid
Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.375 g	5 mL	439038	11/16/18 10:30	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439004	11/28/18 11:40	JLS	TAL DEN
Total/NA	Prep	8011			9.97 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 16:09	JLW	TAL DEN

Client Sample ID: P-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: P-S2-161158-510
Date Collected: 11/16/18 10:30
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-5
Matrix: Solid
Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.603 g	5 mL	438635	11/16/18 10:30	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 14:35	GPM	TAL DEN
Total/NA	Prep	3546			16.9 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 18:19	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4933 3593 1019
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com	COC No: COC-52-TA-20181116
Company: EA Engineering, Science, and Technology			Page: 1 of 1
Address: 7995 E. Prentice Ave, Suite 208E	Due Date Requested: Per PO		Job #:
City: Greenwood Village	TAT Requested (days): Per PO		
State, Zip: CO, 80111			
Phone: 303-590-9143(Tel)	PO #: 15065		
Email: pmoss@eaest.com	WO #: 62735DW02.1017		
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071		
Site: Kirtland BFF	SSOW#:		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code:	8260B_DOD8 - VOCs, Soil	8011_DD35 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD8 - DRO & ORO, Soil	8015B_GRO_DOD8 - GRO, Soil	8260B_DD35 - VOCs, Water	8011_DD35 - Ethylene Dibromide (EDB), Water	8015D_DRO_DOD8 - DRO & ORO, Water	8015D_GRO_DOD8 - GRO, Water	Total Number of containers	Special Instructions/Note:
					X	X		J/F	N	N	N	F	A	R	N	A	X	
TB-52-[illegible]1118-02	11/16/18	1530	G	W	N	N							X	X		X	6	
V-52-[illegible]1118-S10	11/16/18	1630	G	S	N	Y		X	X	X							5	MS/MSD
P-52-[illegible]1118-S10	11/16/18	1630	G	S	N	Y					X	X					4	MS/MSD
V-52-[illegible]1158-S10	11/16/18	1630	G	S	N	N		X	X	X							5	Dup
P-52-[illegible]1158-S10	11/16/18	1630	G	S	N	N					X	X					3	Dup

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

280-117130 Chain of Custody

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Joshua Livingston	Date/Time: 11/16/18 1500	Company: EA	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by: Date/Time: 11/17/18 0945 Company: TA Den

Custody Seals Intact: ☐ Yes ☐ No Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.6, 2.8 5 +1.0 by AF 11/17/18

Ver: 08/04/2016

1. Correct the Sample date in the IDs and in the date field to 11/16/18. Gmoss 11/16/18

Chain of Custody Record

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4933 3593 1019	COC No: COC2-S2-TA-20181[illegible]
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-52-161118-02	11/16/18	1530	G	W	N	N	—	—	—	—	—	X	X	—	X	—	6
V-52-161118-S10	11/16/18	1630	G	S	N	Y	X	X	X	—	—	—	—	—	—	—	5 MS/MSD
P-52-161118-S10	11/16/18	1630	G	S	N	Y	—	—	—	X	X	—	—	—	—	—	9 MS/MSD
V-52-161158-S10	11/16/18	1630	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5 Dup
P-52-161158-S10	11/16/18	1630	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3 Dup
↳ 161118 for all samples Gmoss 12/5/18	11/16/18	Gmoss 12/5/18															

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Joshua Livingston	11/16/18 1500	EA			
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

12/11/2018

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117130-1

Login Number: 117130
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117130-2
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/11/2018 1:12:57 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117130-2

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117130-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/17/2018 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.6º C and 3.8º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S2-161118-474 (280-117130-6) and V-S2-161118-499 (280-117130-8) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/16/2018 and analyzed on 11/28/2018 and 11/30/2018.

1,2,4-Trimethylbenzene was detected in method blank MB 280-439038/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". This is considered acceptable since the detection was less than one-half the LOQ.

Acetone, a common laboratory contaminant, was detected in method blank MB 280-439038/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details. The detection was greater than one-half the LOQ; however, as Acetone is a common laboratory contaminant, it is controlled to the LOQ instead of to one-half the LOQ.

The continuing calibration verification (CCV) associated with batch 280-439004 recovered outside acceptance criteria, low biased, for Dichlorodifluoromethane (-29.2%D). The failing compound is considered a poor performer and is allowed up to 30%D. Associated results have been flagged "Q". Report data with NCM and flags. The following samples are associated: V-S2-161118-474

Job ID: 280-117130-2 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-117130-6) and (CCV 280-439004/12).

The initial calibration verification (ICV) result for batch 280-439476 was above the upper control limit for Dichlorodifluoromethane (+34.3%D). Associated results have been flagged "Q". The bias was high and sample results were non-detects; therefore, the data have been qualified and reported. The following sample is associated: V-S2-161118-499 (280-117130-8).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S2-161118-01 (280-117130-10) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 11/30/2018.

The continuing calibration verification (CCV) associated with batch 280-439348 recovered above the upper control limit for Styrene (+21.0%D). Associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The following samples are impacted: TB-S2-161118-01 (280-117130-10) and (CCV 280-439348/2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S2-161118-474 (280-117130-6) and V-S2-161118-499 (280-117130-8) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/08/2018.

Sample V-S2-161118-474 (280-117130-6)[200X] required dilution prior to analysis due to the nature of the sample matrix. As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided. Associated results have been flagged "Q".

In batch 440435, the 1,2-Dibromopropane surrogate recovery for the following samples was outside acceptance limits (high biased) on the confirmation column due to matrix interference: V-S2-161118-499 (280-117130-8). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S2-161118-01 (280-117130-10) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S2-161118-474 (280-117130-7) and P-S2-161118-499 (280-117130-9) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/16/2018 and analyzed on 11/24/2018.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S2-161118-499 (280-117130-9). Refer to the QC report for details. Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S2-161118-01 (280-117130-10) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/28/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Job ID: 280-117130-2 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples P-S2-161118-474 (280-117130-7) and P-S2-161118-499 (280-117130-9) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/30/2018 and analyzed on 12/05/2018.

Per client request, samples were silica gel cleaned prior to analysis: P-S2-161118-474 (280-117130-7), P-S2-161118-499 (280-117130-9), (LCS 280-439507/2-A), (LCS 280-439507/3-A), (MB 280-439507/1-A).

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439507/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S2-161118-474 (280-117130-6), P-S2-161118-474 (280-117130-7), V-S2-161118-499 (280-117130-8) and P-S2-161118-499 (280-117130-9) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/21/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Client Sample ID: V-S2-161118-474 — Lab Sample ID: 280-117130-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	1.6	J	4.9	3.2	0.57	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	3.3	J	4.9	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	21		20	13	4.3	ug/Kg	1	☼	8260B	Total/NA
Acetone	23	B	20	13	5.3	ug/Kg	1	☼	8260B	Total/NA
Benzene	6.1		4.9	1.6	0.47	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	14		4.9	1.6	0.51	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	7.9		3.2	3.2	1.0	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	10		4.9	1.6	0.60	ug/Kg	1	☼	8260B	Total/NA
Toluene	15		4.9	1.6	0.68	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S2-161118-474 — Lab Sample ID: 280-117130-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	20		9.2	4.6	1.6	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S2-161118-499 — Lab Sample ID: 280-117130-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1500	J	1900	1600	500	ug/Kg	1	☼	8260B	Total/NA
Benzene	210	J	310	200	56	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	220	J	310	100	40	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	270	J	310	100	48	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	870		310	100	43	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	250	J	310	100	36	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	150	J	310	100	40	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	200	J	630	100	48	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	420		310	200	51	ug/Kg	1	☼	8260B	Total/NA
Toluene	2000		310	100	49	ug/Kg	1	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	1200		310	100	39	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	510		310	100	49	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	720		160	100	44	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	2300		310	200	98	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	0.19	M	0.11	0.043	0.017	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S2-161118-499 — Lab Sample ID: 280-117130-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	22	M Q	1.4	1.3	0.37	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	35		8.3	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: TB-S2-161118-01 — Lab Sample ID: 280-117130-10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	47		25	25	10	ug/L	1		8015D GRO	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117130-6	V-S2-161118-474	Solid	11/16/18 10:20	11/17/18 09:45
280-117130-7	P-S2-161118-474	Solid	11/16/18 10:20	11/17/18 09:45
280-117130-8	V-S2-161118-499	Solid	11/16/18 14:40	11/17/18 09:45
280-117130-9	P-S2-161118-499	Solid	11/16/18 14:40	11/17/18 09:45
280-117130-10	TB-S2-161118-01	Water	11/16/18 12:20	11/17/18 09:45

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	4.9	1.6	0.55	ug/Kg	☼	11/28/18 12:00	1
1,1,1-Trichloroethane	1.6	U	4.9	1.6	0.51	ug/Kg	☼	11/28/18 12:00	1
1,1,2,2-Tetrachloroethane	1.6	U M	4.9	1.6	0.60	ug/Kg	☼	11/28/18 12:00	1
1,1,2-Trichloroethane	3.2	U M	4.9	3.2	0.87	ug/Kg	☼	11/28/18 12:00	1
1,1-Dichloroethane	0.79	U	4.9	0.79	0.21	ug/Kg	☼	11/28/18 12:00	1
1,1-Dichloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	11/28/18 12:00	1
1,1-Dichloropropene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	11/28/18 12:00	1
1,2,3-Trichlorobenzene	1.6	U M	4.9	1.6	0.74	ug/Kg	☼	11/28/18 12:00	1
1,2,3-Trichloropropane	3.2	U M	4.9	3.2	0.80	ug/Kg	☼	11/28/18 12:00	1
1,2,4-Trichlorobenzene	1.6	U M	4.9	1.6	0.72	ug/Kg	☼	11/28/18 12:00	1
1,2,4-Trimethylbenzene	**1.6**	**J**	4.9	3.2	0.57	ug/Kg	☼	11/28/18 12:00	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.9	1.6	0.59	ug/Kg	☼	11/28/18 12:00	1
1,2-Dichlorobenzene	1.6	U	4.9	1.6	0.45	ug/Kg	☼	11/28/18 12:00	1
1,2-Dichloroethane	1.6	U	4.9	1.6	0.69	ug/Kg	☼	11/28/18 12:00	1
1,2-Dichloroethene, Total	1.6	U	4.9	1.6	0.39	ug/Kg	☼	11/28/18 12:00	1
1,2-Dichloropropane	1.6	U	4.9	1.6	0.54	ug/Kg	☼	11/28/18 12:00	1
1,3,5-Trimethylbenzene	**3.3**	**J**	4.9	1.6	0.56	ug/Kg	☼	11/28/18 12:00	1
1,3-Dichlorobenzene	1.6	U	4.9	1.6	0.48	ug/Kg	☼	11/28/18 12:00	1
1,3-Dichloropropane	1.6	U	4.9	1.6	0.50	ug/Kg	☼	11/28/18 12:00	1
1,4-Dichlorobenzene	1.6	U	4.9	1.6	0.77	ug/Kg	☼	11/28/18 12:00	1
2,2-Dichloropropane	1.6	U	4.9	1.6	0.44	ug/Kg	☼	11/28/18 12:00	1
2-Butanone (MEK)	6.3	U	20	6.3	1.8	ug/Kg	☼	11/28/18 12:00	1
2-Chlorotoluene	1.6	U	4.9	1.6	0.50	ug/Kg	☼	11/28/18 12:00	1
2-Hexanone	13	U M	20	13	4.8	ug/Kg	☼	11/28/18 12:00	1
4-Chlorotoluene	1.6	U M	4.9	1.6	0.77	ug/Kg	☼	11/28/18 12:00	1
4-Isopropyltoluene	1.6	U	4.9	1.6	0.49	ug/Kg	☼	11/28/18 12:00	1
4-Methyl-2-pentanone (MIBK)	**21**		20	13	4.3	ug/Kg	☼	11/28/18 12:00	1
Acetone	**23**	**B**	20	13	5.3	ug/Kg	☼	11/28/18 12:00	1
Benzene	**6.1**		4.9	1.6	0.47	ug/Kg	☼	11/28/18 12:00	1
Bromobenzene	1.6	U	4.9	1.6	0.49	ug/Kg	☼	11/28/18 12:00	1
Bromoform	0.79	U	4.9	0.79	0.23	ug/Kg	☼	11/28/18 12:00	1
Bromomethane	1.6	U	9.9	1.6	0.49	ug/Kg	☼	11/28/18 12:00	1
Carbon disulfide	1.6	U	4.9	1.6	0.42	ug/Kg	☼	11/28/18 12:00	1
Carbon tetrachloride	1.6	U	4.9	1.6	0.62	ug/Kg	☼	11/28/18 12:00	1
Chlorobenzene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	11/28/18 12:00	1
Bromochloromethane	0.79	U	4.9	0.79	0.30	ug/Kg	☼	11/28/18 12:00	1
Dibromochloromethane	1.6	U	4.9	1.6	0.56	ug/Kg	☼	11/28/18 12:00	1
Chloroethane	3.2	U	9.9	3.2	0.88	ug/Kg	☼	11/28/18 12:00	1
Chloroform	0.79	U	9.9	0.79	0.29	ug/Kg	☼	11/28/18 12:00	1
Chloromethane	1.6	U	9.9	1.6	0.76	ug/Kg	☼	11/28/18 12:00	1
cis-1,2-Dichloroethene	1.6	U	4.9	1.6	0.55	ug/Kg	☼	11/28/18 12:00	1
cis-1,3-Dichloropropene	3.2	U	4.9	3.2	1.3	ug/Kg	☼	11/28/18 12:00	1
Dibromomethane	3.2	U	4.9	3.2	0.83	ug/Kg	☼	11/28/18 12:00	1
Bromodichloromethane	0.79	U	4.9	0.79	0.22	ug/Kg	☼	11/28/18 12:00	1
Dichlorodifluoromethane	1.6	U Q	9.9	1.6	0.51	ug/Kg	☼	11/28/18 12:00	1
Ethylbenzene	1.6	U	4.9	1.6	0.66	ug/Kg	☼	11/28/18 12:00	1
Ethylene Dibromide	**14**		4.9	1.6	0.51	ug/Kg	☼	11/28/18 12:00	1
Hexachlorobutadiene	1.6	U	4.9	1.6	0.54	ug/Kg	☼	11/28/18 12:00	1
Isopropylbenzene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	11/28/18 12:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methyl tert-butyl ether	0.79	U	20	0.79	0.34	ug/Kg	☼	11/28/18 12:00	1
Methylene Chloride	3.2	U	4.9	3.2	1.6	ug/Kg	☼	11/28/18 12:00	1
m-Xylene & p-Xylene	**7.9**		3.2	3.2	1.0	ug/Kg	☼	11/28/18 12:00	1
Naphthalene	1.6	U	4.9	1.6	0.62	ug/Kg	☼	11/28/18 12:00	1
n-Butylbenzene	1.6	U M	4.9	1.6	0.55	ug/Kg	☼	11/28/18 12:00	1
N-Propylbenzene	1.6	U M	4.9	1.6	0.57	ug/Kg	☼	11/28/18 12:00	1
o-Xylene	**10**		4.9	1.6	0.60	ug/Kg	☼	11/28/18 12:00	1
sec-Butylbenzene	1.6	U	4.9	1.6	0.76	ug/Kg	☼	11/28/18 12:00	1
Styrene	1.6	U	4.9	1.6	0.62	ug/Kg	☼	11/28/18 12:00	1
tert-Butylbenzene	1.6	U	4.9	1.6	0.49	ug/Kg	☼	11/28/18 12:00	1
Tetrachloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	11/28/18 12:00	1
Toluene	**15**		4.9	1.6	0.68	ug/Kg	☼	11/28/18 12:00	1
trans-1,2-Dichloroethene	0.79	U	4.9	0.79	0.39	ug/Kg	☼	11/28/18 12:00	1
trans-1,3-Dichloropropene	1.6	U	4.9	1.6	0.66	ug/Kg	☼	11/28/18 12:00	1
Trichloroethene	0.79	U	4.9	0.79	0.23	ug/Kg	☼	11/28/18 12:00	1
Trichlorofluoromethane	3.2	U	9.9	3.2	1.0	ug/Kg	☼	11/28/18 12:00	1
Vinyl chloride	3.2	U	4.9	3.2	1.3	ug/Kg	☼	11/28/18 12:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*85 - 116*	*11/16/18 10:20*	*11/28/18 12:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 136*	*11/16/18 10:20*	*11/28/18 12:00*	*1*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*	*11/16/18 10:20*	*11/28/18 12:00*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 119*	*11/16/18 10:20*	*11/28/18 12:00*	*1*

Client Sample ID: V-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-8
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**1500**	**J**	1900	1600	500	ug/Kg	☼	11/30/18 18:00	1
Benzene	**210**	**J**	310	200	56	ug/Kg	☼	11/30/18 18:00	1
Bromobenzene	50	U	310	50	24	ug/Kg	☼	11/30/18 18:00	1
Bromochloromethane	200	U	310	200	59	ug/Kg	☼	11/30/18 18:00	1
Bromodichloromethane	100	U M	310	100	50	ug/Kg	☼	11/30/18 18:00	1
Bromoform	200	U	310	200	200	ug/Kg	☼	11/30/18 18:00	1
Bromomethane	200	U	630	200	55	ug/Kg	☼	11/30/18 18:00	1
2-Butanone (MEK)	800	U	1300	800	370	ug/Kg	☼	11/30/18 18:00	1
n-Butylbenzene	**220**	**J**	310	100	40	ug/Kg	☼	11/30/18 18:00	1
sec-Butylbenzene	**270**	**J**	310	100	48	ug/Kg	☼	11/30/18 18:00	1
tert-Butylbenzene	100	U	310	100	35	ug/Kg	☼	11/30/18 18:00	1
Carbon disulfide	200	U M	310	200	80	ug/Kg	☼	11/30/18 18:00	1
Carbon tetrachloride	50	U	310	50	21	ug/Kg	☼	11/30/18 18:00	1
Chlorobenzene	100	U	310	100	38	ug/Kg	☼	11/30/18 18:00	1
Chloroethane	200	U	630	200	55	ug/Kg	☼	11/30/18 18:00	1
Chloroform	200	U	310	200	58	ug/Kg	☼	11/30/18 18:00	1
Chloromethane	200	U	630	200	63	ug/Kg	☼	11/30/18 18:00	1
4-Chlorotoluene	100	U	310	100	29	ug/Kg	☼	11/30/18 18:00	1
Dibromochloromethane	100	U	310	100	41	ug/Kg	☼	11/30/18 18:00	1
1,2-Dibromo-3-Chloropropane	400	U	630	400	110	ug/Kg	☼	11/30/18 18:00	1
Dichlorodifluoromethane	100	U Q	630	100	28	ug/Kg	☼	11/30/18 18:00	1
Dibromomethane	100	U	310	100	38	ug/Kg	☼	11/30/18 18:00	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-8
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	100	U	310	100	31	ug/Kg	☼	11/30/18 18:00	1
1,2-Dichlorobenzene	400	U	630	400	120	ug/Kg	☼	11/30/18 18:00	1
1,3-Dichlorobenzene	200	U	310	200	51	ug/Kg	☼	11/30/18 18:00	1
1,4-Dichlorobenzene	100	U	310	100	31	ug/Kg	☼	11/30/18 18:00	1
1,1-Dichloroethane	200	U	310	200	63	ug/Kg	☼	11/30/18 18:00	1
1,2-Dichloroethane	100	U	310	100	31	ug/Kg	☼	11/30/18 18:00	1
1,1-Dichloroethene	200	U	310	200	63	ug/Kg	☼	11/30/18 18:00	1
1,2-Dichloroethene, Total	100	U	160	100	28	ug/Kg	☼	11/30/18 18:00	1
cis-1,2-Dichloroethene	100	U	160	100	28	ug/Kg	☼	11/30/18 18:00	1
trans-1,2-Dichloroethene	200	U	310	200	56	ug/Kg	☼	11/30/18 18:00	1
1,2-Dichloropropane	200	U M	310	200	58	ug/Kg	☼	11/30/18 18:00	1
1,3-Dichloropropane	100	U	310	100	35	ug/Kg	☼	11/30/18 18:00	1
2,2-Dichloropropane	100	U	310	100	34	ug/Kg	☼	11/30/18 18:00	1
1,1-Dichloropropene	200	U	310	200	60	ug/Kg	☼	11/30/18 18:00	1
cis-1,3-Dichloropropene	100	U	310	100	34	ug/Kg	☼	11/30/18 18:00	1
trans-1,3-Dichloropropene	200	U M	310	200	52	ug/Kg	☼	11/30/18 18:00	1
Ethylbenzene	**870**		310	100	43	ug/Kg	☼	11/30/18 18:00	1
2-Hexanone	800	U M	1300	800	270	ug/Kg	☼	11/30/18 18:00	1
Hexachlorobutadiene	200	U	310	200	61	ug/Kg	☼	11/30/18 18:00	1
Isopropylbenzene	**250**	**J**	310	100	36	ug/Kg	☼	11/30/18 18:00	1
4-Isopropyltoluene	**150**	**J**	310	100	40	ug/Kg	☼	11/30/18 18:00	1
Methylene Chloride	200	U	310	200	86	ug/Kg	☼	11/30/18 18:00	1
4-Methyl-2-pentanone (MIBK)	800	U M	1300	800	280	ug/Kg	☼	11/30/18 18:00	1
Methyl tert-butyl ether	200	U	310	200	63	ug/Kg	☼	11/30/18 18:00	1
Naphthalene	**200**	**J**	630	100	48	ug/Kg	☼	11/30/18 18:00	1
N-Propylbenzene	**420**		310	200	51	ug/Kg	☼	11/30/18 18:00	1
Styrene	100	U M	310	100	33	ug/Kg	☼	11/30/18 18:00	1
1,1,1,2-Tetrachloroethane	100	U	310	100	26	ug/Kg	☼	11/30/18 18:00	1
1,1,2,2-Tetrachloroethane	100	U M	310	100	36	ug/Kg	☼	11/30/18 18:00	1
Tetrachloroethene	100	U	310	100	34	ug/Kg	☼	11/30/18 18:00	1
Toluene	**2000**		310	100	49	ug/Kg	☼	11/30/18 18:00	1
1,2,3-Trichlorobenzene	100	U	310	100	44	ug/Kg	☼	11/30/18 18:00	1
1,1,1-Trichloroethane	50	U	310	50	25	ug/Kg	☼	11/30/18 18:00	1
1,1,2-Trichloroethane	100	U M	310	100	34	ug/Kg	☼	11/30/18 18:00	1
Trichloroethene	100	U	310	100	29	ug/Kg	☼	11/30/18 18:00	1
Trichlorofluoromethane	200	U	630	200	63	ug/Kg	☼	11/30/18 18:00	1
1,2,4-Trichlorobenzene	200	U	310	200	59	ug/Kg	☼	11/30/18 18:00	1
1,2,3-Trichloropropane	200	U M	310	200	59	ug/Kg	☼	11/30/18 18:00	1
1,2,4-Trimethylbenzene	**1200**		310	100	39	ug/Kg	☼	11/30/18 18:00	1
1,3,5-Trimethylbenzene	**510**		310	100	49	ug/Kg	☼	11/30/18 18:00	1
Vinyl chloride	100	U	630	100	34	ug/Kg	☼	11/30/18 18:00	1
o-Xylene	**720**		160	100	44	ug/Kg	☼	11/30/18 18:00	1
m-Xylene & p-Xylene	**2300**		310	200	98	ug/Kg	☼	11/30/18 18:00	1
2-Chlorotoluene	100	U	310	100	33	ug/Kg	☼	11/30/18 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*85 - 116*	*11/16/18 14:40*	*11/30/18 18:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*11/16/18 14:40*	*11/30/18 18:00*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*11/16/18 14:40*	*11/30/18 18:00*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 119*	*11/16/18 14:40*	*11/30/18 18:00*	*1*

Client Sample ID: TB-S2-161118-01
Date Collected: 11/16/18 12:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-10
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		11/30/18 04:30	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/30/18 04:30	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:30	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/30/18 04:30	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/30/18 04:30	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/30/18 04:30	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/30/18 04:30	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/30/18 04:30	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/30/18 04:30	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/30/18 04:30	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:30	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/30/18 04:30	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/30/18 04:30	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:30	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:30	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 04:30	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:30	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 04:30	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/30/18 04:30	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/30/18 04:30	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:30	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:30	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:30	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:30	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 04:30	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:30	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:30	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/30/18 04:30	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/30/18 04:30	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:30	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 04:30	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/30/18 04:30	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/30/18 04:30	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/30/18 04:30	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 04:30	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Styrene	0.40	U Q	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:30	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:30	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S2-161118-01
Date Collected: 11/16/18 12:20
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-10
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 04:30	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:30	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/30/18 04:30	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/30/18 04:30	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 04:30	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/30/18 04:30	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 04:30	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 04:30	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/30/18 04:30	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 04:30	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/30/18 04:30	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 04:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*11/30/18 04:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*		*11/30/18 04:30*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*11/30/18 04:30*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*11/30/18 04:30*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-7
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.5	1.3	0.39	mg/Kg	☼	11/24/18 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*82*		*77 - 123*	*11/16/18 10:20*	*11/24/18 14:59*	*1*

Client Sample ID: P-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-9
Matrix: Solid
Percent Solids: 88.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**22**	**M Q**	1.4	1.3	0.37	mg/Kg	☼	11/24/18 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*146*	*Q*	*77 - 123*	*11/16/18 14:40*	*11/24/18 15:22*	*1*

Client Sample ID: TB-S2-161118-01
Date Collected: 11/16/18 12:20
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-10
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**47**		25	25	10	ug/L		11/28/18 22:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*11/28/18 22:16*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	8.6	U	23	8.6	3.4	ug/Kg	☼	12/08/18 16:28	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q D*	*55 - 130*	*11/27/18 10:27*	*12/08/18 16:28*	*200*

Client Sample ID: V-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-8
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**0.19**	**M**	0.11	0.043	0.017	ug/Kg	☼	12/08/18 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*123*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 16:47*	*1*

Client Sample ID: TB-S2-161118-01
Date Collected: 11/16/18 12:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-10
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/06/18 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*105*		*70 - 130*	*11/27/18 10:48*	*12/06/18 17:17*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-7
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**20**		9.2	4.6	1.6	mg/Kg	☼	12/05/18 18:40	1
Motor Oil (C20-C38)	27	U	27	27	9.0	mg/Kg	☼	12/05/18 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*68*		*45 - 130*	*11/30/18 19:50*	*12/05/18 18:40*	*1*
n-Octacosane	*92*		*25 - 162*	*11/30/18 19:50*	*12/05/18 18:40*	*1*

Client Sample ID: P-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45

Lab Sample ID: 280-117130-9
Matrix: Solid
Percent Solids: 88.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**35**		8.3	4.2	1.4	mg/Kg	☼	12/05/18 19:02	1
Motor Oil (C20-C38)	24	U	25	24	8.1	mg/Kg	☼	12/05/18 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*11/30/18 19:50*	*12/05/18 19:02*	*1*
n-Octacosane	*104*		*25 - 162*	*11/30/18 19:50*	*12/05/18 19:02*	*1*

General Chemistry

Client Sample ID: V-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.8		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: P-S2-161118-474
Date Collected: 11/16/18 10:20
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-7
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.7		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: V-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-8
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.9		0.1	0.05	0.1	%		11/21/18 19:05	1

Client Sample ID: P-S2-161118-499
Date Collected: 11/16/18 14:40
Date Received: 11/17/18 09:45
Lab Sample ID: 280-117130-9
Matrix: Solid
Percent Solids: 88.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.1		0.1	0.05	0.1	%		11/21/18 19:05	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117130-6	V-S2-161118-474	102	75	89	89
280-117130-8	V-S2-161118-499	95	80	96	83
LCS 280-439038/2-A	Lab Control Sample	102	78	94	89
LCS 280-439485/2-A	Lab Control Sample	100	97	101	97
LCSD 280-439038/3-A	Lab Control Sample Dup	99	82	96	90
LCSD 280-439485/3-A	Lab Control Sample Dup	99	92	98	95
MB 280-439038/1-A	Method Blank	98	85	93	90
MB 280-439485/1-A	Method Blank	100	94	102	96

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117130-10	TB-S2-161118-01	95	87	95	95
LCS 280-439348/5	Lab Control Sample	97	87	92	91
MB 280-439348/4	Method Blank	97	82	92	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117130-7	P-S2-161118-474	82
280-117130-9	P-S2-161118-499	146 Q
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117130-10	TB-S2-161118-01	94
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(55-130)
280-117130-6	V-S2-161118-474	0 Q D
280-117130-8	V-S2-161118-499	123 M
LCS 280-438886/2-A	Lab Control Sample	103 M
LCSD 280-438886/3-A	Lab Control Sample Dup	90 M
MB 280-438886/4-A	Method Blank	114 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-117130-10	TB-S2-161118-01	105
LCS 280-438900/2-A	Lab Control Sample	104
LCSD 280-438900/3-A	Lab Control Sample Dup	106
MB 280-438900/4-A	Method Blank	105

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-117130-7	P-S2-161118-474	68	92
280-117130-9	P-S2-161118-499	70	104
LCS 280-439507/2-A	Lab Control Sample	64	101
LCS 280-439507/3-A	Lab Control Sample	81	116
MB 280-439507/1-A	Method Blank	63	107

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439038/1-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439038

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/28/18 10:39	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/28/18 10:39	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/28/18 10:39	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/28/18 10:39	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/28/18 10:39	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/28/18 10:39	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/28/18 10:39	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/28/18 10:39	1
Acetone	19.5	J	20	13	5.4	ug/Kg		11/28/18 10:39	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/28/18 10:39	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/28/18 10:39	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/28/18 10:39	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/28/18 10:39	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/28/18 10:39	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/28/18 10:39	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/28/18 10:39	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/28/18 10:39	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/28/18 10:39	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/28/18 10:39	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/28/18 10:39	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/28/18 10:39	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/28/18 10:39	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/28/18 10:39	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/28/18 10:39	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		11/28/18 10:39	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/28/18 10:39	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/28/18 10:39	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/28/18 10:39	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/28/18 10:39	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/28/18 10:39	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		11/28/18 10:39	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/28/18 10:39	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/28/18 10:39	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/28/18 10:39	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/28/18 10:39	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/28/18 10:39	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/28/18 10:39	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/28/18 10:39	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/28/18 10:39	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/28/18 10:39	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/28/18 10:39	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/28/18 10:39	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439038/1-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439038

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/28/18 10:39	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/28/18 10:39	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/28/18 10:39	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/28/18 10:39	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/28/18 10:39	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/28/18 10:39	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/28/18 10:39	1
1,2,4-Trimethylbenzene	0.699	J	5.0	3.2	0.58	ug/Kg		11/28/18 10:39	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/28/18 10:39	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/28/18 10:39	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/28/18 10:39	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/28/18 10:39	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/28/18 10:39	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/28/18 10:39	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/28/18 10:39	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/28/18 10:39	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/28/18 10:39	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/28/18 10:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*	*11/28/18 07:00*	*11/28/18 10:39*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*11/28/18 07:00*	*11/28/18 10:39*	*1*

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	50.4		ug/Kg		101	61 - 132
2-Butanone (MEK)	200	196		ug/Kg		98	51 - 148
1,2-Dichlorobenzene	50.0	48.2		ug/Kg		96	78 - 121
1,3-Dichlorobenzene	50.0	47.0		ug/Kg		94	77 - 121
4-Chlorotoluene	50.0	50.0		ug/Kg		100	72 - 124
1,4-Dichlorobenzene	50.0	47.2		ug/Kg		94	75 - 120
1,1-Dichloroethane	50.0	47.2		ug/Kg		94	76 - 125
1,2-Dichloroethane	50.0	45.8		ug/Kg		92	73 - 128
Acetone	200	198		ug/Kg		99	36 - 164
1,1-Dichloroethene	50.0	51.5		ug/Kg		103	70 - 131
Benzene	50.0	49.1		ug/Kg		98	77 - 121
Bromobenzene	50.0	51.3		ug/Kg		103	78 - 121
Bromoform	50.0	51.6		ug/Kg		103	67 - 132
Bromomethane	50.0	53.7		ug/Kg		107	53 - 143
1,2-Dichloropropane	50.0	50.2		ug/Kg		100	76 - 123
Carbon disulfide	50.0	49.2		ug/Kg		98	63 - 132
1,3-Dichloropropane	50.0	52.8		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	43.7		ug/Kg		87	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	44.3		ug/Kg		89	67 - 133
Chlorobenzene	50.0	51.1		ug/Kg		102	79 - 120
1,1-Dichloropropene	50.0	46.6		ug/Kg		93	76 - 125
Bromochloromethane	50.0	52.3		ug/Kg		105	78 - 125
Dibromochloromethane	50.0	56.1		ug/Kg		112	74 - 126
Chloroethane	50.0	49.0		ug/Kg		98	59 - 139
Chloroform	50.0	46.1		ug/Kg		92	78 - 123
2-Hexanone	200	215		ug/Kg		108	53 - 145
Chloromethane	50.0	38.6		ug/Kg		77	50 - 136
cis-1,2-Dichloroethene	50.0	50.7		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	59.2		ug/Kg		118	74 - 126
4-Isopropyltoluene	50.0	48.6		ug/Kg		97	73 - 127
Dibromomethane	50.0	48.8		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	48.9		ug/Kg		98	75 - 127
4-Methyl-2-pentanone (MIBK)	200	200		ug/Kg		100	65 - 135
Dichlorodifluoromethane	50.0	21.9		ug/Kg		44	29 - 149
Ethylbenzene	50.0	52.4		ug/Kg		105	76 - 122
Ethylene Dibromide	50.0	55.5		ug/Kg		111	78 - 122
Hexachlorobutadiene	50.0	43.8		ug/Kg		88	61 - 135
Isopropylbenzene	50.0	49.9		ug/Kg		100	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.0		ug/Kg		106	78 - 125
Methyl tert-butyl ether	50.0	49.9		ug/Kg		100	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.3		ug/Kg		101	70 - 124
Methylene Chloride	50.0	51.8		ug/Kg		104	70 - 128
Naphthalene	50.0	51.9		ug/Kg		104	62 - 129
1,2,3-Trichlorobenzene	50.0	47.2		ug/Kg		94	66 - 130
n-Butylbenzene	50.0	47.3		ug/Kg		95	70 - 128
1,1,1-Trichloroethane	50.0	45.2		ug/Kg		90	73 - 130
N-Propylbenzene	50.0	47.9		ug/Kg		96	73 - 125
1,1,2-Trichloroethane	50.0	49.8		ug/Kg		100	78 - 121
sec-Butylbenzene	50.0	50.5		ug/Kg		101	73 - 126
Styrene	50.0	48.5		ug/Kg		97	76 - 124
1,2,4-Trichlorobenzene	50.0	48.7		ug/Kg		97	67 - 129
tert-Butylbenzene	50.0	49.0		ug/Kg		98	73 - 125
1,2,3-Trichloropropane	50.0	54.2		ug/Kg		108	73 - 125
Tetrachloroethene	50.0	50.7		ug/Kg		101	73 - 128
1,2,4-Trimethylbenzene	50.0	47.5		ug/Kg		95	75 - 123
Toluene	50.0	48.6		ug/Kg		97	77 - 121
1,3,5-Trimethylbenzene	50.0	48.7		ug/Kg		97	73 - 124
trans-1,2-Dichloroethene	50.0	50.8		ug/Kg		102	74 - 125
trans-1,3-Dichloropropene	50.0	50.7		ug/Kg		101	71 - 130
o-Xylene	50.0	48.3		ug/Kg		97	77 - 123
Trichloroethene	50.0	47.2		ug/Kg		94	77 - 123
m-Xylene & p-Xylene	50.0	51.6		ug/Kg		103	77 - 124
Trichlorofluoromethane	50.0	44.4		ug/Kg		89	62 - 140
Vinyl chloride	50.0	42.1		ug/Kg		84	56 - 135
2-Chlorotoluene	50.0	50.8		ug/Kg		102	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439038/2-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439038

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*78*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*89*		*78 - 119*

Lab Sample ID: LCSD 280-439038/3-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439038

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	53.7		ug/Kg		107	61 - 132	6	20
2-Butanone (MEK)			200	214		ug/Kg		107	51 - 148	9	20
1,2-Dichlorobenzene			50.0	49.7		ug/Kg		99	78 - 121	3	20
1,3-Dichlorobenzene			50.0	49.1		ug/Kg		98	77 - 121	4	20
4-Chlorotoluene			50.0	50.5		ug/Kg		101	72 - 124	1	20
1,4-Dichlorobenzene			50.0	48.3		ug/Kg		97	75 - 120	2	20
1,1-Dichloroethane			50.0	46.5		ug/Kg		93	76 - 125	2	20
1,2-Dichloroethane			50.0	47.5		ug/Kg		95	73 - 128	4	20
Acetone			200	211		ug/Kg		106	36 - 164	7	20
1,1-Dichloroethene			50.0	49.7		ug/Kg		99	70 - 131	4	20
Benzene			50.0	48.5		ug/Kg		97	77 - 121	1	20
Bromobenzene			50.0	52.3		ug/Kg		105	78 - 121	2	20
Bromoform			50.0	56.2		ug/Kg		112	67 - 132	9	20
Bromomethane			50.0	56.7		ug/Kg		113	53 - 143	5	20
1,2-Dichloropropane			50.0	49.4		ug/Kg		99	76 - 123	2	20
Carbon disulfide			50.0	47.3		ug/Kg		95	63 - 132	4	20
1,3-Dichloropropane			50.0	50.6		ug/Kg		101	77 - 121	4	20
Carbon tetrachloride			50.0	44.3		ug/Kg		89	70 - 135	1	20
2,2-Dichloropropane			50.0	43.7		ug/Kg		87	67 - 133	1	20
Chlorobenzene			50.0	49.2		ug/Kg		98	79 - 120	4	20
1,1-Dichloropropene			50.0	46.3		ug/Kg		93	76 - 125	1	20
Bromochloromethane			50.0	50.1		ug/Kg		100	78 - 125	4	20
Dibromochloromethane			50.0	53.4		ug/Kg		107	74 - 126	5	20
Chloroethane			50.0	51.4		ug/Kg		103	59 - 139	5	20
Chloroform			50.0	45.7		ug/Kg		91	78 - 123	1	20
2-Hexanone			200	224		ug/Kg		112	53 - 145	4	20
Chloromethane			50.0	41.5		ug/Kg		83	50 - 136	7	20
cis-1,2-Dichloroethene			50.0	48.8		ug/Kg		98	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	56.9		ug/Kg		114	74 - 126	4	20
4-Isopropyltoluene			50.0	50.6		ug/Kg		101	73 - 127	4	20
Dibromomethane			50.0	48.6		ug/Kg		97	78 - 125	0	20
Bromodichloromethane			50.0	48.5		ug/Kg		97	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)			200	220		ug/Kg		110	65 - 135	10	20
Dichlorodifluoromethane			50.0	24.1		ug/Kg		48	29 - 149	9	20
Ethylbenzene			50.0	50.2		ug/Kg		100	76 - 122	4	20
Ethylene Dibromide			50.0	53.3		ug/Kg		107	78 - 122	4	20
Hexachlorobutadiene			50.0	46.5		ug/Kg		93	61 - 135	6	20
Isopropylbenzene			50.0	50.9		ug/Kg		102	68 - 134	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439038/3-A
Matrix: Solid
Analysis Batch: 439004

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439038

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	50.2		ug/Kg		100	78 - 125	6	20
Methyl tert-butyl ether			50.0	51.1		ug/Kg		102	73 - 125	2	20
1,1,2,2-Tetrachloroethane			50.0	51.8		ug/Kg		104	70 - 124	3	20
Methylene Chloride			50.0	50.7		ug/Kg		101	70 - 128	2	20
Naphthalene			50.0	54.7		ug/Kg		109	62 - 129	5	20
1,2,3-Trichlorobenzene			50.0	50.2		ug/Kg		100	66 - 130	6	20
n-Butylbenzene			50.0	49.2		ug/Kg		98	70 - 128	4	20
1,1,1-Trichloroethane			50.0	44.9		ug/Kg		90	73 - 130	1	20
N-Propylbenzene			50.0	50.3		ug/Kg		101	73 - 125	5	20
1,1,2-Trichloroethane			50.0	49.9		ug/Kg		100	78 - 121	0	20
sec-Butylbenzene			50.0	52.1		ug/Kg		104	73 - 126	3	20
Styrene			50.0	51.9		ug/Kg		104	76 - 124	7	20
1,2,4-Trichlorobenzene			50.0	51.7		ug/Kg		103	67 - 129	6	20
tert-Butylbenzene			50.0	50.1		ug/Kg		100	73 - 125	2	20
1,2,3-Trichloropropane			50.0	57.7		ug/Kg		115	73 - 125	6	20
Tetrachloroethene			50.0	47.8		ug/Kg		96	73 - 128	6	20
1,2,4-Trimethylbenzene			50.0	49.2		ug/Kg		98	75 - 123	4	20
Toluene			50.0	47.9		ug/Kg		96	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	50.3		ug/Kg		101	73 - 124	3	20
trans-1,2-Dichloroethene			50.0	50.2		ug/Kg		100	74 - 125	1	20
trans-1,3-Dichloropropene			50.0	51.7		ug/Kg		103	71 - 130	2	20
o-Xylene			50.0	51.3		ug/Kg		103	77 - 123	6	20
Trichloroethene			50.0	48.9		ug/Kg		98	77 - 123	4	20
m-Xylene & p-Xylene			50.0	48.3		ug/Kg		97	77 - 124	7	20
Trichlorofluoromethane			50.0	47.6		ug/Kg		95	62 - 140	7	20
Vinyl chloride			50.0	44.1		ug/Kg		88	56 - 135	5	20
2-Chlorotoluene			50.0	52.5		ug/Kg		105	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*90*		*78 - 119*

Lab Sample ID: MB 280-439348/4
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/29/18 22:05	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/29/18 22:05	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 22:05	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/29/18 22:05	1
Acetone	6.4	U	10	6.4	1.9	ug/L		11/29/18 22:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439348/4
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/29/18 22:05	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/29/18 22:05	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/29/18 22:05	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/29/18 22:05	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/29/18 22:05	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/29/18 22:05	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/29/18 22:05	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/29/18 22:05	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/29/18 22:05	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 22:05	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/29/18 22:05	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/29/18 22:05	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/29/18 22:05	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/29/18 22:05	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/29/18 22:05	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/29/18 22:05	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/29/18 22:05	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/29/18 22:05	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/29/18 22:05	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/29/18 22:05	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/29/18 22:05	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/29/18 22:05	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439348/4
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/29/18 22:05	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/29/18 22:05	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/29/18 22:05	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/29/18 22:05	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/29/18 22:05	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/29/18 22:05	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/29/18 22:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*11/29/18 22:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*81 - 118*		*11/29/18 22:05*	*1*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*11/29/18 22:05*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 119*		*11/29/18 22:05*	*1*

Lab Sample ID: LCS 280-439348/5
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.93	J	ug/L		99	62 - 128
2-Butanone (MEK)	20.0	19.2		ug/L		96	56 - 143
1,2-Dichlorobenzene	5.00	5.24		ug/L		105	80 - 119
1,3-Dichlorobenzene	5.00	5.35		ug/L		107	80 - 119
4-Chlorotoluene	5.00	5.55		ug/L		111	78 - 122
1,4-Dichlorobenzene	5.00	5.11		ug/L		102	79 - 118
1,1-Dichloroethane	5.00	4.96		ug/L		99	77 - 125
1,2-Dichloroethane	5.00	4.65		ug/L		93	73 - 128
Acetone	20.0	17.5		ug/L		87	39 - 160
1,1-Dichloroethene	5.00	5.10		ug/L		102	71 - 131
Benzene	5.00	4.99		ug/L		100	79 - 120
Bromobenzene	5.00	5.23		ug/L		105	80 - 120
Bromoform	5.00	4.90		ug/L		98	66 - 130
Bromomethane	5.00	4.78		ug/L		96	53 - 141
1,2-Dichloropropane	5.00	5.20		ug/L		104	78 - 122
Carbon disulfide	5.00	4.93		ug/L		99	64 - 133
1,3-Dichloropropane	5.00	4.91		ug/L		98	80 - 119
Carbon tetrachloride	5.00	4.61		ug/L		92	72 - 136
2,2-Dichloropropane	5.00	4.63		ug/L		93	60 - 139
Chlorobenzene	5.00	5.23		ug/L		105	82 - 118
1,1-Dichloropropene	5.00	4.87		ug/L		97	79 - 125
Bromochloromethane	5.00	5.10		ug/L		102	78 - 123
Dibromochloromethane	5.00	5.06		ug/L		101	74 - 126
Chloroethane	5.00	4.77		ug/L		95	60 - 138
Chloroform	5.00	4.85		ug/L		97	79 - 124
2-Hexanone	20.0	18.6		ug/L		93	57 - 139
Chloromethane	5.00	3.76		ug/L		75	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439348/5
Matrix: Water
Analysis Batch: 439348

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.13		ug/L		103	78 - 123
cis-1,3-Dichloropropene	5.00	5.39		ug/L		108	75 - 124
4-Isopropyltoluene	5.00	5.18		ug/L		104	77 - 127
Dibromomethane	5.00	4.83		ug/L		97	79 - 123
Bromodichloromethane	5.00	4.81		ug/L		96	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.0		ug/L		95	67 - 130
Dichlorodifluoromethane	5.00	2.42		ug/L		48	32 - 152
Ethylbenzene	5.00	5.34		ug/L		107	79 - 121
Ethylene Dibromide	5.00	4.96		ug/L		99	77 - 121
Hexachlorobutadiene	5.00	5.14		ug/L		103	66 - 134
Isopropylbenzene	5.00	5.21		ug/L		104	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.28		ug/L		106	78 - 124
Methyl tert-butyl ether	5.00	4.75	J	ug/L		95	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.17		ug/L		103	71 - 121
Methylene Chloride	5.00	4.75	J	ug/L		95	74 - 124
Naphthalene	5.00	4.89		ug/L		98	61 - 128
1,2,3-Trichlorobenzene	5.00	4.96		ug/L		99	69 - 129
n-Butylbenzene	5.00	5.02		ug/L		100	75 - 128
1,1,1-Trichloroethane	5.00	4.68		ug/L		94	74 - 131
N-Propylbenzene	5.00	5.49		ug/L		110	76 - 126
1,1,2-Trichloroethane	5.00	5.30		ug/L		106	80 - 119
sec-Butylbenzene	5.00	5.53		ug/L		111	77 - 126
Styrene	5.00	5.45		ug/L		109	78 - 123
1,2,4-Trichlorobenzene	5.00	5.03		ug/L		101	69 - 130
tert-Butylbenzene	5.00	5.25		ug/L		105	78 - 124
1,2,3-Trichloropropane	5.00	5.08		ug/L		102	73 - 122
Tetrachloroethene	5.00	5.13		ug/L		103	74 - 129
1,2,4-Trimethylbenzene	5.00	5.04		ug/L		101	76 - 124
Toluene	5.00	5.05		ug/L		101	80 - 121
1,3,5-Trimethylbenzene	5.00	5.02		ug/L		100	75 - 124
trans-1,2-Dichloroethene	5.00	5.23		ug/L		105	75 - 124
trans-1,3-Dichloropropene	5.00	4.79		ug/L		96	73 - 127
o-Xylene	5.00	5.48		ug/L		110	78 - 122
Trichloroethene	5.00	4.93		ug/L		99	79 - 123
m-Xylene & p-Xylene	5.00	5.31		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	4.49		ug/L		90	65 - 141
Vinyl chloride	5.00	4.41		ug/L		88	58 - 137
2-Chlorotoluene	5.00	5.25		ug/L		105	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*
Dibromofluoromethane (Surr)	*91*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439485/1-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		11/30/18 16:46	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		11/30/18 16:46	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		11/30/18 16:46	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		11/30/18 16:46	1
1,4-Dichlorobenzene	80	U M	250	80	25	ug/Kg		11/30/18 16:46	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		11/30/18 16:46	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		11/30/18 16:46	1
Acetone	1300	U	1500	1300	400	ug/Kg		11/30/18 16:46	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		11/30/18 16:46	1
Benzene	160	U	250	160	45	ug/Kg		11/30/18 16:46	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		11/30/18 16:46	1
Bromobenzene	40	U	250	40	19	ug/Kg		11/30/18 16:46	1
Bromoform	160	U	250	160	160	ug/Kg		11/30/18 16:46	1
Bromomethane	160	U	500	160	44	ug/Kg		11/30/18 16:46	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		11/30/18 16:46	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		11/30/18 16:46	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		11/30/18 16:46	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		11/30/18 16:46	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
Chlorobenzene	80	U	250	80	30	ug/Kg		11/30/18 16:46	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		11/30/18 16:46	1
Bromochloromethane	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		11/30/18 16:46	1
Chloroethane	160	U	500	160	44	ug/Kg		11/30/18 16:46	1
Chloroform	160	U	250	160	46	ug/Kg		11/30/18 16:46	1
2-Hexanone	640	U	1000	640	220	ug/Kg		11/30/18 16:46	1
Chloromethane	160	U	500	160	50	ug/Kg		11/30/18 16:46	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		11/30/18 16:46	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		11/30/18 16:46	1
Dibromomethane	80	U	250	80	30	ug/Kg		11/30/18 16:46	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		11/30/18 16:46	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		11/30/18 16:46	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		11/30/18 16:46	1
Ethylbenzene	80	U	250	80	34	ug/Kg		11/30/18 16:46	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		11/30/18 16:46	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		11/30/18 16:46	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		11/30/18 16:46	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		11/30/18 16:46	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		11/30/18 16:46	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		11/30/18 16:46	1
Methylene Chloride	160	U	250	160	69	ug/Kg		11/30/18 16:46	1
Naphthalene	80	U	500	80	38	ug/Kg		11/30/18 16:46	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		11/30/18 16:46	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		11/30/18 16:46	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		11/30/18 16:46	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439485/1-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		11/30/18 16:46	1
Styrene	80	U	250	80	26	ug/Kg		11/30/18 16:46	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		11/30/18 16:46	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		11/30/18 16:46	1
Toluene	80	U	250	80	39	ug/Kg		11/30/18 16:46	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		11/30/18 16:46	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		11/30/18 16:46	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1
o-Xylene	80	U	130	80	35	ug/Kg		11/30/18 16:46	1
Trichloroethene	80	U	250	80	23	ug/Kg		11/30/18 16:46	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		11/30/18 16:46	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		11/30/18 16:46	1
Vinyl chloride	80	U	500	80	27	ug/Kg		11/30/18 16:46	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		11/30/18 16:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/30/18 13:27*	*11/30/18 16:46*	*1*

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	2040		ug/Kg		102	61 - 132
2-Butanone (MEK)	8000	7540		ug/Kg		94	51 - 148
1,2-Dichlorobenzene	2000	2190		ug/Kg		110	78 - 121
1,3-Dichlorobenzene	2000	2190		ug/Kg		109	77 - 121
4-Chlorotoluene	2000	2170		ug/Kg		109	72 - 124
1,4-Dichlorobenzene	2000	2170		ug/Kg		109	75 - 120
1,1-Dichloroethane	2000	1990		ug/Kg		99	76 - 125
1,2-Dichloroethane	2000	2030		ug/Kg		102	73 - 128
Acetone	8000	7910		ug/Kg		99	36 - 164
1,1-Dichloroethene	2000	1950		ug/Kg		97	70 - 131
Benzene	2000	2020		ug/Kg		101	77 - 121
Bromobenzene	2000	2100		ug/Kg		105	78 - 121
Bromoform	2000	2020		ug/Kg		101	67 - 132
Bromomethane	2000	1990		ug/Kg		100	53 - 143
1,2-Dichloropropane	2000	2080		ug/Kg		104	76 - 123
Carbon disulfide	2000	1940		ug/Kg		97	63 - 132
1,3-Dichloropropane	2000	1950		ug/Kg		98	77 - 121
Carbon tetrachloride	2000	2020		ug/Kg		101	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	2000	2030		ug/Kg		101	67 - 133
Chlorobenzene	2000	2110		ug/Kg		106	79 - 120
1,1-Dichloropropene	2000	2010		ug/Kg		101	76 - 125
Bromochloromethane	2000	1960		ug/Kg		98	78 - 125
Dibromochloromethane	2000	2050		ug/Kg		102	74 - 126
Chloroethane	2000	1840		ug/Kg		92	59 - 139
Chloroform	2000	2040		ug/Kg		102	78 - 123
2-Hexanone	8000	7880		ug/Kg		99	53 - 145
Chloromethane	2000	1870		ug/Kg		94	50 - 136
cis-1,2-Dichloroethene	2000	1990		ug/Kg		99	77 - 123
cis-1,3-Dichloropropene	2000	2090		ug/Kg		105	74 - 126
4-Isopropyltoluene	2000	2330		ug/Kg		116	73 - 127
Dibromomethane	2000	1980		ug/Kg		99	78 - 125
Bromodichloromethane	2000	2020		ug/Kg		101	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	8130		ug/Kg		102	65 - 135
Dichlorodifluoromethane	2000	1870		ug/Kg		94	29 - 149
Ethylbenzene	2000	2130		ug/Kg		107	76 - 122
Ethylene Dibromide	2000	1990		ug/Kg		100	78 - 122
Hexachlorobutadiene	2000	2000		ug/Kg		100	61 - 135
Isopropylbenzene	2000	2230		ug/Kg		111	68 - 134
1,1,1,2-Tetrachloroethane	2000	2070		ug/Kg		103	78 - 125
Methyl tert-butyl ether	2000	1930		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	2000	2020		ug/Kg		101	70 - 124
Methylene Chloride	2000	1810		ug/Kg		90	70 - 128
Naphthalene	2000	2120		ug/Kg		106	62 - 129
1,2,3-Trichlorobenzene	2000	2270		ug/Kg		114	66 - 130
n-Butylbenzene	2000	2260		ug/Kg		113	70 - 128
1,1,1-Trichloroethane	2000	2060		ug/Kg		103	73 - 130
N-Propylbenzene	2000	2230		ug/Kg		111	73 - 125
1,1,2-Trichloroethane	2000	2030		ug/Kg		101	78 - 121
sec-Butylbenzene	2000	2270		ug/Kg		114	73 - 126
Styrene	2000	2090		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	2000	2290		ug/Kg		114	67 - 129
tert-Butylbenzene	2000	2230		ug/Kg		111	73 - 125
1,2,3-Trichloropropane	2000	2120		ug/Kg		106	73 - 125
Tetrachloroethene	2000	2060		ug/Kg		103	73 - 128
1,2,4-Trimethylbenzene	2000	2230		ug/Kg		112	75 - 123
Toluene	2000	2050		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	2000	2240		ug/Kg		112	73 - 124
trans-1,2-Dichloroethene	2000	2020		ug/Kg		101	74 - 125
trans-1,3-Dichloropropene	2000	2050		ug/Kg		102	71 - 130
o-Xylene	2000	2120		ug/Kg		106	77 - 123
Trichloroethene	2000	2070		ug/Kg		103	77 - 123
m-Xylene & p-Xylene	2000	2110		ug/Kg		105	77 - 124
Trichlorofluoromethane	2000	2030		ug/Kg		101	62 - 140
Vinyl chloride	2000	1950		ug/Kg		98	56 - 135
2-Chlorotoluene	2000	2200		ug/Kg		110	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: LCSD 280-439485/3-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439485

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			2000	2070		ug/Kg		104	61 - 132	1	20
2-Butanone (MEK)			8000	7700		ug/Kg		96	51 - 148	2	20
1,2-Dichlorobenzene			2000	2160		ug/Kg		108	78 - 121	1	20
1,3-Dichlorobenzene			2000	2160		ug/Kg		108	77 - 121	1	20
4-Chlorotoluene			2000	2150		ug/Kg		108	72 - 124	1	20
1,4-Dichlorobenzene			2000	2140		ug/Kg		107	75 - 120	2	20
1,1-Dichloroethane			2000	2030		ug/Kg		101	76 - 125	2	20
1,2-Dichloroethane			2000	2050		ug/Kg		103	73 - 128	1	20
Acetone			8000	7670		ug/Kg		96	36 - 164	3	20
1,1-Dichloroethene			2000	1990		ug/Kg		100	70 - 131	2	20
Benzene			2000	2020		ug/Kg		101	77 - 121	0	20
Bromobenzene			2000	2100		ug/Kg		105	78 - 121	0	20
Bromoform			2000	2060		ug/Kg		103	67 - 132	2	20
Bromomethane			2000	1990		ug/Kg		99	53 - 143	0	20
1,2-Dichloropropane			2000	2080		ug/Kg		104	76 - 123	0	20
Carbon disulfide			2000	1960		ug/Kg		98	63 - 132	1	20
1,3-Dichloropropane			2000	2020		ug/Kg		101	77 - 121	3	20
Carbon tetrachloride			2000	2040		ug/Kg		102	70 - 135	1	20
2,2-Dichloropropane			2000	2010		ug/Kg		101	67 - 133	1	20
Chlorobenzene			2000	2110		ug/Kg		106	79 - 120	0	20
1,1-Dichloropropene			2000	2010		ug/Kg		101	76 - 125	0	20
Bromochloromethane			2000	2000		ug/Kg		100	78 - 125	2	20
Dibromochloromethane			2000	2070		ug/Kg		104	74 - 126	1	20
Chloroethane			2000	1830		ug/Kg		92	59 - 139	0	20
Chloroform			2000	2060		ug/Kg		103	78 - 123	1	20
2-Hexanone			8000	7980		ug/Kg		100	53 - 145	1	20
Chloromethane			2000	1910		ug/Kg		95	50 - 136	2	20
cis-1,2-Dichloroethene			2000	2010		ug/Kg		100	77 - 123	1	20
cis-1,3-Dichloropropene			2000	2130		ug/Kg		106	74 - 126	2	20
4-Isopropyltoluene			2000	2260		ug/Kg		113	73 - 127	3	20
Dibromomethane			2000	1990		ug/Kg		99	78 - 125	0	20
Bromodichloromethane			2000	2020		ug/Kg		101	75 - 127	0	20
4-Methyl-2-pentanone (MIBK)			8000	8150		ug/Kg		102	65 - 135	0	20
Dichlorodifluoromethane			2000	1910		ug/Kg		95	29 - 149	2	20
Ethylbenzene			2000	2130		ug/Kg		106	76 - 122	0	20
Ethylene Dibromide			2000	2010		ug/Kg		101	78 - 122	1	20
Hexachlorobutadiene			2000	1960		ug/Kg		98	61 - 135	2	20
Isopropylbenzene			2000	2160		ug/Kg		108	68 - 134	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439485/3-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	2000	2060		ug/Kg		103	78 - 125	0	20
Methyl tert-butyl ether	2000	1970		ug/Kg		99	73 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	2050		ug/Kg		102	70 - 124	1	20
Methylene Chloride	2000	1850		ug/Kg		92	70 - 128	2	20
Naphthalene	2000	2150		ug/Kg		108	62 - 129	2	20
1,2,3-Trichlorobenzene	2000	2280		ug/Kg		114	66 - 130	1	20
n-Butylbenzene	2000	2190		ug/Kg		109	70 - 128	3	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	1	20
N-Propylbenzene	2000	2170		ug/Kg		108	73 - 125	3	20
1,1,2-Trichloroethane	2000	2040		ug/Kg		102	78 - 121	1	20
sec-Butylbenzene	2000	2170		ug/Kg		109	73 - 126	5	20
Styrene	2000	2090		ug/Kg		105	76 - 124	0	20
1,2,4-Trichlorobenzene	2000	2270		ug/Kg		114	67 - 129	1	20
tert-Butylbenzene	2000	2160		ug/Kg		108	73 - 125	3	20
1,2,3-Trichloropropane	2000	2100		ug/Kg		105	73 - 125	1	20
Tetrachloroethene	2000	2070		ug/Kg		103	73 - 128	0	20
1,2,4-Trimethylbenzene	2000	2180		ug/Kg		109	75 - 123	2	20
Toluene	2000	2020		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene	2000	2180		ug/Kg		109	73 - 124	3	20
trans-1,2-Dichloroethene	2000	2050		ug/Kg		102	74 - 125	1	20
trans-1,3-Dichloropropene	2000	2050		ug/Kg		103	71 - 130	0	20
o-Xylene	2000	2090		ug/Kg		105	77 - 123	1	20
Trichloroethene	2000	2030		ug/Kg		102	77 - 123	2	20
m-Xylene & p-Xylene	2000	2070		ug/Kg		104	77 - 124	2	20
Trichlorofluoromethane	2000	2050		ug/Kg		103	62 - 140	1	20
Vinyl chloride	2000	2000		ug/Kg		100	56 - 135	2	20
2-Chlorotoluene	2000	2150		ug/Kg		108	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.38	M	mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.2		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-438886/4-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438886

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/08/18 11:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*114*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 11:04*	*1*

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.731		ug/Kg		84	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	103	M	55 - 130

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.670		ug/Kg		77	70 - 130	9	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	90	M	55 - 130

Lab Sample ID: MB 280-438900/4-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438900

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/06/18 16:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	105		70 - 130	11/27/18 10:48	12/06/18 16:01	1

Lab Sample ID: LCS 280-438900/2-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438900

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.227		ug/L		91	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	104		70 - 130

Lab Sample ID: LCSD 280-438900/3-A
Matrix: Water
Analysis Batch: 440220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438900

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.224		ug/L		89	70 - 130	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	106		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439507/1-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439507

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.32	J	8.0	4.0	1.4	mg/Kg		12/05/18 14:41	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/05/18 14:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/30/18 19:50*	*12/05/18 14:41*	*1*
n-Octacosane	*107*		*25 - 162*	*11/30/18 19:50*	*12/05/18 14:41*	*1*

Lab Sample ID: LCS 280-439507/2-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	133	89.6		mg/Kg		67	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-439507/3-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	297		mg/Kg		89	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*81*		*45 - 130*
n-Octacosane	*116*		*25 - 162*

GC/MS VOA

Analysis Batch: 439004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-6	V-S2-161118-474	Total/NA	Solid	8260B	439038
MB 280-439038/1-A	Method Blank	Total/NA	Solid	8260B	439038
LCS 280-439038/2-A	Lab Control Sample	Total/NA	Solid	8260B	439038
LCSD 280-439038/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439038

Prep Batch: 439038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-6	V-S2-161118-474	Total/NA	Solid	5035	
MB 280-439038/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439038/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439038/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 439348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-10	TB-S2-161118-01	Total/NA	Water	8260B	
MB 280-439348/4	Method Blank	Total/NA	Water	8260B	
LCS 280-439348/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 439476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-8	V-S2-161118-499	Total/NA	Solid	8260B	439485
MB 280-439485/1-A	Method Blank	Total/NA	Solid	8260B	439485
LCS 280-439485/2-A	Lab Control Sample	Total/NA	Solid	8260B	439485
LCSD 280-439485/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439485

Prep Batch: 439485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-8	V-S2-161118-499	Total/NA	Solid	5035	
MB 280-439485/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439485/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439485/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-7	P-S2-161118-474	Total/NA	Solid	5035	
280-117130-9	P-S2-161118-499	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-7	P-S2-161118-474	Total/NA	Solid	8015D GRO	438635
280-117130-9	P-S2-161118-499	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635

GC VOA (Continued)

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-10	TB-S2-161118-01	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-6	V-S2-161118-474	Total/NA	Solid	8011	
280-117130-8	V-S2-161118-499	Total/NA	Solid	8011	
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 438900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-10	TB-S2-161118-01	Total/NA	Water	8011	
MB 280-438900/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-438900/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-438900/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-7	P-S2-161118-474	Total/NA	Solid	3546	
280-117130-9	P-S2-161118-499	Total/NA	Solid	3546	
MB 280-439507/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 439945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-7	P-S2-161118-474	Total/NA	Solid	8015D DRO	439507
280-117130-9	P-S2-161118-499	Total/NA	Solid	8015D DRO	439507
MB 280-439507/1-A	Method Blank	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507

Analysis Batch: 440220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-10	TB-S2-161118-01	Total/NA	Water	8011	438900
MB 280-438900/4-A	Method Blank	Total/NA	Water	8011	438900
LCS 280-438900/2-A	Lab Control Sample	Total/NA	Water	8011	438900
LCSD 280-438900/3-A	Lab Control Sample Dup	Total/NA	Water	8011	438900

Analysis Batch: 440435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-6	V-S2-161118-474	Total/NA	Solid	8011	438886
280-117130-8	V-S2-161118-499	Total/NA	Solid	8011	438886
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	438886
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	438886

GC Semi VOA (Continued)

Analysis Batch: 440435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	438886

General Chemistry

Analysis Batch: 438507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117130-6	V-S2-161118-474	Total/NA	Solid	Moisture	
280-117130-7	P-S2-161118-474	Total/NA	Solid	Moisture	
280-117130-8	V-S2-161118-499	Total/NA	Solid	Moisture	
280-117130-9	P-S2-161118-499	Total/NA	Solid	Moisture	

Client Sample ID: V-S2-161118-474 — **Lab Sample ID: 280-117130-6**
Date Collected: 11/16/18 10:20 — **Matrix: Solid**
Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: V-S2-161118-474 — **Lab Sample ID: 280-117130-6**
Date Collected: 11/16/18 10:20 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 88.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.728 g	5 mL	439038	11/16/18 10:20	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439004	11/28/18 12:00	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		200			440435	12/08/18 16:28	JLW	TAL DEN

Client Sample ID: P-S2-161118-474 — **Lab Sample ID: 280-117130-7**
Date Collected: 11/16/18 10:20 — **Matrix: Solid**
Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: P-S2-161118-474 — **Lab Sample ID: 280-117130-7**
Date Collected: 11/16/18 10:20 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 87.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.363 g	5 mL	438635	11/16/18 10:20	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 14:59	GPM	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 18:40	CSM	TAL DEN

Client Sample ID: V-S2-161118-499 — **Lab Sample ID: 280-117130-8**
Date Collected: 11/16/18 14:40 — **Matrix: Solid**
Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: V-S2-161118-499 — **Lab Sample ID: 280-117130-8**
Date Collected: 11/16/18 14:40 — **Matrix: Solid**
Date Received: 11/17/18 09:45 — **Percent Solids: 88.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.538 g	1000 mL	439485	11/16/18 14:40	JLS	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Client Sample ID: V-S2-161118-499

Lab Sample ID: 280-117130-8
Date Collected: 11/16/18 14:40
Matrix: Solid
Date Received: 11/17/18 09:45
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439476	11/30/18 18:00	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 16:47	JLW	TAL DEN

Client Sample ID: P-S2-161118-499

Lab Sample ID: 280-117130-9
Date Collected: 11/16/18 14:40
Matrix: Solid
Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438507	11/21/18 19:05	EC	TAL DEN

Client Sample ID: P-S2-161118-499

Lab Sample ID: 280-117130-9
Date Collected: 11/16/18 14:40
Matrix: Solid
Date Received: 11/17/18 09:45
Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.517 g	5 mL	438635	11/16/18 14:40	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 15:22	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 19:02	CSM	TAL DEN

Client Sample ID: TB-S2-161118-01

Lab Sample ID: 280-117130-10
Date Collected: 11/16/18 12:20
Matrix: Water
Date Received: 11/17/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439348	11/30/18 04:30	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/28/18 22:16	GPM	TAL DEN
Total/NA	Prep	8011			34.6 mL	35 mL	438900	11/27/18 10:48	SU	TAL DEN
Total/NA	Analysis	8011		1			440220	12/06/18 17:17	JLW	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117130-2

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4453 3395 1020
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com	COC No: COC1-52-TA-20181116
Company: EA Engineering, Science, and Technology			Page: 1 of 1
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO		Job #: —
City: Greenwood Village	TAT Requested (days): Per PO		
State, Zip: CO, 80111			
Phone: 303-590-9143(Tel)	PO #: 16085		
Email: pmoss@eaest.com	WO #: 62735DM02.1017		
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071		
Site: Kirtland BFF	SSOW#: —		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soil, Oil, Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015B_DRO_DOD5 - DRO & GRO, Soil	8015B_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015B_DRO_DOD5 - DRO & GRO, Water	8015B_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				H	N	N	N	F	A	R	N	A		
V-S2-161118-474	11/16/18	1020	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-S2-161118-474	11/16/18	1020	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-S2-161118-499	11/16/18	1040	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-S2-161118-499	11/16/18	1040	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
TB-S2-161118-01	11/16/18	1220	G	W	N	N	—	—	—	—	—	X	X	—	X	4	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify): Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Joshua Livingston	Date/Time: 11/16/18 1800	Company: EA	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 11/17/18 0945	Company TA Den

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.6, 2.8 5+1.0 bg AP 11/17/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117130-2

Login Number: 117130
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117169-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/11/2018 6:25:10 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117169-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117169-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/20/2018 11:18 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples RB-S2-181118-01 (280-117169-1) and RB-S2-181118-02 (280-117169-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples RB-S2-181118-01 (280-117169-1) and RB-S2-181118-02 (280-117169-2) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

Job ID: 280-117169-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples RB-S2-181118-01 (280-117169-1) and RB-S2-181118-02 (280-117169-2) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/28/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples RB-S2-181118-01 (280-117169-1) and RB-S2-181118-02 (280-117169-2) were analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 11/21/2018 and analyzed on 12/06/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Client Sample ID: RB-S2-181118-01 — Lab Sample ID: 280-117169-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.87	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Ethylbenzene	0.96	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Toluene	6.9		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.20	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	0.74	J	1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	2.7		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	37		25	25	10	ug/L	1		8015D GRO	Total/NA
Ethylene Dibromide	0.052		0.020	0.014	0.0038	ug/L	1		8011	Total/NA
Diesel Range Organics [C10-C28]	0.096	J	0.23	0.11	0.030	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.071	J	0.45	0.11	0.051	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S2-181118-02 — Lab Sample ID: 280-117169-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.88	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Ethylbenzene	0.98	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Styrene	0.18	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Toluene	7.1		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.22	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	0.77	J	1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	2.9		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	35		25	25	10	ug/L	1		8015D GRO	Total/NA
Ethylene Dibromide	0.061		0.020	0.014	0.0038	ug/L	1		8011	Total/NA
Diesel Range Organics [C10-C28]	0.075	J	0.26	0.13	0.034	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117169-1	RB-S2-181118-01	Water	11/18/18 11:34	11/20/18 11:18
280-117169-2	RB-S2-181118-02	Water	11/18/18 11:55	11/20/18 11:18

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S2-181118-01
Date Collected: 11/18/18 11:34
Date Received: 11/20/18 11:18

Lab Sample ID: 280-117169-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 03:46	1
Benzene	**0.87**	**J**	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 03:46	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 03:46	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 03:46	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 03:46	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 03:46	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 03:46	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 03:46	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 03:46	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 03:46	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 03:46	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 03:46	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 03:46	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 03:46	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 03:46	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 03:46	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 03:46	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 03:46	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 03:46	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 03:46	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 03:46	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 03:46	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 03:46	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 03:46	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 03:46	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 03:46	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 03:46	1
Ethylbenzene	**0.96**	**J**	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 03:46	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 03:46	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 03:46	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 03:46	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 03:46	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/01/18 03:46	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 03:46	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 03:46	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S2-181118-01
Date Collected: 11/18/18 11:34
Date Received: 11/20/18 11:18
Lab Sample ID: 280-117169-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 03:46	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 03:46	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 03:46	1
Toluene	**6.9**		1.0	0.40	0.17	ug/L		12/01/18 03:46	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 03:46	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 03:46	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 03:46	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 03:46	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/01/18 03:46	1
1,2,4-Trimethylbenzene	**0.20**	**J**	1.0	0.40	0.15	ug/L		12/01/18 03:46	1
1,3,5-Trimethylbenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/01/18 03:46	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 03:46	1
o-Xylene	**0.74**	**J**	1.0	0.40	0.19	ug/L		12/01/18 03:46	1
m-Xylene & p-Xylene	**2.7**		2.0	0.80	0.34	ug/L		12/01/18 03:46	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 03:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/01/18 03:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*12/01/18 03:46*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*12/01/18 03:46*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*12/01/18 03:46*	*1*

Client Sample ID: RB-S2-181118-02
Date Collected: 11/18/18 11:55
Date Received: 11/20/18 11:18
Lab Sample ID: 280-117169-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/01/18 04:06	1
Benzene	**0.88**	**J**	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 04:06	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 04:06	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 04:06	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 04:06	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 04:06	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 04:06	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 04:06	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 04:06	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 04:06	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 04:06	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 04:06	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 04:06	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S2-181118-02
Date Collected: 11/18/18 11:55
Date Received: 11/20/18 11:18

Lab Sample ID: 280-117169-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 04:06	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 04:06	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 04:06	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 04:06	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 04:06	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 04:06	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 04:06	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 04:06	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 04:06	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 04:06	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 04:06	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 04:06	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 04:06	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 04:06	1
Ethylbenzene	**0.98**	**J**	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 04:06	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 04:06	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 04:06	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 04:06	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 04:06	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/01/18 04:06	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 04:06	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 04:06	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Styrene	**0.18**	**J**	1.0	0.40	0.17	ug/L		12/01/18 04:06	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 04:06	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 04:06	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 04:06	1
Toluene	**7.1**		1.0	0.40	0.17	ug/L		12/01/18 04:06	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 04:06	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 04:06	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 04:06	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 04:06	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/01/18 04:06	1
1,2,4-Trimethylbenzene	**0.22**	**J**	1.0	0.40	0.15	ug/L		12/01/18 04:06	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 04:06	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 04:06	1
o-Xylene	**0.77**	**J**	1.0	0.40	0.19	ug/L		12/01/18 04:06	1
m-Xylene & p-Xylene	**2.9**		2.0	0.80	0.34	ug/L		12/01/18 04:06	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*12/01/18 04:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*12/01/18 04:06*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/01/18 04:06*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/01/18 04:06*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S2-181118-01 — **Lab Sample ID: 280-117169-1**
Date Collected: 11/18/18 11:34 — **Matrix: Water**
Date Received: 11/20/18 11:18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	37		25	25	10	ug/L		11/28/18 23:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		82 - 110		11/28/18 23:04	1

Client Sample ID: RB-S2-181118-02 — **Lab Sample ID: 280-117169-2**
Date Collected: 11/18/18 11:55 — **Matrix: Water**
Date Received: 11/20/18 11:18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	35		25	25	10	ug/L		11/28/18 23:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	93		82 - 110		11/28/18 23:28	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S2-181118-01 — **Lab Sample ID: 280-117169-1**
Date Collected: 11/18/18 11:34 — **Matrix: Water**
Date Received: 11/20/18 11:18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.052		0.020	0.014	0.0038	ug/L		12/04/18 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	95	M	70 - 130	11/29/18 11:04	12/04/18 02:22	1

Client Sample ID: RB-S2-181118-02 — **Lab Sample ID: 280-117169-2**
Date Collected: 11/18/18 11:55 — **Matrix: Water**
Date Received: 11/20/18 11:18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.061		0.020	0.014	0.0038	ug/L		12/04/18 02:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	103	M	70 - 130	11/29/18 11:04	12/04/18 02:41	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S2-181118-01 — **Lab Sample ID: 280-117169-1**
Date Collected: 11/18/18 11:34 — **Matrix: Water**
Date Received: 11/20/18 11:18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.096	J	0.23	0.11	0.030	mg/L		12/06/18 21:13	1
Motor Oil (C20-C38)	0.071	J	0.45	0.11	0.051	mg/L		12/06/18 21:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	81		56 - 125	11/21/18 09:05	12/06/18 21:13	1
n-Octacosane	112		60 - 142	11/21/18 09:05	12/06/18 21:13	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S2-181118-02
Date Collected: 11/18/18 11:55
Date Received: 11/20/18 11:18

Lab Sample ID: 280-117169-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.075**	**J**	0.26	0.13	0.034	mg/L		12/06/18 21:35	1
Motor Oil (C20-C38)	0.13	U	0.53	0.13	0.059	mg/L		12/06/18 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*56 - 125*	*11/21/18 09:05*	*12/06/18 21:35*	*1*
n-Octacosane	*107*		*60 - 142*	*11/21/18 09:05*	*12/06/18 21:35*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117169-1	RB-S2-181118-01	97	98	100	97
280-117169-2	RB-S2-181118-02	98	98	101	101
LCS 280-439502/5	Lab Control Sample	98	93	94	95
MB 280-439502/4	Method Blank	98	94	95	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117169-1	RB-S2-181118-01	88
280-117169-2	RB-S2-181118-02	93
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-117169-1	RB-S2-181118-01	95 M
280-117169-2	RB-S2-181118-02	103 M
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-117169-1	RB-S2-181118-01	81	112
280-117169-2	RB-S2-181118-02	74	107
LCS 280-438382/2-A	Lab Control Sample	81	119
MB 280-438382/1-A	Method Blank	81	110

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439502/4
Matrix: Water
Analysis Batch: 439502

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		11/30/18 18:39	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		11/30/18 18:39	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 18:39	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		11/30/18 18:39	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		11/30/18 18:39	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		11/30/18 18:39	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		11/30/18 18:39	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		11/30/18 18:39	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		11/30/18 18:39	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		11/30/18 18:39	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 18:39	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		11/30/18 18:39	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		11/30/18 18:39	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 18:39	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 18:39	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 18:39	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 18:39	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		11/30/18 18:39	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		11/30/18 18:39	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		11/30/18 18:39	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 18:39	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 18:39	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 18:39	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 18:39	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		11/30/18 18:39	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 18:39	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 18:39	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		11/30/18 18:39	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		11/30/18 18:39	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 18:39	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 18:39	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		11/30/18 18:39	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		11/30/18 18:39	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		11/30/18 18:39	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		11/30/18 18:39	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439502/4
Matrix: Water
Analysis Batch: 439502

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 18:39	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 18:39	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		11/30/18 18:39	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 18:39	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		11/30/18 18:39	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		11/30/18 18:39	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		11/30/18 18:39	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		11/30/18 18:39	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		11/30/18 18:39	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		11/30/18 18:39	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		11/30/18 18:39	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		11/30/18 18:39	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		11/30/18 18:39	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		11/30/18 18:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*11/30/18 18:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*81 - 118*		*11/30/18 18:39*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*11/30/18 18:39*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*11/30/18 18:39*	*1*

Lab Sample ID: LCS 280-439502/5
Matrix: Water
Analysis Batch: 439502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	18.7		ug/L		94	39 - 160
Benzene	5.00	5.41		ug/L		108	79 - 120
Bromobenzene	5.00	5.64		ug/L		113	80 - 120
Bromochloromethane	5.00	5.47		ug/L		109	78 - 123
Bromodichloromethane	5.00	5.25		ug/L		105	79 - 125
Bromoform	5.00	5.31		ug/L		106	66 - 130
Bromomethane	5.00	4.98		ug/L		100	53 - 141
2-Butanone (MEK)	20.0	18.6		ug/L		93	56 - 143
n-Butylbenzene	5.00	5.47		ug/L		109	75 - 128
sec-Butylbenzene	5.00	5.95		ug/L		119	77 - 126
tert-Butylbenzene	5.00	5.67		ug/L		113	78 - 124
Carbon disulfide	5.00	5.38		ug/L		108	64 - 133
Carbon tetrachloride	5.00	5.21		ug/L		104	72 - 136
Chlorobenzene	5.00	5.38		ug/L		108	82 - 118
Chloroethane	5.00	5.66		ug/L		113	60 - 138
Chloroform	5.00	5.51		ug/L		110	79 - 124
Chloromethane	5.00	3.53		ug/L		71	50 - 139
4-Chlorotoluene	5.00	5.93		ug/L		119	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439502/5
Matrix: Water
Analysis Batch: 439502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.43		ug/L		109	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.63	J	ug/L		93	62 - 128
Dichlorodifluoromethane	5.00	1.67	J	ug/L		33	32 - 152
Dibromomethane	5.00	5.32		ug/L		106	79 - 123
Ethylene Dibromide	5.00	5.31		ug/L		106	77 - 121
1,2-Dichlorobenzene	5.00	5.45		ug/L		109	80 - 119
1,3-Dichlorobenzene	5.00	5.68		ug/L		114	80 - 119
1,4-Dichlorobenzene	5.00	5.53		ug/L		111	79 - 118
1,1-Dichloroethane	5.00	5.29		ug/L		106	77 - 125
1,2-Dichloroethane	5.00	5.25		ug/L		105	73 - 128
1,1-Dichloroethene	5.00	5.46		ug/L		109	71 - 131
cis-1,2-Dichloroethene	5.00	5.45		ug/L		109	78 - 123
trans-1,2-Dichloroethene	5.00	5.68		ug/L		114	75 - 124
1,2-Dichloropropane	5.00	5.42		ug/L		108	78 - 122
1,3-Dichloropropane	5.00	5.32		ug/L		106	80 - 119
2,2-Dichloropropane	5.00	5.23		ug/L		105	60 - 139
1,1-Dichloropropene	5.00	5.48		ug/L		110	79 - 125
cis-1,3-Dichloropropene	5.00	5.63		ug/L		113	75 - 124
trans-1,3-Dichloropropene	5.00	5.28		ug/L		106	73 - 127
Ethylbenzene	5.00	5.63		ug/L		113	79 - 121
2-Hexanone	20.0	18.7		ug/L		94	57 - 139
Hexachlorobutadiene	5.00	5.54		ug/L		111	66 - 134
Isopropylbenzene	5.00	5.56		ug/L		111	72 - 131
4-Isopropyltoluene	5.00	5.70		ug/L		114	77 - 127
Methylene Chloride	5.00	5.12		ug/L		102	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	20.1		ug/L		101	67 - 130
Methyl tert-butyl ether	5.00	5.00		ug/L		100	71 - 124
Naphthalene	5.00	5.22		ug/L		104	61 - 128
N-Propylbenzene	5.00	6.02		ug/L		120	76 - 126
Styrene	5.00	5.72		ug/L		114	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.49		ug/L		110	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.53		ug/L		111	71 - 121
Tetrachloroethene	5.00	5.33		ug/L		107	74 - 129
Toluene	5.00	5.46		ug/L		109	80 - 121
1,2,3-Trichlorobenzene	5.00	5.19		ug/L		104	69 - 129
1,1,1-Trichloroethane	5.00	5.30		ug/L		106	74 - 131
1,1,2-Trichloroethane	5.00	5.50		ug/L		110	80 - 119
Trichloroethene	5.00	5.17		ug/L		103	79 - 123
Trichlorofluoromethane	5.00	4.90		ug/L		98	65 - 141
1,2,4-Trichlorobenzene	5.00	5.26		ug/L		105	69 - 130
1,2,3-Trichloropropane	5.00	5.78		ug/L		116	73 - 122
1,2,4-Trimethylbenzene	5.00	5.57		ug/L		111	76 - 124
1,3,5-Trimethylbenzene	5.00	5.62		ug/L		112	75 - 124
Vinyl chloride	5.00	4.52		ug/L		90	58 - 137
o-Xylene	5.00	5.60		ug/L		112	78 - 122
m-Xylene & p-Xylene	5.00	5.73		ug/L		115	80 - 121
2-Chlorotoluene	5.00	5.83		ug/L		117	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439502/5
Matrix: Water
Analysis Batch: 439502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*
Dibromofluoromethane (Surr)	*95*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.2		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 01:44*	*1*

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.215		ug/L		86	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	98		70 - 130

Lab Sample ID: LCSD 280-439245/2-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	102	M	70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-438382/1-A
Matrix: Water
Analysis Batch: 440110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438382

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		12/06/18 20:30	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		12/06/18 20:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	81		56 - 125	11/21/18 09:05	12/06/18 20:30	1
n-Octacosane	110		60 - 142	11/21/18 09:05	12/06/18 20:30	1

Lab Sample ID: LCS 280-438382/2-A
Matrix: Water
Analysis Batch: 440110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438382

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]			2.00	1.84		mg/L		92	36 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	81		56 - 125
n-Octacosane	119		60 - 142

GC/MS VOA

Analysis Batch: 439502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	8260B	
280-117169-2	RB-S2-181118-02	Total/NA	Water	8260B	
MB 280-439502/4	Method Blank	Total/NA	Water	8260B	
LCS 280-439502/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	8015D GRO	
280-117169-2	RB-S2-181118-02	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	3510C	
280-117169-2	RB-S2-181118-02	Total/NA	Water	3510C	
MB 280-438382/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-438382/2-A	Lab Control Sample	Total/NA	Water	3510C	

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	8011	
280-117169-2	RB-S2-181118-02	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	8011	439245
280-117169-2	RB-S2-181118-02	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Analysis Batch: 440110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117169-1	RB-S2-181118-01	Total/NA	Water	8015D DRO	438382
280-117169-2	RB-S2-181118-02	Total/NA	Water	8015D DRO	438382
MB 280-438382/1-A	Method Blank	Total/NA	Water	8015D DRO	438382
LCS 280-438382/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	438382

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Client Sample ID: RB-S2-181118-01

Lab Sample ID: 280-117169-1

Date Collected: 11/18/18 11:34

Matrix: Water

Date Received: 11/20/18 11:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439502	12/01/18 03:46	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/28/18 23:04	GPM	TAL DEN
Total/NA	Prep	8011			34.5 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 02:22	JLW	TAL DEN
Total/NA	Prep	3510C			1102.6 mL	1 mL	438382	11/21/18 09:05	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			440110	12/06/18 21:13	CSM	TAL DEN

Client Sample ID: RB-S2-181118-02

Lab Sample ID: 280-117169-2

Date Collected: 11/18/18 11:55

Matrix: Water

Date Received: 11/20/18 11:18

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439502	12/01/18 04:06	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/28/18 23:28	GPM	TAL DEN
Total/NA	Prep	8011			34.2 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 02:41	JLW	TAL DEN
Total/NA	Prep	3510C			949.7 mL	1 mL	438382	11/21/18 09:05	KJS	TAL DEN
Total/NA	Analysis	8015D DRO		1			440110	12/06/18 21:35	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117169-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andress	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4423 3393 0939	COC No: COC1-52-TA-20181119
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water			Total Number of containers	Special Instructions/Note:
Preservation Code:							J/F	N	N	N	F	A	R	N	A				
RB-52-181118-01	11/18/18	1034	G	W	N	N	—	—	—	—	—	X	X	X	X	—	—	10	—
RB-52-181118-02	11/18/18	1155	G	W	N	N	—	—	—	—	—	X	X	X	X	—	—	10	—

280-117169 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by: — Date: Time: Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKeage	11/19/18 1800	EA		11/20/18 0940	TAEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.9, +1.0, IR5 offered by SS 11/20/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117169-1

Login Number: 117169
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117172-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/11/2018 6:26:17 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

General Chemistry

Qualifier	Qualifier Description
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117172-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117172-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/20/2018 12:12 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Sample V-S3-191118-424 (280-117172-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/19/2018 and analyzed on 11/30/2018.

The initial calibration verification (ICV) result for batch 280-439476 was above the upper control limit for Dichlorodifluoromethane (+34.3%D). Associated results have been flagged "Q". The bias was high, and sample results were non-detect; therefore, the data have been qualified and reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S3-191118-01 (280-117172-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Job ID: 280-117172-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Sample V-S3-191118-424 (280-117172-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S3-191118-01 (280-117172-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: TB-S3-191118-01 (280-117172-1). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Sample P-S3-191118-424 (280-117172-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/19/2018 and analyzed on 11/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S3-191118-01 (280-117172-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/28/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample P-S3-191118-424 (280-117172-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/30/2018 and analyzed on 12/05/2018.

Per client request, samples were silica gel cleaned prior to analysis: P-S3-191118-424 (280-117172-3), (LCS 280-439507/2-A), (LCS 280-439507/3-A), (MB 280-439507/1-A).

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439507/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S3-191118-424 (280-117172-2) and P-S3-191118-424 (280-117172-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/27/2018.

Percent Moisture exceeded the RPD limit for the duplicate of sample V-S3-191118-424DU (280-117172-2). Associated results have been flagged "J1". Refer to the QC report for details. The results for the sample and sample duplicate were both less than 10%; therefore, control limits do not apply.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Client Sample ID: TB-S3-191118-01 — Lab Sample ID: 280-117172-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.58	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: V-S3-191118-424 — Lab Sample ID: 280-117172-2

No Detections.

Client Sample ID: P-S3-191118-424 — Lab Sample ID: 280-117172-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.0	J	7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117172-1	TB-S3-191118-01	Water	11/19/18 17:00	11/20/18 12:12
280-117172-2	V-S3-191118-424	Solid	11/19/18 09:26	11/20/18 12:12
280-117172-3	P-S3-191118-424	Solid	11/19/18 09:26	11/20/18 12:12

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S3-191118-01
Date Collected: 11/19/18 17:00
Date Received: 11/20/18 12:12

Lab Sample ID: 280-117172-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 10:06	1
Benzene	0.40	U M	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 10:06	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 10:06	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 10:06	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 10:06	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 10:06	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/01/18 10:06	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 10:06	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 10:06	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 10:06	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 10:06	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 10:06	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 10:06	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 10:06	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 10:06	1
1,3-Dichlorobenzene	0.40	U M	1.0	0.40	0.13	ug/L		12/01/18 10:06	1
1,4-Dichlorobenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 10:06	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 10:06	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 10:06	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 10:06	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 10:06	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 10:06	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 10:06	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 10:06	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 10:06	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 10:06	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 10:06	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 10:06	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 10:06	1
Isopropylbenzene	0.40	U M	1.0	0.40	0.19	ug/L		12/01/18 10:06	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 10:06	1
Methylene Chloride	**0.58**	**J**	5.0	0.80	0.32	ug/L		12/01/18 10:06	1
4-Methyl-2-pentanone (MIBK)	3.2	U M	5.0	3.2	0.98	ug/L		12/01/18 10:06	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 10:06	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 10:06	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S3-191118-01
Date Collected: 11/19/18 17:00
Date Received: 11/20/18 12:12
Lab Sample ID: 280-117172-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 10:06	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 10:06	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 10:06	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 10:06	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 10:06	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 10:06	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 10:06	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/01/18 10:06	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 10:06	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 10:06	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 10:06	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 10:06	1
m-Xylene & p-Xylene	0.80	U M	2.0	0.80	0.34	ug/L		12/01/18 10:06	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 10:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/01/18 10:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*118*		*81 - 118*		*12/01/18 10:06*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*12/01/18 10:06*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 119*		*12/01/18 10:06*	*1*

Client Sample ID: V-S3-191118-424
Date Collected: 11/19/18 09:26
Date Received: 11/20/18 12:12
Lab Sample ID: 280-117172-2
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1400	U	1700	1400	450	ug/Kg	☼	11/30/18 17:42	1
Benzene	180	U	280	180	51	ug/Kg	☼	11/30/18 17:42	1
Bromobenzene	45	U	280	45	21	ug/Kg	☼	11/30/18 17:42	1
Bromochloromethane	180	U	280	180	53	ug/Kg	☼	11/30/18 17:42	1
Bromodichloromethane	90	U	280	90	45	ug/Kg	☼	11/30/18 17:42	1
Bromoform	180	U	280	180	180	ug/Kg	☼	11/30/18 17:42	1
Bromomethane	180	U	570	180	50	ug/Kg	☼	11/30/18 17:42	1
2-Butanone (MEK)	720	U	1100	720	330	ug/Kg	☼	11/30/18 17:42	1
n-Butylbenzene	90	U	280	90	36	ug/Kg	☼	11/30/18 17:42	1
sec-Butylbenzene	90	U	280	90	43	ug/Kg	☼	11/30/18 17:42	1
tert-Butylbenzene	90	U	280	90	32	ug/Kg	☼	11/30/18 17:42	1
Carbon disulfide	180	U M	280	180	72	ug/Kg	☼	11/30/18 17:42	1
Carbon tetrachloride	45	U	280	45	19	ug/Kg	☼	11/30/18 17:42	1
Chlorobenzene	90	U	280	90	34	ug/Kg	☼	11/30/18 17:42	1
Chloroethane	180	U	570	180	50	ug/Kg	☼	11/30/18 17:42	1
Chloroform	180	U	280	180	52	ug/Kg	☼	11/30/18 17:42	1
Chloromethane	180	U	570	180	57	ug/Kg	☼	11/30/18 17:42	1
4-Chlorotoluene	90	U	280	90	26	ug/Kg	☼	11/30/18 17:42	1
Dibromochloromethane	90	U	280	90	37	ug/Kg	☼	11/30/18 17:42	1
1,2-Dibromo-3-Chloropropane	360	U	570	360	97	ug/Kg	☼	11/30/18 17:42	1
Dichlorodifluoromethane	90	U Q	570	90	25	ug/Kg	☼	11/30/18 17:42	1
Dibromomethane	90	U	280	90	34	ug/Kg	☼	11/30/18 17:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-191118-424
Date Collected: 11/19/18 09:26
Date Received: 11/20/18 12:12

Lab Sample ID: 280-117172-2
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	90	U	280	90	28	ug/Kg	☼	11/30/18 17:42	1
1,2-Dichlorobenzene	360	U	570	360	110	ug/Kg	☼	11/30/18 17:42	1
1,3-Dichlorobenzene	180	U	280	180	46	ug/Kg	☼	11/30/18 17:42	1
1,4-Dichlorobenzene	90	U	280	90	28	ug/Kg	☼	11/30/18 17:42	1
1,1-Dichloroethane	180	U	280	180	57	ug/Kg	☼	11/30/18 17:42	1
1,2-Dichloroethane	90	U	280	90	28	ug/Kg	☼	11/30/18 17:42	1
1,1-Dichloroethene	180	U	280	180	57	ug/Kg	☼	11/30/18 17:42	1
1,2-Dichloroethene, Total	90	U	140	90	25	ug/Kg	☼	11/30/18 17:42	1
cis-1,2-Dichloroethene	90	U	140	90	25	ug/Kg	☼	11/30/18 17:42	1
trans-1,2-Dichloroethene	180	U	280	180	51	ug/Kg	☼	11/30/18 17:42	1
1,2-Dichloropropane	180	U	280	180	52	ug/Kg	☼	11/30/18 17:42	1
1,3-Dichloropropane	90	U	280	90	32	ug/Kg	☼	11/30/18 17:42	1
2,2-Dichloropropane	90	U	280	90	31	ug/Kg	☼	11/30/18 17:42	1
1,1-Dichloropropene	180	U	280	180	54	ug/Kg	☼	11/30/18 17:42	1
cis-1,3-Dichloropropene	90	U	280	90	31	ug/Kg	☼	11/30/18 17:42	1
trans-1,3-Dichloropropene	180	U	280	180	47	ug/Kg	☼	11/30/18 17:42	1
Ethylbenzene	90	U	280	90	38	ug/Kg	☼	11/30/18 17:42	1
2-Hexanone	720	U	1100	720	250	ug/Kg	☼	11/30/18 17:42	1
Hexachlorobutadiene	180	U	280	180	55	ug/Kg	☼	11/30/18 17:42	1
Isopropylbenzene	90	U M	280	90	33	ug/Kg	☼	11/30/18 17:42	1
4-Isopropyltoluene	90	U	280	90	36	ug/Kg	☼	11/30/18 17:42	1
Methylene Chloride	180	U	280	180	78	ug/Kg	☼	11/30/18 17:42	1
4-Methyl-2-pentanone (MIBK)	720	U	1100	720	250	ug/Kg	☼	11/30/18 17:42	1
Methyl tert-butyl ether	180	U	280	180	57	ug/Kg	☼	11/30/18 17:42	1
Naphthalene	90	U	570	90	43	ug/Kg	☼	11/30/18 17:42	1
N-Propylbenzene	180	U	280	180	46	ug/Kg	☼	11/30/18 17:42	1
Styrene	90	U	280	90	29	ug/Kg	☼	11/30/18 17:42	1
1,1,1,2-Tetrachloroethane	90	U	280	90	24	ug/Kg	☼	11/30/18 17:42	1
1,1,2,2-Tetrachloroethane	90	U	280	90	33	ug/Kg	☼	11/30/18 17:42	1
Tetrachloroethene	90	U	280	90	31	ug/Kg	☼	11/30/18 17:42	1
Toluene	90	U	280	90	44	ug/Kg	☼	11/30/18 17:42	1
1,2,3-Trichlorobenzene	90	U	280	90	39	ug/Kg	☼	11/30/18 17:42	1
1,1,1-Trichloroethane	45	U	280	45	23	ug/Kg	☼	11/30/18 17:42	1
1,1,2-Trichloroethane	90	U	280	90	31	ug/Kg	☼	11/30/18 17:42	1
Trichloroethene	90	U	280	90	26	ug/Kg	☼	11/30/18 17:42	1
Trichlorofluoromethane	180	U	570	180	57	ug/Kg	☼	11/30/18 17:42	1
1,2,4-Trichlorobenzene	180	U	280	180	53	ug/Kg	☼	11/30/18 17:42	1
1,2,3-Trichloropropane	180	U	280	180	53	ug/Kg	☼	11/30/18 17:42	1
1,2,4-Trimethylbenzene	90	U	280	90	35	ug/Kg	☼	11/30/18 17:42	1
1,3,5-Trimethylbenzene	90	U	280	90	44	ug/Kg	☼	11/30/18 17:42	1
Vinyl chloride	90	U	570	90	31	ug/Kg	☼	11/30/18 17:42	1
o-Xylene	90	U	140	90	40	ug/Kg	☼	11/30/18 17:42	1
m-Xylene & p-Xylene	180	U	280	180	88	ug/Kg	☼	11/30/18 17:42	1
2-Chlorotoluene	90	U	280	90	29	ug/Kg	☼	11/30/18 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*85 - 116*	*11/19/18 09:26*	*11/30/18 17:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*11/19/18 09:26*	*11/30/18 17:42*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*11/19/18 09:26*	*11/30/18 17:42*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*11/19/18 09:26*	*11/30/18 17:42*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S3-191118-01 — **Lab Sample ID: 280-117172-1**
Date Collected: 11/19/18 17:00 — **Matrix: Water**
Date Received: 11/20/18 12:12

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 23:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*82 - 110*		*11/28/18 23:52*	*1*

Client Sample ID: P-S3-191118-424 — **Lab Sample ID: 280-117172-3**
Date Collected: 11/19/18 09:26 — **Matrix: Solid**
Date Received: 11/20/18 12:12 — **Percent Solids: 97.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.41	mg/Kg	☼	11/24/18 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*87*		*77 - 123*	*11/19/18 09:26*	*11/24/18 15:46*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S3-191118-01 — **Lab Sample ID: 280-117172-1**
Date Collected: 11/19/18 17:00 — **Matrix: Water**
Date Received: 11/20/18 12:12

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 03:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*110*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 03:00*	*1*

Client Sample ID: V-S3-191118-424 — **Lab Sample ID: 280-117172-2**
Date Collected: 11/19/18 09:26 — **Matrix: Solid**
Date Received: 11/20/18 12:12 — **Percent Solids: 97.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.015	ug/Kg	☼	12/08/18 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*95*		*55 - 130*	*11/27/18 10:27*	*12/08/18 17:06*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-191118-424 — **Lab Sample ID: 280-117172-3**
Date Collected: 11/19/18 09:26 — **Matrix: Solid**
Date Received: 11/20/18 12:12 — **Percent Solids: 97.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.0**	**J**	7.6	3.8	1.3	mg/Kg	☼	12/05/18 19:24	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg	☼	12/05/18 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*11/30/18 19:50*	*12/05/18 19:24*	*1*
n-Octacosane	*107*		*25 - 162*	*11/30/18 19:50*	*12/05/18 19:24*	*1*

General Chemistry

Client Sample ID: V-S3-191118-424
Date Collected: 11/19/18 09:26
Date Received: 11/20/18 12:12
Lab Sample ID: 280-117172-2
Matrix: Solid
Percent Solids: 97.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.7		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: P-S3-191118-424
Date Collected: 11/19/18 09:26
Date Received: 11/20/18 12:12
Lab Sample ID: 280-117172-3
Matrix: Solid
Percent Solids: 97.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.4		0.1	0.05	0.1	%		11/27/18 09:45	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117172-2	V-S3-191118-424	96	88	98	92
LCS 280-439485/2-A	Lab Control Sample	100	97	101	97
LCSD 280-439485/3-A	Lab Control Sample Dup	99	92	98	95
MB 280-439485/1-A	Method Blank	100	94	102	96

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117172-1	TB-S3-191118-01	97	118	97	108
LCS 280-439523/4	Lab Control Sample	99	112	102	107
LCSD 280-439523/5	Lab Control Sample Dup	102	115	102	105
MB 280-439523/6	Method Blank	95	116	99	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117172-3	P-S3-191118-424	87
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117172-1	TB-S3-191118-01	93
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117172-2	V-S3-191118-424	95
LCS 280-438886/2-A	Lab Control Sample	103 M
LCSD 280-438886/3-A	Lab Control Sample Dup	90 M
MB 280-438886/4-A	Method Blank	114 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117172-1	TB-S3-191118-01	110 M
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117172-3	P-S3-191118-424	75	107
LCS 280-439507/2-A	Lab Control Sample	64	101
LCS 280-439507/3-A	Lab Control Sample	81	116
MB 280-439507/1-A	Method Blank	63	107

Surrogate Legend

OTPH = o-Terphenyl (Surr)

OTCN = n-Octacosane

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439485/1-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		11/30/18 16:46	1
Benzene	160	U	250	160	45	ug/Kg		11/30/18 16:46	1
Bromobenzene	40	U	250	40	19	ug/Kg		11/30/18 16:46	1
Bromochloromethane	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		11/30/18 16:46	1
Bromoform	160	U	250	160	160	ug/Kg		11/30/18 16:46	1
Bromomethane	160	U	500	160	44	ug/Kg		11/30/18 16:46	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		11/30/18 16:46	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		11/30/18 16:46	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		11/30/18 16:46	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		11/30/18 16:46	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		11/30/18 16:46	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		11/30/18 16:46	1
Chlorobenzene	80	U	250	80	30	ug/Kg		11/30/18 16:46	1
Chloroethane	160	U	500	160	44	ug/Kg		11/30/18 16:46	1
Chloroform	160	U	250	160	46	ug/Kg		11/30/18 16:46	1
Chloromethane	160	U	500	160	50	ug/Kg		11/30/18 16:46	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		11/30/18 16:46	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		11/30/18 16:46	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		11/30/18 16:46	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		11/30/18 16:46	1
Dibromomethane	80	U	250	80	30	ug/Kg		11/30/18 16:46	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		11/30/18 16:46	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		11/30/18 16:46	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1
1,4-Dichlorobenzene	80	U M	250	80	25	ug/Kg		11/30/18 16:46	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		11/30/18 16:46	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		11/30/18 16:46	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		11/30/18 16:46	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		11/30/18 16:46	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		11/30/18 16:46	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		11/30/18 16:46	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		11/30/18 16:46	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		11/30/18 16:46	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		11/30/18 16:46	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1
Ethylbenzene	80	U	250	80	34	ug/Kg		11/30/18 16:46	1
2-Hexanone	640	U	1000	640	220	ug/Kg		11/30/18 16:46	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		11/30/18 16:46	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		11/30/18 16:46	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		11/30/18 16:46	1
Methylene Chloride	160	U	250	160	69	ug/Kg		11/30/18 16:46	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		11/30/18 16:46	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		11/30/18 16:46	1
Naphthalene	80	U	500	80	38	ug/Kg		11/30/18 16:46	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		11/30/18 16:46	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439485/1-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		11/30/18 16:46	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		11/30/18 16:46	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		11/30/18 16:46	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
Toluene	80	U	250	80	39	ug/Kg		11/30/18 16:46	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		11/30/18 16:46	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		11/30/18 16:46	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		11/30/18 16:46	1
Trichloroethene	80	U	250	80	23	ug/Kg		11/30/18 16:46	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		11/30/18 16:46	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		11/30/18 16:46	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		11/30/18 16:46	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		11/30/18 16:46	1
Vinyl chloride	80	U	500	80	27	ug/Kg		11/30/18 16:46	1
o-Xylene	80	U	130	80	35	ug/Kg		11/30/18 16:46	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		11/30/18 16:46	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		11/30/18 16:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*	*11/30/18 13:27*	*11/30/18 16:46*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/30/18 13:27*	*11/30/18 16:46*	*1*

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	7910		ug/Kg		99	36 - 164
Benzene	2000	2020		ug/Kg		101	77 - 121
Bromobenzene	2000	2100		ug/Kg		105	78 - 121
Bromochloromethane	2000	1960		ug/Kg		98	78 - 125
Bromodichloromethane	2000	2020		ug/Kg		101	75 - 127
Bromoform	2000	2020		ug/Kg		101	67 - 132
Bromomethane	2000	1990		ug/Kg		100	53 - 143
2-Butanone (MEK)	8000	7540		ug/Kg		94	51 - 148
n-Butylbenzene	2000	2260		ug/Kg		113	70 - 128
sec-Butylbenzene	2000	2270		ug/Kg		114	73 - 126
tert-Butylbenzene	2000	2230		ug/Kg		111	73 - 125
Carbon disulfide	2000	1940		ug/Kg		97	63 - 132
Carbon tetrachloride	2000	2020		ug/Kg		101	70 - 135
Chlorobenzene	2000	2110		ug/Kg		106	79 - 120
Chloroethane	2000	1840		ug/Kg		92	59 - 139
Chloroform	2000	2040		ug/Kg		102	78 - 123
Chloromethane	2000	1870		ug/Kg		94	50 - 136
4-Chlorotoluene	2000	2170		ug/Kg		109	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2050		ug/Kg		102	74 - 126
1,2-Dibromo-3-Chloropropane	2000	2040		ug/Kg		102	61 - 132
Dichlorodifluoromethane	2000	1870		ug/Kg		94	29 - 149
Dibromomethane	2000	1980		ug/Kg		99	78 - 125
Ethylene Dibromide	2000	1990		ug/Kg		100	78 - 122
1,2-Dichlorobenzene	2000	2190		ug/Kg		110	78 - 121
1,3-Dichlorobenzene	2000	2190		ug/Kg		109	77 - 121
1,4-Dichlorobenzene	2000	2170		ug/Kg		109	75 - 120
1,1-Dichloroethane	2000	1990		ug/Kg		99	76 - 125
1,2-Dichloroethane	2000	2030		ug/Kg		102	73 - 128
1,1-Dichloroethene	2000	1950		ug/Kg		97	70 - 131
cis-1,2-Dichloroethene	2000	1990		ug/Kg		99	77 - 123
trans-1,2-Dichloroethene	2000	2020		ug/Kg		101	74 - 125
1,2-Dichloropropane	2000	2080		ug/Kg		104	76 - 123
1,3-Dichloropropane	2000	1950		ug/Kg		98	77 - 121
2,2-Dichloropropane	2000	2030		ug/Kg		101	67 - 133
1,1-Dichloropropene	2000	2010		ug/Kg		101	76 - 125
cis-1,3-Dichloropropene	2000	2090		ug/Kg		105	74 - 126
trans-1,3-Dichloropropene	2000	2050		ug/Kg		102	71 - 130
Ethylbenzene	2000	2130		ug/Kg		107	76 - 122
2-Hexanone	8000	7880		ug/Kg		99	53 - 145
Hexachlorobutadiene	2000	2000		ug/Kg		100	61 - 135
Isopropylbenzene	2000	2230		ug/Kg		111	68 - 134
4-Isopropyltoluene	2000	2330		ug/Kg		116	73 - 127
Methylene Chloride	2000	1810		ug/Kg		90	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	8130		ug/Kg		102	65 - 135
Methyl tert-butyl ether	2000	1930		ug/Kg		97	73 - 125
Naphthalene	2000	2120		ug/Kg		106	62 - 129
N-Propylbenzene	2000	2230		ug/Kg		111	73 - 125
Styrene	2000	2090		ug/Kg		104	76 - 124
1,1,1,2-Tetrachloroethane	2000	2070		ug/Kg		103	78 - 125
1,1,2,2-Tetrachloroethane	2000	2020		ug/Kg		101	70 - 124
Tetrachloroethene	2000	2060		ug/Kg		103	73 - 128
Toluene	2000	2050		ug/Kg		102	77 - 121
1,2,3-Trichlorobenzene	2000	2270		ug/Kg		114	66 - 130
1,1,1-Trichloroethane	2000	2060		ug/Kg		103	73 - 130
1,1,2-Trichloroethane	2000	2030		ug/Kg		101	78 - 121
Trichloroethene	2000	2070		ug/Kg		103	77 - 123
Trichlorofluoromethane	2000	2030		ug/Kg		101	62 - 140
1,2,4-Trichlorobenzene	2000	2290		ug/Kg		114	67 - 129
1,2,3-Trichloropropane	2000	2120		ug/Kg		106	73 - 125
1,2,4-Trimethylbenzene	2000	2230		ug/Kg		112	75 - 123
1,3,5-Trimethylbenzene	2000	2240		ug/Kg		112	73 - 124
Vinyl chloride	2000	1950		ug/Kg		98	56 - 135
o-Xylene	2000	2120		ug/Kg		106	77 - 123
m-Xylene & p-Xylene	2000	2110		ug/Kg		105	77 - 124
2-Chlorotoluene	2000	2200		ug/Kg		110	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439485/2-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439485

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: LCSD 280-439485/3-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439485

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			8000	7670		ug/Kg		96	36 - 164	3	20
Benzene			2000	2020		ug/Kg		101	77 - 121	0	20
Bromobenzene			2000	2100		ug/Kg		105	78 - 121	0	20
Bromochloromethane			2000	2000		ug/Kg		100	78 - 125	2	20
Bromodichloromethane			2000	2020		ug/Kg		101	75 - 127	0	20
Bromoform			2000	2060		ug/Kg		103	67 - 132	2	20
Bromomethane			2000	1990		ug/Kg		99	53 - 143	0	20
2-Butanone (MEK)			8000	7700		ug/Kg		96	51 - 148	2	20
n-Butylbenzene			2000	2190		ug/Kg		109	70 - 128	3	20
sec-Butylbenzene			2000	2170		ug/Kg		109	73 - 126	5	20
tert-Butylbenzene			2000	2160		ug/Kg		108	73 - 125	3	20
Carbon disulfide			2000	1960		ug/Kg		98	63 - 132	1	20
Carbon tetrachloride			2000	2040		ug/Kg		102	70 - 135	1	20
Chlorobenzene			2000	2110		ug/Kg		106	79 - 120	0	20
Chloroethane			2000	1830		ug/Kg		92	59 - 139	0	20
Chloroform			2000	2060		ug/Kg		103	78 - 123	1	20
Chloromethane			2000	1910		ug/Kg		95	50 - 136	2	20
4-Chlorotoluene			2000	2150		ug/Kg		108	72 - 124	1	20
Dibromochloromethane			2000	2070		ug/Kg		104	74 - 126	1	20
1,2-Dibromo-3-Chloropropane			2000	2070		ug/Kg		104	61 - 132	1	20
Dichlorodifluoromethane			2000	1910		ug/Kg		95	29 - 149	2	20
Dibromomethane			2000	1990		ug/Kg		99	78 - 125	0	20
Ethylene Dibromide			2000	2010		ug/Kg		101	78 - 122	1	20
1,2-Dichlorobenzene			2000	2160		ug/Kg		108	78 - 121	1	20
1,3-Dichlorobenzene			2000	2160		ug/Kg		108	77 - 121	1	20
1,4-Dichlorobenzene			2000	2140		ug/Kg		107	75 - 120	2	20
1,1-Dichloroethane			2000	2030		ug/Kg		101	76 - 125	2	20
1,2-Dichloroethane			2000	2050		ug/Kg		103	73 - 128	1	20
1,1-Dichloroethene			2000	1990		ug/Kg		100	70 - 131	2	20
cis-1,2-Dichloroethene			2000	2010		ug/Kg		100	77 - 123	1	20
trans-1,2-Dichloroethene			2000	2050		ug/Kg		102	74 - 125	1	20
1,2-Dichloropropane			2000	2080		ug/Kg		104	76 - 123	0	20
1,3-Dichloropropane			2000	2020		ug/Kg		101	77 - 121	3	20
2,2-Dichloropropane			2000	2010		ug/Kg		101	67 - 133	1	20
1,1-Dichloropropene			2000	2010		ug/Kg		101	76 - 125	0	20
cis-1,3-Dichloropropene			2000	2130		ug/Kg		106	74 - 126	2	20
trans-1,3-Dichloropropene			2000	2050		ug/Kg		103	71 - 130	0	20
Ethylbenzene			2000	2130		ug/Kg		106	76 - 122	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439485/3-A
Matrix: Solid
Analysis Batch: 439476

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439485

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	7980		ug/Kg		100	53 - 145	1	20
Hexachlorobutadiene	2000	1960		ug/Kg		98	61 - 135	2	20
Isopropylbenzene	2000	2160		ug/Kg		108	68 - 134	3	20
4-Isopropyltoluene	2000	2260		ug/Kg		113	73 - 127	3	20
Methylene Chloride	2000	1850		ug/Kg		92	70 - 128	2	20
4-Methyl-2-pentanone (MIBK)	8000	8150		ug/Kg		102	65 - 135	0	20
Methyl tert-butyl ether	2000	1970		ug/Kg		99	73 - 125	2	20
Naphthalene	2000	2150		ug/Kg		108	62 - 129	2	20
N-Propylbenzene	2000	2170		ug/Kg		108	73 - 125	3	20
Styrene	2000	2090		ug/Kg		105	76 - 124	0	20
1,1,1,2-Tetrachloroethane	2000	2060		ug/Kg		103	78 - 125	0	20
1,1,2,2-Tetrachloroethane	2000	2050		ug/Kg		102	70 - 124	1	20
Tetrachloroethene	2000	2070		ug/Kg		103	73 - 128	0	20
Toluene	2000	2020		ug/Kg		101	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2280		ug/Kg		114	66 - 130	1	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	1	20
1,1,2-Trichloroethane	2000	2040		ug/Kg		102	78 - 121	1	20
Trichloroethene	2000	2030		ug/Kg		102	77 - 123	2	20
Trichlorofluoromethane	2000	2050		ug/Kg		103	62 - 140	1	20
1,2,4-Trichlorobenzene	2000	2270		ug/Kg		114	67 - 129	1	20
1,2,3-Trichloropropane	2000	2100		ug/Kg		105	73 - 125	1	20
1,2,4-Trimethylbenzene	2000	2180		ug/Kg		109	75 - 123	2	20
1,3,5-Trimethylbenzene	2000	2180		ug/Kg		109	73 - 124	3	20
Vinyl chloride	2000	2000		ug/Kg		100	56 - 135	2	20
o-Xylene	2000	2090		ug/Kg		105	77 - 123	1	20
m-Xylene & p-Xylene	2000	2070		ug/Kg		104	77 - 124	2	20
2-Chlorotoluene	2000	2150		ug/Kg		108	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 07:25	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 07:25	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 07:25	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 07:25	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 07:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 07:25	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 07:25	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 07:25	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 07:25	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 07:25	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 07:25	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 07:25	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 07:25	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 07:25	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 07:25	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 07:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/01/18 07:25	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 07:25	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 07:25	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 07:25	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,2,3-Trichloropropane	0.80	U M	3.0	0.80	0.33	ug/L		12/01/18 07:25	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 07:25	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/01/18 07:25	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/01/18 07:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*12/01/18 07:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/01/18 07:25*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/01/18 07:25*	*1*

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	22.3		ug/L		112	39 - 160
Benzene	5.00	4.65		ug/L		93	79 - 120
Bromobenzene	5.00	5.11		ug/L		102	80 - 120
Bromochloromethane	5.00	4.99		ug/L		100	78 - 123
Bromodichloromethane	5.00	4.98		ug/L		100	79 - 125
Bromoform	5.00	4.85		ug/L		97	66 - 130
Bromomethane	5.00	4.51		ug/L		90	53 - 141
2-Butanone (MEK)	20.0	16.3		ug/L		82	56 - 143
n-Butylbenzene	5.00	4.76		ug/L		95	75 - 128
sec-Butylbenzene	5.00	4.59		ug/L		92	77 - 126
tert-Butylbenzene	5.00	4.51		ug/L		90	78 - 124
Carbon disulfide	5.00	4.75		ug/L		95	64 - 133
Carbon tetrachloride	5.00	5.35		ug/L		107	72 - 136
Chlorobenzene	5.00	4.70		ug/L		94	82 - 118
Chloroethane	5.00	4.96		ug/L		99	60 - 138
Chloroform	5.00	4.96		ug/L		99	79 - 124
Chloromethane	5.00	4.49		ug/L		90	50 - 139
4-Chlorotoluene	5.00	4.74		ug/L		95	78 - 122
Dibromochloromethane	5.00	5.17		ug/L		103	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.51	J	ug/L		90	62 - 128
Dichlorodifluoromethane	5.00	4.51		ug/L		90	32 - 152
Dibromomethane	5.00	5.08		ug/L		102	79 - 123
Ethylene Dibromide	5.00	4.87		ug/L		97	77 - 121
1,2-Dichlorobenzene	5.00	4.79		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.63		ug/L		93	80 - 119
1,4-Dichlorobenzene	5.00	4.79		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	4.67		ug/L		93	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.27		ug/L		105	73 - 128
1,1-Dichloroethene	5.00	4.76		ug/L		95	71 - 131
cis-1,2-Dichloroethene	5.00	4.78		ug/L		96	78 - 123
trans-1,2-Dichloroethene	5.00	4.75		ug/L		95	75 - 124
1,2-Dichloropropane	5.00	4.96		ug/L		99	78 - 122
1,3-Dichloropropane	5.00	4.86		ug/L		97	80 - 119
2,2-Dichloropropane	5.00	4.82		ug/L		96	60 - 139
1,1-Dichloropropene	5.00	4.59		ug/L		92	79 - 125
cis-1,3-Dichloropropene	5.00	4.76		ug/L		95	75 - 124
trans-1,3-Dichloropropene	5.00	4.74		ug/L		95	73 - 127
Ethylbenzene	5.00	4.64		ug/L		93	79 - 121
2-Hexanone	20.0	16.2		ug/L		81	57 - 139
Hexachlorobutadiene	5.00	4.63		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.51		ug/L		90	72 - 131
4-Isopropyltoluene	5.00	4.85		ug/L		97	77 - 127
Methylene Chloride	5.00	4.63	J	ug/L		93	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	17.7		ug/L		89	67 - 130
Methyl tert-butyl ether	5.00	4.41	J	ug/L		88	71 - 124
Naphthalene	5.00	4.57		ug/L		91	61 - 128
N-Propylbenzene	5.00	4.71		ug/L		94	76 - 126
Styrene	5.00	4.65		ug/L		93	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.83		ug/L		97	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	71 - 121
Tetrachloroethene	5.00	4.64		ug/L		93	74 - 129
Toluene	5.00	5.07		ug/L		101	80 - 121
1,2,3-Trichlorobenzene	5.00	4.51		ug/L		90	69 - 129
1,1,1-Trichloroethane	5.00	4.99		ug/L		100	74 - 131
1,1,2-Trichloroethane	5.00	5.38		ug/L		108	80 - 119
Trichloroethene	5.00	4.63		ug/L		93	79 - 123
Trichlorofluoromethane	5.00	5.08		ug/L		102	65 - 141
1,2,4-Trichlorobenzene	5.00	4.37		ug/L		87	69 - 130
1,2,3-Trichloropropane	5.00	4.84		ug/L		97	73 - 122
1,2,4-Trimethylbenzene	5.00	4.64		ug/L		93	76 - 124
1,3,5-Trimethylbenzene	5.00	4.66		ug/L		93	75 - 124
Vinyl chloride	5.00	4.54		ug/L		91	58 - 137
o-Xylene	5.00	4.47		ug/L		89	78 - 122
m-Xylene & p-Xylene	5.00	4.56		ug/L		91	80 - 121
2-Chlorotoluene	5.00	4.68		ug/L		94	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*112*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*107*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	23.5		ug/L		117	39 - 160	5	20
Benzene	5.00	5.12		ug/L		102	79 - 120	10	20
Bromobenzene	5.00	5.24		ug/L		105	80 - 120	3	20
Bromochloromethane	5.00	5.10		ug/L		102	78 - 123	2	20
Bromodichloromethane	5.00	5.62		ug/L		112	79 - 125	12	20
Bromoform	5.00	5.34		ug/L		107	66 - 130	10	20
Bromomethane	5.00	4.87		ug/L		97	53 - 141	8	20
2-Butanone (MEK)	20.0	17.5		ug/L		87	56 - 143	7	20
n-Butylbenzene	5.00	5.24		ug/L		105	75 - 128	9	20
sec-Butylbenzene	5.00	4.85		ug/L		97	77 - 126	5	20
tert-Butylbenzene	5.00	4.90		ug/L		98	78 - 124	8	20
Carbon disulfide	5.00	5.06		ug/L		101	64 - 133	6	20
Carbon tetrachloride	5.00	5.84		ug/L		117	72 - 136	9	20
Chlorobenzene	5.00	5.35		ug/L		107	82 - 118	13	20
Chloroethane	5.00	5.38		ug/L		108	60 - 138	8	20
Chloroform	5.00	5.29		ug/L		106	79 - 124	6	20
Chloromethane	5.00	4.73		ug/L		95	50 - 139	5	20
4-Chlorotoluene	5.00	5.18		ug/L		104	78 - 122	9	20
Dibromochloromethane	5.00	5.79		ug/L		116	74 - 126	11	20
1,2-Dibromo-3-Chloropropane	5.00	4.87	J	ug/L		97	62 - 128	8	20
Dichlorodifluoromethane	5.00	4.90		ug/L		98	32 - 152	8	20
Dibromomethane	5.00	5.48		ug/L		110	79 - 123	7	20
Ethylene Dibromide	5.00	5.20		ug/L		104	77 - 121	7	20
1,2-Dichlorobenzene	5.00	5.18		ug/L		104	80 - 119	8	20
1,3-Dichlorobenzene	5.00	5.05		ug/L		101	80 - 119	9	20
1,4-Dichlorobenzene	5.00	5.08		ug/L		102	79 - 118	6	20
1,1-Dichloroethane	5.00	5.07		ug/L		101	77 - 125	8	20
1,2-Dichloroethane	5.00	5.72		ug/L		114	73 - 128	8	20
1,1-Dichloroethene	5.00	5.00		ug/L		100	71 - 131	5	20
cis-1,2-Dichloroethene	5.00	4.84		ug/L		97	78 - 123	1	20
trans-1,2-Dichloroethene	5.00	5.02		ug/L		100	75 - 124	6	20
1,2-Dichloropropane	5.00	5.33		ug/L		107	78 - 122	7	20
1,3-Dichloropropane	5.00	5.13		ug/L		103	80 - 119	5	20
2,2-Dichloropropane	5.00	5.43		ug/L		109	60 - 139	12	20
1,1-Dichloropropene	5.00	5.16		ug/L		103	79 - 125	12	20
cis-1,3-Dichloropropene	5.00	5.27		ug/L		105	75 - 124	10	20
trans-1,3-Dichloropropene	5.00	5.21		ug/L		104	73 - 127	10	20
Ethylbenzene	5.00	5.13		ug/L		103	79 - 121	10	20
2-Hexanone	20.0	19.0		ug/L		95	57 - 139	16	20
Hexachlorobutadiene	5.00	5.15		ug/L		103	66 - 134	11	20
Isopropylbenzene	5.00	4.86		ug/L		97	72 - 131	7	20
4-Isopropyltoluene	5.00	5.27		ug/L		105	77 - 127	8	20
Methylene Chloride	5.00	4.67	J	ug/L		93	74 - 124	1	20
4-Methyl-2-pentanone (MIBK)	20.0	20.1		ug/L		100	67 - 130	12	20
Methyl tert-butyl ether	5.00	4.63	J	ug/L		93	71 - 124	5	20
Naphthalene	5.00	4.43		ug/L		89	61 - 128	3	20
N-Propylbenzene	5.00	5.13		ug/L		103	76 - 126	8	20
Styrene	5.00	5.22		ug/L		104	78 - 123	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			5.00	5.28		ug/L		106	78 - 124	9	20
1,1,2,2-Tetrachloroethane			5.00	4.85		ug/L		97	71 - 121	2	20
Tetrachloroethene			5.00	5.25		ug/L		105	74 - 129	12	20
Toluene			5.00	5.59		ug/L		112	80 - 121	10	20
1,2,3-Trichlorobenzene			5.00	4.72		ug/L		94	69 - 129	4	20
1,1,1-Trichloroethane			5.00	5.49		ug/L		110	74 - 131	10	20
1,1,2-Trichloroethane			5.00	5.89		ug/L		118	80 - 119	9	20
Trichloroethene			5.00	5.17		ug/L		103	79 - 123	11	20
Trichlorofluoromethane			5.00	5.60		ug/L		112	65 - 141	10	20
1,2,4-Trichlorobenzene			5.00	4.62		ug/L		92	69 - 130	5	20
1,2,3-Trichloropropane			5.00	4.95		ug/L		99	73 - 122	2	20
1,2,4-Trimethylbenzene			5.00	5.09		ug/L		102	76 - 124	9	20
1,3,5-Trimethylbenzene			5.00	5.04		ug/L		101	75 - 124	8	20
Vinyl chloride			5.00	4.92		ug/L		98	58 - 137	8	20
o-Xylene			5.00	5.00		ug/L		100	78 - 122	11	20
m-Xylene & p-Xylene			5.00	5.10		ug/L		102	80 - 121	11	20
2-Chlorotoluene			5.00	4.97		ug/L		99	79 - 122	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*105*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10			4.28	4.38	M	mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.2		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-438886/4-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438886

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/08/18 11:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*114*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 11:04*	*1*

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.731		ug/Kg		84	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*103*	*M*	*55 - 130*

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.670		ug/Kg		77	70 - 130	9	30

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	90	M	55 - 130

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	102	M	70 - 130	11/29/18 11:04	12/04/18 01:44	1

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.215		ug/L		86	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	98		70 - 130

Lab Sample ID: LCSD 280-439245/2-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	102	M	70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439507/1-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439507

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.32	J	8.0	4.0	1.4	mg/Kg		12/05/18 14:41	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/05/18 14:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	63		45 - 130	11/30/18 19:50	12/05/18 14:41	1
n-Octacosane	107		25 - 162	11/30/18 19:50	12/05/18 14:41	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-439507/2-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	133	89.6		mg/Kg		67	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-439507/3-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	297		mg/Kg		89	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*81*		*45 - 130*
n-Octacosane	*116*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-117172-2 DU
Matrix: Solid
Analysis Batch: 438870

Client Sample ID: V-S3-191118-424
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	2.7		2.2	J1	%		21	20

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

GC/MS VOA

Analysis Batch: 439476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-2	V-S3-191118-424	Total/NA	Solid	8260B	439485
MB 280-439485/1-A	Method Blank	Total/NA	Solid	8260B	439485
LCS 280-439485/2-A	Lab Control Sample	Total/NA	Solid	8260B	439485
LCSD 280-439485/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439485

Prep Batch: 439485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-2	V-S3-191118-424	Total/NA	Solid	5035	
MB 280-439485/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439485/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439485/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 439523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-1	TB-S3-191118-01	Total/NA	Water	8260B	
MB 280-439523/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439523/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-439523/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-3	P-S3-191118-424	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-3	P-S3-191118-424	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-1	TB-S3-191118-01	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-2	V-S3-191118-424	Total/NA	Solid	8011	
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-1	TB-S3-191118-01	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-3	P-S3-191118-424	Total/NA	Solid	3546	
MB 280-439507/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-1	TB-S3-191118-01	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Analysis Batch: 439945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-3	P-S3-191118-424	Total/NA	Solid	8015D DRO	439507
MB 280-439507/1-A	Method Blank	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507

Analysis Batch: 440435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-2	V-S3-191118-424	Total/NA	Solid	8011	438886
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	438886
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	438886
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	438886

General Chemistry

Analysis Batch: 438870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117172-2	V-S3-191118-424	Total/NA	Solid	Moisture	
280-117172-3	P-S3-191118-424	Total/NA	Solid	Moisture	
280-117172-2 DU	V-S3-191118-424	Total/NA	Solid	Moisture	

Client Sample ID: TB-S3-191118-01

Lab Sample ID: 280-117172-1

Date Collected: 11/19/18 17:00

Matrix: Water

Date Received: 11/20/18 12:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439523	12/01/18 10:06	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/28/18 23:52	GPM	TAL DEN
Total/NA	Prep	8011			34.7 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 03:00	JLW	TAL DEN

Client Sample ID: V-S3-191118-424

Lab Sample ID: 280-117172-2

Date Collected: 11/19/18 09:26

Matrix: Solid

Date Received: 11/20/18 12:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: V-S3-191118-424

Lab Sample ID: 280-117172-2

Date Collected: 11/19/18 09:26

Matrix: Solid

Date Received: 11/20/18 12:12

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.545 g	1000 mL	439485	11/19/18 09:26	JLS	TAL DEN
Total/NA	Analysis	8260B		1	20 mL	20 mL	439476	11/30/18 17:42	JLS	TAL DEN
Total/NA	Prep	8011			10.01 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 17:06	JLW	TAL DEN

Client Sample ID: P-S3-191118-424

Lab Sample ID: 280-117172-3

Date Collected: 11/19/18 09:26

Matrix: Solid

Date Received: 11/20/18 12:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: P-S3-191118-424

Lab Sample ID: 280-117172-3

Date Collected: 11/19/18 09:26

Matrix: Solid

Date Received: 11/20/18 12:12

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.167 g	5 mL	438635	11/19/18 09:26	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 15:46	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 19:24	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117172-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4993 3393 1019	COC No: COC1-53-TA-2018-1119
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-53-191118-01	11/19/18	1700	G	W	N	N	—	—	—	—	—	X	X	-	X	6	
V-53-191118-424	11/19/18	0926	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-53-191118-424	11/19/18	0926	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

JRL

280-117172 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Joshua Livingston	11/19/18 1800	EA		11/20/18	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.9+0.1 IR5 Received by SC 11/20/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117172-1

Login Number: 117172
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117258-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/12/2018 1:00:47 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117258-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117258-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/21/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S3-201118-459 (280-117258-2) and V-S3-201158-459 (280-117258-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/20/2018 and analyzed on 11/29/2018.

1,2,4-Trichlorobenzene exceeded the RPD limit for the MSD of sample V-S3-201118-459 (280-117258-2) in batch 280-439325. Associated results have been flagged "J1". Refer to the QC report for details. The MS and MSD each recovered within control limits.

The continuing calibration verification (CCV) associated with batch 280-439325 recovered outside acceptance criteria, low biased, for Dichlorodifluoromethane (-28.1%D). Associated results have been flagged "Q". The failing compound is considered a poor performer and is allowed up to 30%D. As such, the data have been qualified and reported. The following samples are associated: V-S3-201118-459 (280-117258-2), V-S3-201158-459 (280-117258-4) and (CCV 280-439325/2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S3-2018-01 (280-117258-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/01/2018.

Job ID: 280-117258-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria high for TB-S3-2018-01 (280-117258-1). Associated results have been flagged "Q". Refer to the QC report for details. This sample did not contain any detections for target analytes associated to this surrogate; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S3-201118-459 (280-117258-2) and V-S3-201158-459 (280-117258-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/27/2018 and analyzed on 12/08/2018.

Ethylene Dibromide failed the recovery criteria low for the MS/MSD of sample V-S3-201118-459 (280-117258-2) in batch 280-440435. Associated results have been flagged "J1". Refer to the QC report for details. Sample matrix interference and/or non-homogeneity are suspected. The acceptable LCS/LCSD data indicate that the analytical system was operating within control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S3-2018-01 (280-117258-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: TB-S3-2018-01 (280-117258-1). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S3-201118-459 (280-117258-3) and P-S3-201158-459 (280-117258-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/20/2018 and analyzed on 11/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S3-2018-01 (280-117258-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/29/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S3-201118-459 (280-117258-3) and P-S3-201158-459 (280-117258-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/30/2018 and analyzed on 12/05/2018.

Per client request, samples were silica gel cleaned prior to analysis: P-S3-201118-459 (280-117258-3), P-S3-201118-459 (280-117258-3[MS]), P-S3-201118-459 (280-117258-3[MSD]), P-S3-201158-459 (280-117258-5), (LCS 280-439507/2-A), (LCS 280-439507/3-A) and (MB 280-439507/1-A)

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439507/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details.

Job ID: 280-117258-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

This is considered acceptable as the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S3-201118-459 (280-117258-2), P-S3-201118-459 (280-117258-3), V-S3-201158-459 (280-117258-4) and P-S3-201158-459 (280-117258-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Client Sample ID: TB-S3-2018-01 — Lab Sample ID: 280-117258-1

No Detections.

Client Sample ID: V-S3-201118-459 — Lab Sample ID: 280-117258-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	35		23	7.3	2.1	ug/Kg	1	☼	8260B	Total/NA
Acetone	21	J	23	15	6.1	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	3.6	J	5.7	3.6	1.8	ug/Kg	1	☼	8260B	Total/NA
Toluene	1.2	J	5.7	1.8	0.78	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S3-201118-459 — Lab Sample ID: 280-117258-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.8	J	7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S3-201158-459 — Lab Sample ID: 280-117258-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	20	J	22	7.1	2.0	ug/Kg	1	☼	8260B	Total/NA
Acetone	17	J	22	14	6.0	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.8	J	5.6	3.6	1.8	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	1.0	J	5.6	1.8	0.70	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S3-201158-459 — Lab Sample ID: 280-117258-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.0	J	7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117258-1	TB-S3-2018-01	Water	11/20/18 14:25	11/21/18 09:15
280-117258-2	V-S3-201118-459	Solid	11/20/18 09:43	11/21/18 09:15
280-117258-3	P-S3-201118-459	Solid	11/20/18 09:43	11/21/18 09:15
280-117258-4	V-S3-201158-459	Solid	11/20/18 09:43	11/21/18 09:15
280-117258-5	P-S3-201158-459	Solid	11/20/18 09:43	11/21/18 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S3-2018-01
Date Collected: 11/20/18 14:25
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117258-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 12:19	1
Benzene	0.40	U M Q	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 12:19	1
Bromodichloromethane	0.40	U Q	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:19	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 12:19	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 12:19	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 12:19	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 12:19	1
Carbon tetrachloride	0.40	U Q	2.0	0.40	0.19	ug/L		12/01/18 12:19	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 12:19	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 12:19	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:19	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 12:19	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 12:19	1
Dibromomethane	0.40	U Q	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 12:19	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:19	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 12:19	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:19	1
1,2-Dichloroethane	0.40	U Q	1.0	0.40	0.13	ug/L		12/01/18 12:19	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 12:19	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 12:19	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:19	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:19	1
1,2-Dichloropropane	0.40	U Q	1.0	0.40	0.18	ug/L		12/01/18 12:19	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:19	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 12:19	1
1,1-Dichloropropene	0.40	U Q	1.0	0.40	0.19	ug/L		12/01/18 12:19	1
cis-1,3-Dichloropropene	0.40	U Q	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
trans-1,3-Dichloropropene	0.40	U Q	1.0	0.40	0.19	ug/L		12/01/18 12:19	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 12:19	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 12:19	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:19	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 12:19	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 12:19	1
4-Methyl-2-pentanone (MIBK)	3.2	U M Q	5.0	3.2	0.98	ug/L		12/01/18 12:19	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 12:19	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:19	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S3-2018-01
Date Collected: 11/20/18 14:25
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117258-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:19	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:19	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 12:19	1
Toluene	0.40	U Q	1.0	0.40	0.17	ug/L		12/01/18 12:19	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:19	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		12/01/18 12:19	1
Trichloroethene	0.40	U Q	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 12:19	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:19	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/01/18 12:19	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:19	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:19	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 12:19	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:19	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/01/18 12:19	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/01/18 12:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*122*	*Q*	*81 - 118*		*12/01/18 12:19*	*1*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*12/01/18 12:19*	*1*
Dibromofluoromethane (Surr)	*109*		*80 - 119*		*12/01/18 12:19*	*1*

Client Sample ID: V-S3-201118-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117258-2
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.7	1.8	0.63	ug/Kg	☼	11/29/18 16:53	1
1,1,1-Trichloroethane	1.8	U	5.7	1.8	0.59	ug/Kg	☼	11/29/18 16:53	1
1,1,2,2-Tetrachloroethane	1.8	U	5.7	1.8	0.69	ug/Kg	☼	11/29/18 16:53	1
1,1,2-Trichloroethane	3.6	U	5.7	3.6	1.0	ug/Kg	☼	11/29/18 16:53	1
1,1-Dichloroethane	0.91	U J1	5.7	0.91	0.24	ug/Kg	☼	11/29/18 16:53	1
1,1-Dichloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/29/18 16:53	1
1,1-Dichloropropene	1.8	U	5.7	1.8	0.61	ug/Kg	☼	11/29/18 16:53	1
1,2,3-Trichlorobenzene	1.8	U	5.7	1.8	0.85	ug/Kg	☼	11/29/18 16:53	1
1,2,3-Trichloropropane	3.6	U	5.7	3.6	0.92	ug/Kg	☼	11/29/18 16:53	1
1,2,4-Trichlorobenzene	1.8	U J1	5.7	1.8	0.83	ug/Kg	☼	11/29/18 16:53	1
1,2,4-Trimethylbenzene	3.6	U	5.7	3.6	0.66	ug/Kg	☼	11/29/18 16:53	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.68	ug/Kg	☼	11/29/18 16:53	1
1,2-Dichlorobenzene	1.8	U	5.7	1.8	0.51	ug/Kg	☼	11/29/18 16:53	1
1,2-Dichloroethane	1.8	U	5.7	1.8	0.79	ug/Kg	☼	11/29/18 16:53	1
1,2-Dichloroethene, Total	1.8	U	5.7	1.8	0.44	ug/Kg	☼	11/29/18 16:53	1
1,2-Dichloropropane	1.8	U	5.7	1.8	0.62	ug/Kg	☼	11/29/18 16:53	1
1,3,5-Trimethylbenzene	1.8	U	5.7	1.8	0.65	ug/Kg	☼	11/29/18 16:53	1
1,3-Dichlorobenzene	1.8	U	5.7	1.8	0.54	ug/Kg	☼	11/29/18 16:53	1
1,3-Dichloropropane	1.8	U	5.7	1.8	0.58	ug/Kg	☼	11/29/18 16:53	1
1,4-Dichlorobenzene	1.8	U	5.7	1.8	0.88	ug/Kg	☼	11/29/18 16:53	1
2,2-Dichloropropane	1.8	U	5.7	1.8	0.50	ug/Kg	☼	11/29/18 16:53	1
2-Butanone (MEK)	**35**		23	7.3	2.1	ug/Kg	☼	11/29/18 16:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-201118-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117258-2
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.8	U	5.7	1.8	0.58	ug/Kg	☼	11/29/18 16:53	1
2-Hexanone	15	U	23	15	5.5	ug/Kg	☼	11/29/18 16:53	1
4-Chlorotoluene	1.8	U	5.7	1.8	0.88	ug/Kg	☼	11/29/18 16:53	1
4-Isopropyltoluene	1.8	U	5.7	1.8	0.56	ug/Kg	☼	11/29/18 16:53	1
4-Methyl-2-pentanone (MIBK)	15	U	23	15	4.9	ug/Kg	☼	11/29/18 16:53	1
Acetone	**21**	**J**	23	15	6.1	ug/Kg	☼	11/29/18 16:53	1
Benzene	1.8	U	5.7	1.8	0.53	ug/Kg	☼	11/29/18 16:53	1
Bromobenzene	1.8	U	5.7	1.8	0.56	ug/Kg	☼	11/29/18 16:53	1
Bromoform	0.91	U	5.7	0.91	0.26	ug/Kg	☼	11/29/18 16:53	1
Bromomethane	1.8	U	11	1.8	0.57	ug/Kg	☼	11/29/18 16:53	1
Carbon disulfide	1.8	U	5.7	1.8	0.48	ug/Kg	☼	11/29/18 16:53	1
Carbon tetrachloride	1.8	U	5.7	1.8	0.71	ug/Kg	☼	11/29/18 16:53	1
Chlorobenzene	1.8	U	5.7	1.8	0.61	ug/Kg	☼	11/29/18 16:53	1
Bromochloromethane	0.91	U	5.7	0.91	0.34	ug/Kg	☼	11/29/18 16:53	1
Dibromochloromethane	1.8	U	5.7	1.8	0.65	ug/Kg	☼	11/29/18 16:53	1
Chloroethane	3.6	U	11	3.6	1.0	ug/Kg	☼	11/29/18 16:53	1
Chloroform	0.91	U	11	0.91	0.33	ug/Kg	☼	11/29/18 16:53	1
Chloromethane	1.8	U	11	1.8	0.87	ug/Kg	☼	11/29/18 16:53	1
cis-1,2-Dichloroethene	1.8	U	5.7	1.8	0.63	ug/Kg	☼	11/29/18 16:53	1
cis-1,3-Dichloropropene	3.6	U	5.7	3.6	1.5	ug/Kg	☼	11/29/18 16:53	1
Dibromomethane	3.6	U	5.7	3.6	0.95	ug/Kg	☼	11/29/18 16:53	1
Bromodichloromethane	0.91	U	5.7	0.91	0.25	ug/Kg	☼	11/29/18 16:53	1
Dichlorodifluoromethane	1.8	U Q	11	1.8	0.59	ug/Kg	☼	11/29/18 16:53	1
Ethylbenzene	1.8	U	5.7	1.8	0.76	ug/Kg	☼	11/29/18 16:53	1
Ethylene Dibromide	1.8	U	5.7	1.8	0.59	ug/Kg	☼	11/29/18 16:53	1
Hexachlorobutadiene	1.8	U	5.7	1.8	0.62	ug/Kg	☼	11/29/18 16:53	1
Isopropylbenzene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/29/18 16:53	1
Methyl tert-butyl ether	0.91	U	23	0.91	0.39	ug/Kg	☼	11/29/18 16:53	1
Methylene Chloride	**3.6**	**J**	5.7	3.6	1.8	ug/Kg	☼	11/29/18 16:53	1
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	11/29/18 16:53	1
Naphthalene	1.8	U	5.7	1.8	0.71	ug/Kg	☼	11/29/18 16:53	1
n-Butylbenzene	1.8	U	5.7	1.8	0.63	ug/Kg	☼	11/29/18 16:53	1
N-Propylbenzene	1.8	U	5.7	1.8	0.66	ug/Kg	☼	11/29/18 16:53	1
o-Xylene	1.8	U	5.7	1.8	0.69	ug/Kg	☼	11/29/18 16:53	1
sec-Butylbenzene	1.8	U	5.7	1.8	0.87	ug/Kg	☼	11/29/18 16:53	1
Styrene	1.8	U	5.7	1.8	0.71	ug/Kg	☼	11/29/18 16:53	1
tert-Butylbenzene	1.8	U	5.7	1.8	0.57	ug/Kg	☼	11/29/18 16:53	1
Tetrachloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	11/29/18 16:53	1
Toluene	**1.2**	**J**	5.7	1.8	0.78	ug/Kg	☼	11/29/18 16:53	1
trans-1,2-Dichloroethene	0.91	U	5.7	0.91	0.44	ug/Kg	☼	11/29/18 16:53	1
trans-1,3-Dichloropropene	1.8	U	5.7	1.8	0.76	ug/Kg	☼	11/29/18 16:53	1
Trichloroethene	0.91	U	5.7	0.91	0.26	ug/Kg	☼	11/29/18 16:53	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	11/29/18 16:53	1
Vinyl chloride	3.6	U	5.7	3.6	1.5	ug/Kg	☼	11/29/18 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*11/20/18 09:43*	*11/29/18 16:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 136*	*11/20/18 09:43*	*11/29/18 16:53*	*1*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*	*11/20/18 09:43*	*11/29/18 16:53*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*11/20/18 09:43*	*11/29/18 16:53*	*1*

Client Sample ID: V-S3-201158-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117258-4
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/29/18 17:54	1
1,1,1-Trichloroethane	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/29/18 17:54	1
1,1,2,2-Tetrachloroethane	1.8	U	5.6	1.8	0.68	ug/Kg	☼	11/29/18 17:54	1
1,1,2-Trichloroethane	3.6	U	5.6	3.6	0.98	ug/Kg	☼	11/29/18 17:54	1
1,1-Dichloroethane	0.89	U	5.6	0.89	0.23	ug/Kg	☼	11/29/18 17:54	1
1,1-Dichloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/29/18 17:54	1
1,1-Dichloropropene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	11/29/18 17:54	1
1,2,3-Trichlorobenzene	1.8	U	5.6	1.8	0.83	ug/Kg	☼	11/29/18 17:54	1
1,2,3-Trichloropropane	3.6	U	5.6	3.6	0.90	ug/Kg	☼	11/29/18 17:54	1
1,2,4-Trichlorobenzene	1.8	U	5.6	1.8	0.81	ug/Kg	☼	11/29/18 17:54	1
1,2,4-Trimethylbenzene	3.6	U	5.6	3.6	0.64	ug/Kg	☼	11/29/18 17:54	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.67	ug/Kg	☼	11/29/18 17:54	1
1,2-Dichlorobenzene	1.8	U	5.6	1.8	0.50	ug/Kg	☼	11/29/18 17:54	1
1,2-Dichloroethane	1.8	U	5.6	1.8	0.78	ug/Kg	☼	11/29/18 17:54	1
1,2-Dichloroethene, Total	1.8	U	5.6	1.8	0.43	ug/Kg	☼	11/29/18 17:54	1
1,2-Dichloropropane	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/29/18 17:54	1
1,3,5-Trimethylbenzene	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/29/18 17:54	1
1,3-Dichlorobenzene	1.8	U	5.6	1.8	0.53	ug/Kg	☼	11/29/18 17:54	1
1,3-Dichloropropane	1.8	U	5.6	1.8	0.57	ug/Kg	☼	11/29/18 17:54	1
1,4-Dichlorobenzene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	11/29/18 17:54	1
2,2-Dichloropropane	1.8	U	5.6	1.8	0.49	ug/Kg	☼	11/29/18 17:54	1
2-Butanone (MEK)	**20**	**J**	22	7.1	2.0	ug/Kg	☼	11/29/18 17:54	1
2-Chlorotoluene	1.8	U	5.6	1.8	0.57	ug/Kg	☼	11/29/18 17:54	1
2-Hexanone	14	U	22	14	5.4	ug/Kg	☼	11/29/18 17:54	1
4-Chlorotoluene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	11/29/18 17:54	1
4-Isopropyltoluene	1.8	U	5.6	1.8	0.54	ug/Kg	☼	11/29/18 17:54	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.8	ug/Kg	☼	11/29/18 17:54	1
Acetone	**17**	**J**	22	14	6.0	ug/Kg	☼	11/29/18 17:54	1
Benzene	1.8	U M	5.6	1.8	0.52	ug/Kg	☼	11/29/18 17:54	1
Bromobenzene	1.8	U	5.6	1.8	0.54	ug/Kg	☼	11/29/18 17:54	1
Bromoform	0.89	U	5.6	0.89	0.26	ug/Kg	☼	11/29/18 17:54	1
Bromomethane	1.8	U	11	1.8	0.56	ug/Kg	☼	11/29/18 17:54	1
Carbon disulfide	1.8	U	5.6	1.8	0.47	ug/Kg	☼	11/29/18 17:54	1
Carbon tetrachloride	1.8	U	5.6	1.8	0.70	ug/Kg	☼	11/29/18 17:54	1
Chlorobenzene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	11/29/18 17:54	1
Bromochloromethane	0.89	U	5.6	0.89	0.33	ug/Kg	☼	11/29/18 17:54	1
Dibromochloromethane	1.8	U	5.6	1.8	0.63	ug/Kg	☼	11/29/18 17:54	1
Chloroethane	3.6	U	11	3.6	0.99	ug/Kg	☼	11/29/18 17:54	1
Chloroform	0.89	U	11	0.89	0.32	ug/Kg	☼	11/29/18 17:54	1
Chloromethane	1.8	U	11	1.8	0.86	ug/Kg	☼	11/29/18 17:54	1
cis-1,2-Dichloroethene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/29/18 17:54	1
cis-1,3-Dichloropropene	3.6	U	5.6	3.6	1.4	ug/Kg	☼	11/29/18 17:54	1
Dibromomethane	3.6	U	5.6	3.6	0.93	ug/Kg	☼	11/29/18 17:54	1
Bromodichloromethane	0.89	U	5.6	0.89	0.24	ug/Kg	☼	11/29/18 17:54	1
Dichlorodifluoromethane	1.8	U Q	11	1.8	0.58	ug/Kg	☼	11/29/18 17:54	1
Ethylbenzene	1.8	U	5.6	1.8	0.74	ug/Kg	☼	11/29/18 17:54	1
Ethylene Dibromide	1.8	U	5.6	1.8	0.58	ug/Kg	☼	11/29/18 17:54	1
Hexachlorobutadiene	1.8	U	5.6	1.8	0.61	ug/Kg	☼	11/29/18 17:54	1
Isopropylbenzene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/29/18 17:54	1
Methyl tert-butyl ether	0.89	U	22	0.89	0.38	ug/Kg	☼	11/29/18 17:54	1
Methylene Chloride	**2.8**	**J**	5.6	3.6	1.8	ug/Kg	☼	11/29/18 17:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-201158-459 — **Lab Sample ID: 280-117258-4**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	11/29/18 17:54	1
Naphthalene	**1.0**	**J**	5.6	1.8	0.70	ug/Kg	☼	11/29/18 17:54	1
n-Butylbenzene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	11/29/18 17:54	1
N-Propylbenzene	1.8	U	5.6	1.8	0.64	ug/Kg	☼	11/29/18 17:54	1
o-Xylene	1.8	U	5.6	1.8	0.68	ug/Kg	☼	11/29/18 17:54	1
sec-Butylbenzene	1.8	U	5.6	1.8	0.86	ug/Kg	☼	11/29/18 17:54	1
Styrene	1.8	U	5.6	1.8	0.70	ug/Kg	☼	11/29/18 17:54	1
tert-Butylbenzene	1.8	U	5.6	1.8	0.56	ug/Kg	☼	11/29/18 17:54	1
Tetrachloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	11/29/18 17:54	1
Toluene	1.8	U	5.6	1.8	0.77	ug/Kg	☼	11/29/18 17:54	1
trans-1,2-Dichloroethene	0.89	U	5.6	0.89	0.43	ug/Kg	☼	11/29/18 17:54	1
trans-1,3-Dichloropropene	1.8	U	5.6	1.8	0.74	ug/Kg	☼	11/29/18 17:54	1
Trichloroethene	0.89	U	5.6	0.89	0.26	ug/Kg	☼	11/29/18 17:54	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	11/29/18 17:54	1
Vinyl chloride	3.6	U	5.6	3.6	1.5	ug/Kg	☼	11/29/18 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*11/20/18 09:43*	*11/29/18 17:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*79*		*71 - 136*	*11/20/18 09:43*	*11/29/18 17:54*	*1*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*	*11/20/18 09:43*	*11/29/18 17:54*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 119*	*11/20/18 09:43*	*11/29/18 17:54*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S3-2018-01 — **Lab Sample ID: 280-117258-1**
Date Collected: 11/20/18 14:25 — **Matrix: Water**
Date Received: 11/21/18 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/29/18 02:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*11/29/18 02:39*	*1*

Client Sample ID: P-S3-201118-459 — **Lab Sample ID: 280-117258-3**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.42	mg/Kg	☼	11/24/18 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*	*11/20/18 09:43*	*11/24/18 16:10*	*1*

Client Sample ID: P-S3-201158-459 — **Lab Sample ID: 280-117258-5**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 97.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.37	mg/Kg	☼	11/24/18 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*82*		*77 - 123*	*11/20/18 09:43*	*11/24/18 17:22*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S3-2018-01 — **Lab Sample ID: 280-117258-1**
Date Collected: 11/20/18 14:25 — **Matrix: Water**
Date Received: 11/21/18 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		12/04/18 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*108*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 03:19*	*1*

Client Sample ID: V-S3-201118-459 — **Lab Sample ID: 280-117258-2**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U J1	0.10	0.039	0.015	ug/Kg	☼	12/08/18 17:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*96*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 17:25*	*1*

Client Sample ID: V-S3-201158-459 — **Lab Sample ID: 280-117258-4**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U	0.10	0.039	0.016	ug/Kg	☼	12/08/18 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*	*M*	*55 - 130*	*11/27/18 10:27*	*12/08/18 18:41*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-201118-459 — **Lab Sample ID: 280-117258-3**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.8**	**J**	7.6	3.8	1.3	mg/Kg	☼	12/05/18 19:46	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg	☼	12/05/18 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*61*		*45 - 130*	*11/30/18 19:50*	*12/05/18 19:46*	*1*
n-Octacosane	*99*		*25 - 162*	*11/30/18 19:50*	*12/05/18 19:46*	*1*

Client Sample ID: P-S3-201158-459 — **Lab Sample ID: 280-117258-5**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 97.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.0**	**J**	7.6	3.8	1.3	mg/Kg	☼	12/05/18 21:35	1
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg	☼	12/05/18 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*45 - 130*	*11/30/18 19:50*	*12/05/18 21:35*	*1*
n-Octacosane	*100*		*25 - 162*	*11/30/18 19:50*	*12/05/18 21:35*	*1*

General Chemistry

Client Sample ID: V-S3-201118-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15
Lab Sample ID: 280-117258-2
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.3		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: P-S3-201118-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15
Lab Sample ID: 280-117258-3
Matrix: Solid
Percent Solids: 96.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.2		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: V-S3-201158-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15
Lab Sample ID: 280-117258-4
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.6		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: P-S3-201158-459
Date Collected: 11/20/18 09:43
Date Received: 11/21/18 09:15
Lab Sample ID: 280-117258-5
Matrix: Solid
Percent Solids: 97.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.9		0.1	0.05	0.1	%		11/27/18 09:45	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117258-2	V-S3-201118-459	97	83	89	92
280-117258-2 MS	V-S3-201118-459	101	81	91	94
280-117258-2 MSD	V-S3-201118-459	107	81	97	98
280-117258-4	V-S3-201158-459	99	79	89	92
LCS 280-439287/2-A	Lab Control Sample	102	86 M	92	94
LCSD 280-439287/3-A	Lab Control Sample Dup	100	81	92	94
MB 280-439287/1-A	Method Blank	110	80	92	96

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117258-1	TB-S3-2018-01	96	122 Q	96	109
LCS 280-439523/4	Lab Control Sample	99	112	102	107
LCSD 280-439523/5	Lab Control Sample Dup	102	115	102	105
MB 280-439523/6	Method Blank	95	116	99	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117258-3	P-S3-201118-459	89
280-117258-3 MS	P-S3-201118-459	84
280-117258-3 MSD	P-S3-201118-459	85
280-117258-5	P-S3-201158-459	82
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117258-1	TB-S3-2018-01	91
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117258-2	V-S3-201118-459	96 M
280-117258-2 MS	V-S3-201118-459	104 M
280-117258-2 MSD	V-S3-201118-459	103 M
280-117258-4	V-S3-201158-459	103 M
LCS 280-438886/2-A	Lab Control Sample	103 M
LCSD 280-438886/3-A	Lab Control Sample Dup	90 M
MB 280-438886/4-A	Method Blank	114 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117258-1	TB-S3-2018-01	108 M
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117258-3	P-S3-201118-459	61	99
280-117258-3 MS	P-S3-201118-459	66	101
280-117258-3 MS	P-S3-201118-459	71	104
280-117258-3 MSD	P-S3-201118-459	65	99
280-117258-3 MSD	P-S3-201118-459	79	112
280-117258-5	P-S3-201158-459	72	100

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
LCS 280-439507/2-A	Lab Control Sample	64	101								
LCS 280-439507/3-A	Lab Control Sample	81	116								
MB 280-439507/1-A	Method Blank	63	107								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439287/1-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439287

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		11/29/18 12:49	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		11/29/18 12:49	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		11/29/18 12:49	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		11/29/18 12:49	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		11/29/18 12:49	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		11/29/18 12:49	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		11/29/18 12:49	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		11/29/18 12:49	1
Acetone	13	U M	20	13	5.4	ug/Kg		11/29/18 12:49	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/29/18 12:49	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		11/29/18 12:49	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		11/29/18 12:49	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		11/29/18 12:49	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		11/29/18 12:49	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		11/29/18 12:49	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		11/29/18 12:49	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		11/29/18 12:49	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		11/29/18 12:49	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		11/29/18 12:49	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		11/29/18 12:49	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		11/29/18 12:49	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		11/29/18 12:49	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		11/29/18 12:49	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		11/29/18 12:49	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		11/29/18 12:49	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		11/29/18 12:49	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		11/29/18 12:49	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		11/29/18 12:49	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		11/29/18 12:49	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		11/29/18 12:49	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		11/29/18 12:49	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		11/29/18 12:49	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		11/29/18 12:49	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		11/29/18 12:49	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		11/29/18 12:49	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		11/29/18 12:49	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		11/29/18 12:49	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		11/29/18 12:49	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		11/29/18 12:49	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		11/29/18 12:49	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		11/29/18 12:49	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		11/29/18 12:49	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		11/29/18 12:49	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		11/29/18 12:49	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		11/29/18 12:49	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		11/29/18 12:49	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		11/29/18 12:49	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		11/29/18 12:49	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439287/1-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439287

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		11/29/18 12:49	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		11/29/18 12:49	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		11/29/18 12:49	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		11/29/18 12:49	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		11/29/18 12:49	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		11/29/18 12:49	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		11/29/18 12:49	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		11/29/18 12:49	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		11/29/18 12:49	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		11/29/18 12:49	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		11/29/18 12:49	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		11/29/18 12:49	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		11/29/18 12:49	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		11/29/18 12:49	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		11/29/18 12:49	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		11/29/18 12:49	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		11/29/18 12:49	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		11/29/18 12:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*85 - 116*	*11/29/18 07:40*	*11/29/18 12:49*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*11/29/18 07:40*	*11/29/18 12:49*	*1*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*	*11/29/18 07:40*	*11/29/18 12:49*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*11/29/18 07:40*	*11/29/18 12:49*	*1*

Lab Sample ID: LCS 280-439287/2-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	57.4		ug/Kg		115	61 - 132
2-Butanone (MEK)	200	228		ug/Kg		114	51 - 148
1,2-Dichlorobenzene	50.0	53.1		ug/Kg		106	78 - 121
1,3-Dichlorobenzene	50.0	52.5		ug/Kg		105	77 - 121
4-Chlorotoluene	50.0	55.1		ug/Kg		110	72 - 124
1,4-Dichlorobenzene	50.0	52.8		ug/Kg		106	75 - 120
1,1-Dichloroethane	50.0	47.0		ug/Kg		94	76 - 125
1,2-Dichloroethane	50.0	47.5		ug/Kg		95	73 - 128
Acetone	200	209		ug/Kg		105	36 - 164
1,1-Dichloroethene	50.0	51.5		ug/Kg		103	70 - 131
Benzene	50.0	50.1		ug/Kg		100	77 - 121
Bromobenzene	50.0	57.0		ug/Kg		114	78 - 121
Bromoform	50.0	58.7		ug/Kg		117	67 - 132
Bromomethane	50.0	49.5		ug/Kg		99	53 - 143
1,2-Dichloropropane	50.0	52.8		ug/Kg		106	76 - 123
Carbon disulfide	50.0	48.7		ug/Kg		97	63 - 132
1,3-Dichloropropane	50.0	55.0		ug/Kg		110	77 - 121
Carbon tetrachloride	50.0	42.3		ug/Kg		85	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439287/2-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	44.3		ug/Kg		89	67 - 133
Chlorobenzene	50.0	53.5		ug/Kg		107	79 - 120
1,1-Dichloropropene	50.0	47.0		ug/Kg		94	76 - 125
Bromochloromethane	50.0	54.9		ug/Kg		110	78 - 125
Dibromochloromethane	50.0	56.8		ug/Kg		114	74 - 126
Chloroethane	50.0	44.7		ug/Kg		89	59 - 139
Chloroform	50.0	46.6		ug/Kg		93	78 - 123
2-Hexanone	200	243		ug/Kg		121	53 - 145
Chloromethane	50.0	36.6	M	ug/Kg		73	50 - 136
cis-1,2-Dichloroethene	50.0	51.5		ug/Kg		103	77 - 123
cis-1,3-Dichloropropene	50.0	60.0		ug/Kg		120	74 - 126
4-Isopropyltoluene	50.0	53.1		ug/Kg		106	73 - 127
Dibromomethane	50.0	51.5		ug/Kg		103	78 - 125
Bromodichloromethane	50.0	50.6		ug/Kg		101	75 - 127
4-Methyl-2-pentanone (MIBK)	200	228		ug/Kg		114	65 - 135
Dichlorodifluoromethane	50.0	22.2		ug/Kg		44	29 - 149
Ethylbenzene	50.0	53.5		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	56.7		ug/Kg		113	78 - 122
Hexachlorobutadiene	50.0	49.6		ug/Kg		99	61 - 135
Isopropylbenzene	50.0	52.3		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.5		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	54.1		ug/Kg		108	70 - 124
Methylene Chloride	50.0	51.0		ug/Kg		102	70 - 128
Naphthalene	50.0	58.0		ug/Kg		116	62 - 129
1,2,3-Trichlorobenzene	50.0	56.7		ug/Kg		113	66 - 130
n-Butylbenzene	50.0	52.6		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	50.0	43.7		ug/Kg		87	73 - 130
N-Propylbenzene	50.0	53.4		ug/Kg		107	73 - 125
1,1,2-Trichloroethane	50.0	54.2		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	54.7		ug/Kg		109	73 - 126
Styrene	50.0	55.5		ug/Kg		111	76 - 124
1,2,4-Trichlorobenzene	50.0	59.6		ug/Kg		119	67 - 129
tert-Butylbenzene	50.0	52.2		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	50.0	57.0		ug/Kg		114	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	50.4		ug/Kg		101	75 - 123
Toluene	50.0	52.4		ug/Kg		105	77 - 121
1,3,5-Trimethylbenzene	50.0	52.1		ug/Kg		104	73 - 124
trans-1,2-Dichloroethene	50.0	49.8		ug/Kg		100	74 - 125
trans-1,3-Dichloropropene	50.0	55.0		ug/Kg		110	71 - 130
o-Xylene	50.0	54.6		ug/Kg		109	77 - 123
Trichloroethene	50.0	50.9		ug/Kg		102	77 - 123
m-Xylene & p-Xylene	50.0	53.6		ug/Kg		107	77 - 124
Trichlorofluoromethane	50.0	40.9		ug/Kg		82	62 - 140
Vinyl chloride	50.0	40.4		ug/Kg		81	56 - 135
2-Chlorotoluene	50.0	56.6		ug/Kg		113	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439287/2-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439287

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*86*	*M*	*71 - 136*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Lab Sample ID: LCSD 280-439287/3-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439287

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	50.8		ug/Kg		102	61 - 132	12	20
2-Butanone (MEK)			200	200		ug/Kg		100	51 - 148	13	20
1,2-Dichlorobenzene			50.0	49.8		ug/Kg		100	78 - 121	7	20
1,3-Dichlorobenzene			50.0	49.9		ug/Kg		100	77 - 121	5	20
4-Chlorotoluene			50.0	52.7		ug/Kg		105	72 - 124	5	20
1,4-Dichlorobenzene			50.0	48.9		ug/Kg		98	75 - 120	8	20
1,1-Dichloroethane			50.0	46.3		ug/Kg		93	76 - 125	1	20
1,2-Dichloroethane			50.0	43.9		ug/Kg		88	73 - 128	8	20
Acetone			200	197		ug/Kg		98	36 - 164	6	20
1,1-Dichloroethene			50.0	53.2		ug/Kg		106	70 - 131	3	20
Benzene			50.0	48.0		ug/Kg		96	77 - 121	4	20
Bromobenzene			50.0	51.7		ug/Kg		103	78 - 121	10	20
Bromoform			50.0	53.6		ug/Kg		107	67 - 132	9	20
Bromomethane			50.0	50.3		ug/Kg		101	53 - 143	2	20
1,2-Dichloropropane			50.0	48.2		ug/Kg		96	76 - 123	9	20
Carbon disulfide			50.0	49.6		ug/Kg		99	63 - 132	2	20
1,3-Dichloropropane			50.0	47.3		ug/Kg		95	77 - 121	15	20
Carbon tetrachloride			50.0	43.2		ug/Kg		86	70 - 135	2	20
2,2-Dichloropropane			50.0	43.7		ug/Kg		87	67 - 133	1	20
Chlorobenzene			50.0	49.9		ug/Kg		100	79 - 120	7	20
1,1-Dichloropropene			50.0	46.5		ug/Kg		93	76 - 125	1	20
Bromochloromethane			50.0	51.5		ug/Kg		103	78 - 125	6	20
Dibromochloromethane			50.0	50.3		ug/Kg		101	74 - 126	12	20
Chloroethane			50.0	46.6		ug/Kg		93	59 - 139	4	20
Chloroform			50.0	44.6		ug/Kg		89	78 - 123	4	20
2-Hexanone			200	206		ug/Kg		103	53 - 145	16	20
Chloromethane			50.0	37.4	M	ug/Kg		75	50 - 136	2	20
cis-1,2-Dichloroethene			50.0	49.6		ug/Kg		99	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	52.3		ug/Kg		105	74 - 126	14	20
4-Isopropyltoluene			50.0	49.1		ug/Kg		98	73 - 127	8	20
Dibromomethane			50.0	47.1		ug/Kg		94	78 - 125	9	20
Bromodichloromethane			50.0	47.4		ug/Kg		95	75 - 127	7	20
4-Methyl-2-pentanone (MIBK)			200	206		ug/Kg		103	65 - 135	10	20
Dichlorodifluoromethane			50.0	21.7		ug/Kg		43	29 - 149	2	20
Ethylbenzene			50.0	49.8		ug/Kg		100	76 - 122	7	20
Ethylene Dibromide			50.0	50.1		ug/Kg		100	78 - 122	12	20
Hexachlorobutadiene			50.0	44.9		ug/Kg		90	61 - 135	10	20
Isopropylbenzene			50.0	49.3		ug/Kg		99	68 - 134	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439287/3-A
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	47.7		ug/Kg		95	78 - 125	8	20
Methyl tert-butyl ether	50.0	48.2		ug/Kg		96	73 - 125	5	20
1,1,2,2-Tetrachloroethane	50.0	49.5		ug/Kg		99	70 - 124	9	20
Methylene Chloride	50.0	51.3		ug/Kg		103	70 - 128	1	20
Naphthalene	50.0	54.8		ug/Kg		110	62 - 129	6	20
1,2,3-Trichlorobenzene	50.0	50.0		ug/Kg		100	66 - 130	12	20
n-Butylbenzene	50.0	49.5		ug/Kg		99	70 - 128	6	20
1,1,1-Trichloroethane	50.0	43.8		ug/Kg		88	73 - 130	0	20
N-Propylbenzene	50.0	50.9		ug/Kg		102	73 - 125	5	20
1,1,2-Trichloroethane	50.0	49.5		ug/Kg		99	78 - 121	9	20
sec-Butylbenzene	50.0	51.1		ug/Kg		102	73 - 126	7	20
Styrene	50.0	51.3		ug/Kg		103	76 - 124	8	20
1,2,4-Trichlorobenzene	50.0	54.3		ug/Kg		109	67 - 129	9	20
tert-Butylbenzene	50.0	49.0		ug/Kg		98	73 - 125	6	20
1,2,3-Trichloropropane	50.0	49.6		ug/Kg		99	73 - 125	14	20
Tetrachloroethene	50.0	47.7		ug/Kg		95	73 - 128	9	20
1,2,4-Trimethylbenzene	50.0	47.5		ug/Kg		95	75 - 123	6	20
Toluene	50.0	49.8		ug/Kg		100	77 - 121	5	20
1,3,5-Trimethylbenzene	50.0	49.2		ug/Kg		98	73 - 124	6	20
trans-1,2-Dichloroethene	50.0	52.0		ug/Kg		104	74 - 125	4	20
trans-1,3-Dichloropropene	50.0	49.8		ug/Kg		100	71 - 130	10	20
o-Xylene	50.0	52.0		ug/Kg		104	77 - 123	5	20
Trichloroethene	50.0	47.0		ug/Kg		94	77 - 123	8	20
m-Xylene & p-Xylene	50.0	50.0		ug/Kg		100	77 - 124	7	20
Trichlorofluoromethane	50.0	40.6		ug/Kg		81	62 - 140	1	20
Vinyl chloride	50.0	41.5		ug/Kg		83	56 - 135	3	20
2-Chlorotoluene	50.0	53.4		ug/Kg		107	75 - 122	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Lab Sample ID: 280-117258-2 MS
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	1.8	U	54.9	57.0		ug/Kg	☼	104	78 - 125
1,1,1-Trichloroethane	1.8	U	54.9	48.7		ug/Kg	☼	89	73 - 130
1,1,2,2-Tetrachloroethane	1.8	U	54.9	57.1		ug/Kg	☼	104	70 - 124
1,1,2-Trichloroethane	3.6	U	54.9	58.5		ug/Kg	☼	106	78 - 121
1,1-Dichloroethane	0.91	U J1	54.9	53.5	M	ug/Kg	☼	97	76 - 125
1,1-Dichloroethene	1.8	U	54.9	55.7		ug/Kg	☼	101	70 - 131
1,1-Dichloropropene	1.8	U	54.9	51.2		ug/Kg	☼	93	76 - 125
1,2,3-Trichlorobenzene	1.8	U	54.9	52.8		ug/Kg	☼	96	66 - 130
1,2,3-Trichloropropane	3.6	U	54.9	57.8		ug/Kg	☼	105	73 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117258-2 MS
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	1.8	U J1	54.9	51.7		ug/Kg	☼	94	67 - 129
1,2,4-Trimethylbenzene	3.6	U	54.9	52.6		ug/Kg	☼	96	75 - 123
1,2-Dibromo-3-Chloropropane	1.8	U	54.9	58.6		ug/Kg	☼	107	61 - 132
1,2-Dichlorobenzene	1.8	U	54.9	56.4		ug/Kg	☼	103	78 - 121
1,2-Dichloroethane	1.8	U	54.9	51.3		ug/Kg	☼	93	73 - 128
1,2-Dichloropropane	1.8	U	54.9	57.2		ug/Kg	☼	104	76 - 123
1,3,5-Trimethylbenzene	1.8	U	54.9	54.2		ug/Kg	☼	99	73 - 124
1,3-Dichlorobenzene	1.8	U	54.9	52.6		ug/Kg	☼	96	77 - 121
1,3-Dichloropropane	1.8	U	54.9	58.0		ug/Kg	☼	106	77 - 121
1,4-Dichlorobenzene	1.8	U	54.9	53.6		ug/Kg	☼	97	75 - 120
2,2-Dichloropropane	1.8	U	54.9	46.1		ug/Kg	☼	84	67 - 133
2-Butanone (MEK)	35		220	235		ug/Kg	☼	91	51 - 148
2-Chlorotoluene	1.8	U	54.9	57.7		ug/Kg	☼	105	75 - 122
2-Hexanone	15	U	220	240		ug/Kg	☼	109	53 - 145
4-Chlorotoluene	1.8	U	54.9	54.3		ug/Kg	☼	99	72 - 124
4-Isopropyltoluene	1.8	U	54.9	52.5		ug/Kg	☼	96	73 - 127
4-Methyl-2-pentanone (MIBK)	15	U	220	236		ug/Kg	☼	107	65 - 135
Acetone	21	J	220	233		ug/Kg	☼	96	36 - 164
Benzene	1.8	U	54.9	55.0		ug/Kg	☼	100	77 - 121
Bromobenzene	1.8	U	54.9	57.5		ug/Kg	☼	105	78 - 121
Bromoform	0.91	U	54.9	64.4		ug/Kg	☼	117	67 - 132
Bromomethane	1.8	U	54.9	54.4		ug/Kg	☼	99	53 - 143
Carbon disulfide	1.8	U	54.9	52.7		ug/Kg	☼	96	63 - 132
Carbon tetrachloride	1.8	U	54.9	46.9		ug/Kg	☼	85	70 - 135
Chlorobenzene	1.8	U	54.9	56.4		ug/Kg	☼	103	79 - 120
Bromochloromethane	0.91	U	54.9	59.0		ug/Kg	☼	107	78 - 125
Dibromochloromethane	1.8	U	54.9	60.2		ug/Kg	☼	110	74 - 126
Chloroethane	3.6	U	54.9	49.7		ug/Kg	☼	90	59 - 139
Chloroform	0.91	U	54.9	50.8		ug/Kg	☼	92	78 - 123
Chloromethane	1.8	U	54.9	38.7	M	ug/Kg	☼	70	50 - 136
cis-1,2-Dichloroethene	1.8	U	54.9	56.5		ug/Kg	☼	103	77 - 123
cis-1,3-Dichloropropene	3.6	U	54.9	61.6		ug/Kg	☼	112	74 - 126
Dibromomethane	3.6	U	54.9	55.8		ug/Kg	☼	102	78 - 125
Bromodichloromethane	0.91	U	54.9	55.2		ug/Kg	☼	100	75 - 127
Dichlorodifluoromethane	1.8	U Q	54.9	21.1		ug/Kg	☼	38	29 - 149
Ethylbenzene	1.8	U	54.9	57.1		ug/Kg	☼	104	76 - 122
Ethylene Dibromide	1.8	U	54.9	60.5		ug/Kg	☼	110	78 - 122
Hexachlorobutadiene	1.8	U	54.9	46.4		ug/Kg	☼	85	61 - 135
Isopropylbenzene	1.8	U	54.9	55.3		ug/Kg	☼	101	68 - 134
Methyl tert-butyl ether	0.91	U	54.9	54.5		ug/Kg	☼	99	73 - 125
Methylene Chloride	3.6	J	54.9	65.3		ug/Kg	☼	112	70 - 128
m-Xylene & p-Xylene	3.6	U	54.9	56.5		ug/Kg	☼	103	77 - 124
Naphthalene	1.8	U	54.9	56.1		ug/Kg	☼	102	62 - 129
n-Butylbenzene	1.8	U	54.9	52.3		ug/Kg	☼	95	70 - 128
N-Propylbenzene	1.8	U	54.9	54.8		ug/Kg	☼	100	73 - 125
o-Xylene	1.8	U	54.9	59.7		ug/Kg	☼	109	77 - 123
sec-Butylbenzene	1.8	U	54.9	55.2		ug/Kg	☼	100	73 - 126
Styrene	1.8	U	54.9	59.8		ug/Kg	☼	109	76 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117258-2 MS
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butylbenzene	1.8	U	54.9	55.1		ug/Kg	☼	100	73 - 125
Tetrachloroethene	1.8	U	54.9	54.3		ug/Kg	☼	99	73 - 128
Toluene	1.2	J	54.9	55.9		ug/Kg	☼	100	77 - 121
trans-1,2-Dichloroethene	0.91	U	54.9	56.7		ug/Kg	☼	103	74 - 125
trans-1,3-Dichloropropene	1.8	U	54.9	56.6		ug/Kg	☼	103	71 - 130
Trichloroethene	0.91	U	54.9	52.1		ug/Kg	☼	95	77 - 123
Trichlorofluoromethane	3.6	U	54.9	42.0		ug/Kg	☼	77	62 - 140
Vinyl chloride	3.6	U	54.9	41.0		ug/Kg	☼	75	56 - 135

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Lab Sample ID: 280-117258-2 MSD
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	1.8	U	59.9	60.4		ug/Kg	☼	101	78 - 125	6	20
1,1,1-Trichloroethane	1.8	U	59.9	50.6		ug/Kg	☼	84	73 - 130	4	20
1,1,2,2-Tetrachloroethane	1.8	U	59.9	60.8		ug/Kg	☼	102	70 - 124	6	20
1,1,2-Trichloroethane	3.6	U	59.9	61.8		ug/Kg	☼	103	78 - 121	5	20
1,1-Dichloroethane	0.91	U J1	59.9	52.9		ug/Kg	☼	88	76 - 125	1	20
1,1-Dichloroethene	1.8	U	59.9	54.3		ug/Kg	☼	91	70 - 131	3	20
1,1-Dichloropropene	1.8	U	59.9	52.0		ug/Kg	☼	87	76 - 125	2	20
1,2,3-Trichlorobenzene	1.8	U	59.9	61.3		ug/Kg	☼	102	66 - 130	15	20
1,2,3-Trichloropropane	3.6	U	59.9	61.6		ug/Kg	☼	103	73 - 125	6	20
1,2,4-Trichlorobenzene	1.8	U J1	59.9	63.5	J1	ug/Kg	☼	106	67 - 129	21	20
1,2,4-Trimethylbenzene	3.6	U	59.9	56.2		ug/Kg	☼	94	75 - 123	7	20
1,2-Dibromo-3-Chloropropane	1.8	U	59.9	63.4		ug/Kg	☼	106	61 - 132	8	20
1,2-Dichlorobenzene	1.8	U	59.9	61.3		ug/Kg	☼	102	78 - 121	8	20
1,2-Dichloroethane	1.8	U	59.9	55.7		ug/Kg	☼	93	73 - 128	8	20
1,2-Dichloropropane	1.8	U	59.9	61.3		ug/Kg	☼	102	76 - 123	7	20
1,3,5-Trimethylbenzene	1.8	U	59.9	57.2		ug/Kg	☼	96	73 - 124	5	20
1,3-Dichlorobenzene	1.8	U	59.9	58.1		ug/Kg	☼	97	77 - 121	10	20
1,3-Dichloropropane	1.8	U	59.9	64.8		ug/Kg	☼	108	77 - 121	11	20
1,4-Dichlorobenzene	1.8	U	59.9	57.3		ug/Kg	☼	96	75 - 120	7	20
2,2-Dichloropropane	1.8	U	59.9	47.8		ug/Kg	☼	80	67 - 133	4	20
2-Butanone (MEK)	35		239	273		ug/Kg	☼	99	51 - 148	15	20
2-Chlorotoluene	1.8	U	59.9	62.4		ug/Kg	☼	104	75 - 122	8	20
2-Hexanone	15	U	239	267		ug/Kg	☼	111	53 - 145	10	20
4-Chlorotoluene	1.8	U	59.9	61.0		ug/Kg	☼	102	72 - 124	12	20
4-Isopropyltoluene	1.8	U	59.9	57.3		ug/Kg	☼	96	73 - 127	9	20
4-Methyl-2-pentanone (MIBK)	15	U	239	253		ug/Kg	☼	106	65 - 135	7	20
Acetone	21	J	239	232		ug/Kg	☼	88	36 - 164	0	20
Benzene	1.8	U	59.9	58.0		ug/Kg	☼	97	77 - 121	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-117258-2 MSD
Matrix: Solid
Analysis Batch: 439325

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromobenzene	1.8	U	59.9	63.9		ug/Kg	☼	107	78 - 121	11	20
Bromoform	0.91	U	59.9	71.2		ug/Kg	☼	119	67 - 132	10	20
Bromomethane	1.8	U	59.9	57.0		ug/Kg	☼	95	53 - 143	5	20
Carbon disulfide	1.8	U	59.9	52.1		ug/Kg	☼	87	63 - 132	1	20
Carbon tetrachloride	1.8	U	59.9	49.0		ug/Kg	☼	82	70 - 135	4	20
Chlorobenzene	1.8	U	59.9	58.3		ug/Kg	☼	97	79 - 120	3	20
Bromochloromethane	0.91	U	59.9	65.4		ug/Kg	☼	109	78 - 125	10	20
Dibromochloromethane	1.8	U	59.9	67.0		ug/Kg	☼	112	74 - 126	11	20
Chloroethane	3.6	U	59.9	52.2		ug/Kg	☼	87	59 - 139	5	20
Chloroform	0.91	U	59.9	54.6		ug/Kg	☼	91	78 - 123	7	20
Chloromethane	1.8	U	59.9	41.3	M	ug/Kg	☼	69	50 - 136	7	20
cis-1,2-Dichloroethene	1.8	U	59.9	58.4		ug/Kg	☼	98	77 - 123	3	20
cis-1,3-Dichloropropene	3.6	U	59.9	67.8		ug/Kg	☼	113	74 - 126	10	20
Dibromomethane	3.6	U	59.9	58.6		ug/Kg	☼	98	78 - 125	5	20
Bromodichloromethane	0.91	U	59.9	57.9		ug/Kg	☼	97	75 - 127	5	20
Dichlorodifluoromethane	1.8	U Q	59.9	23.0		ug/Kg	☼	38	29 - 149	9	20
Ethylbenzene	1.8	U	59.9	58.8		ug/Kg	☼	98	76 - 122	3	20
Ethylene Dibromide	1.8	U	59.9	67.7		ug/Kg	☼	113	78 - 122	11	20
Hexachlorobutadiene	1.8	U	59.9	55.6		ug/Kg	☼	93	61 - 135	18	20
Isopropylbenzene	1.8	U	59.9	58.1		ug/Kg	☼	97	68 - 134	5	20
Methyl tert-butyl ether	0.91	U	59.9	58.0		ug/Kg	☼	97	73 - 125	6	20
Methylene Chloride	3.6	J	59.9	61.4		ug/Kg	☼	97	70 - 128	6	20
m-Xylene & p-Xylene	3.6	U	59.9	59.1		ug/Kg	☼	99	77 - 124	4	20
Naphthalene	1.8	U	59.9	65.2		ug/Kg	☼	109	62 - 129	15	20
n-Butylbenzene	1.8	U	59.9	55.7		ug/Kg	☼	93	70 - 128	6	20
N-Propylbenzene	1.8	U	59.9	57.1		ug/Kg	☼	95	73 - 125	4	20
o-Xylene	1.8	U	59.9	64.6		ug/Kg	☼	108	77 - 123	8	20
sec-Butylbenzene	1.8	U	59.9	59.7		ug/Kg	☼	100	73 - 126	8	20
Styrene	1.8	U	59.9	64.6		ug/Kg	☼	108	76 - 124	8	20
tert-Butylbenzene	1.8	U	59.9	57.6		ug/Kg	☼	96	73 - 125	4	20
Tetrachloroethene	1.8	U	59.9	56.8		ug/Kg	☼	95	73 - 128	4	20
Toluene	1.2	J	59.9	58.7		ug/Kg	☼	96	77 - 121	5	20
trans-1,2-Dichloroethene	0.91	U	59.9	56.4		ug/Kg	☼	94	74 - 125	0	20
trans-1,3-Dichloropropene	1.8	U	59.9	62.3		ug/Kg	☼	104	71 - 130	10	20
Trichloroethene	0.91	U	59.9	55.5		ug/Kg	☼	93	77 - 123	6	20
Trichlorofluoromethane	3.6	U	59.9	43.0		ug/Kg	☼	72	62 - 140	2	20
Vinyl chloride	3.6	U	59.9	43.7		ug/Kg	☼	73	56 - 135	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*98*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 07:25	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 07:25	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 07:25	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 07:25	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 07:25	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 07:25	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 07:25	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 07:25	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 07:25	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 07:25	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 07:25	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/01/18 07:25	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 07:25	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 07:25	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 07:25	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 07:25	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 07:25	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 07:25	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,2,3-Trichloropropane	0.80	U M	3.0	0.80	0.33	ug/L		12/01/18 07:25	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/01/18 07:25	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 07:25	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 07:25	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/01/18 07:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*12/01/18 07:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/01/18 07:25*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/01/18 07:25*	*1*

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.51	J	ug/L		90	62 - 128
2-Butanone (MEK)	20.0	16.3		ug/L		82	56 - 143
1,2-Dichlorobenzene	5.00	4.79		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.63		ug/L		93	80 - 119
4-Chlorotoluene	5.00	4.74		ug/L		95	78 - 122
1,4-Dichlorobenzene	5.00	4.79		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	4.67		ug/L		93	77 - 125
1,2-Dichloroethane	5.00	5.27		ug/L		105	73 - 128
Acetone	20.0	22.3		ug/L		112	39 - 160
1,1-Dichloroethene	5.00	4.76		ug/L		95	71 - 131
Benzene	5.00	4.65		ug/L		93	79 - 120
Bromobenzene	5.00	5.11		ug/L		102	80 - 120
Bromoform	5.00	4.85		ug/L		97	66 - 130
Bromomethane	5.00	4.51		ug/L		90	53 - 141
1,2-Dichloropropane	5.00	4.96		ug/L		99	78 - 122
Carbon disulfide	5.00	4.75		ug/L		95	64 - 133
1,3-Dichloropropane	5.00	4.86		ug/L		97	80 - 119
Carbon tetrachloride	5.00	5.35		ug/L		107	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	4.82		ug/L		96	60 - 139
Chlorobenzene	5.00	4.70		ug/L		94	82 - 118
1,1-Dichloropropene	5.00	4.59		ug/L		92	79 - 125
Bromochloromethane	5.00	4.99		ug/L		100	78 - 123
Dibromochloromethane	5.00	5.17		ug/L		103	74 - 126
Chloroethane	5.00	4.96		ug/L		99	60 - 138
Chloroform	5.00	4.96		ug/L		99	79 - 124
2-Hexanone	20.0	16.2		ug/L		81	57 - 139
Chloromethane	5.00	4.49		ug/L		90	50 - 139
cis-1,2-Dichloroethene	5.00	4.78		ug/L		96	78 - 123
cis-1,3-Dichloropropene	5.00	4.76		ug/L		95	75 - 124
4-Isopropyltoluene	5.00	4.85		ug/L		97	77 - 127
Dibromomethane	5.00	5.08		ug/L		102	79 - 123
Bromodichloromethane	5.00	4.98		ug/L		100	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.7		ug/L		89	67 - 130
Dichlorodifluoromethane	5.00	4.51		ug/L		90	32 - 152
Ethylbenzene	5.00	4.64		ug/L		93	79 - 121
Ethylene Dibromide	5.00	4.87		ug/L		97	77 - 121
Hexachlorobutadiene	5.00	4.63		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.51		ug/L		90	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.83		ug/L		97	78 - 124
Methyl tert-butyl ether	5.00	4.41	J	ug/L		88	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	71 - 121
Methylene Chloride	5.00	4.63	J	ug/L		93	74 - 124
Naphthalene	5.00	4.57		ug/L		91	61 - 128
1,2,3-Trichlorobenzene	5.00	4.51		ug/L		90	69 - 129
n-Butylbenzene	5.00	4.76		ug/L		95	75 - 128
1,1,1-Trichloroethane	5.00	4.99		ug/L		100	74 - 131
N-Propylbenzene	5.00	4.71		ug/L		94	76 - 126
1,1,2-Trichloroethane	5.00	5.38		ug/L		108	80 - 119
sec-Butylbenzene	5.00	4.59		ug/L		92	77 - 126
Styrene	5.00	4.65		ug/L		93	78 - 123
1,2,4-Trichlorobenzene	5.00	4.37		ug/L		87	69 - 130
tert-Butylbenzene	5.00	4.51		ug/L		90	78 - 124
1,2,3-Trichloropropane	5.00	4.84		ug/L		97	73 - 122
Tetrachloroethene	5.00	4.64		ug/L		93	74 - 129
1,2,4-Trimethylbenzene	5.00	4.64		ug/L		93	76 - 124
Toluene	5.00	5.07		ug/L		101	80 - 121
1,3,5-Trimethylbenzene	5.00	4.66		ug/L		93	75 - 124
trans-1,2-Dichloroethene	5.00	4.75		ug/L		95	75 - 124
trans-1,3-Dichloropropene	5.00	4.74		ug/L		95	73 - 127
o-Xylene	5.00	4.47		ug/L		89	78 - 122
Trichloroethene	5.00	4.63		ug/L		93	79 - 123
m-Xylene & p-Xylene	5.00	4.56		ug/L		91	80 - 121
Trichlorofluoromethane	5.00	5.08		ug/L		102	65 - 141
Vinyl chloride	5.00	4.54		ug/L		91	58 - 137
2-Chlorotoluene	5.00	4.68		ug/L		94	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*112*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*107*		*80 - 119*

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			5.00	4.87	J	ug/L		97	62 - 128	8	20
2-Butanone (MEK)			20.0	17.5		ug/L		87	56 - 143	7	20
1,2-Dichlorobenzene			5.00	5.18		ug/L		104	80 - 119	8	20
1,3-Dichlorobenzene			5.00	5.05		ug/L		101	80 - 119	9	20
4-Chlorotoluene			5.00	5.18		ug/L		104	78 - 122	9	20
1,4-Dichlorobenzene			5.00	5.08		ug/L		102	79 - 118	6	20
1,1-Dichloroethane			5.00	5.07		ug/L		101	77 - 125	8	20
1,2-Dichloroethane			5.00	5.72		ug/L		114	73 - 128	8	20
Acetone			20.0	23.5		ug/L		117	39 - 160	5	20
1,1-Dichloroethene			5.00	5.00		ug/L		100	71 - 131	5	20
Benzene			5.00	5.12		ug/L		102	79 - 120	10	20
Bromobenzene			5.00	5.24		ug/L		105	80 - 120	3	20
Bromoform			5.00	5.34		ug/L		107	66 - 130	10	20
Bromomethane			5.00	4.87		ug/L		97	53 - 141	8	20
1,2-Dichloropropane			5.00	5.33		ug/L		107	78 - 122	7	20
Carbon disulfide			5.00	5.06		ug/L		101	64 - 133	6	20
1,3-Dichloropropane			5.00	5.13		ug/L		103	80 - 119	5	20
Carbon tetrachloride			5.00	5.84		ug/L		117	72 - 136	9	20
2,2-Dichloropropane			5.00	5.43		ug/L		109	60 - 139	12	20
Chlorobenzene			5.00	5.35		ug/L		107	82 - 118	13	20
1,1-Dichloropropene			5.00	5.16		ug/L		103	79 - 125	12	20
Bromochloromethane			5.00	5.10		ug/L		102	78 - 123	2	20
Dibromochloromethane			5.00	5.79		ug/L		116	74 - 126	11	20
Chloroethane			5.00	5.38		ug/L		108	60 - 138	8	20
Chloroform			5.00	5.29		ug/L		106	79 - 124	6	20
2-Hexanone			20.0	19.0		ug/L		95	57 - 139	16	20
Chloromethane			5.00	4.73		ug/L		95	50 - 139	5	20
cis-1,2-Dichloroethene			5.00	4.84		ug/L		97	78 - 123	1	20
cis-1,3-Dichloropropene			5.00	5.27		ug/L		105	75 - 124	10	20
4-Isopropyltoluene			5.00	5.27		ug/L		105	77 - 127	8	20
Dibromomethane			5.00	5.48		ug/L		110	79 - 123	7	20
Bromodichloromethane			5.00	5.62		ug/L		112	79 - 125	12	20
4-Methyl-2-pentanone (MIBK)			20.0	20.1		ug/L		100	67 - 130	12	20
Dichlorodifluoromethane			5.00	4.90		ug/L		98	32 - 152	8	20
Ethylbenzene			5.00	5.13		ug/L		103	79 - 121	10	20
Ethylene Dibromide			5.00	5.20		ug/L		104	77 - 121	7	20
Hexachlorobutadiene			5.00	5.15		ug/L		103	66 - 134	11	20
Isopropylbenzene			5.00	4.86		ug/L		97	72 - 131	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	5.28		ug/L		106	78 - 124	9	20
Methyl tert-butyl ether	5.00	4.63	J	ug/L		93	71 - 124	5	20
1,1,2,2-Tetrachloroethane	5.00	4.85		ug/L		97	71 - 121	2	20
Methylene Chloride	5.00	4.67	J	ug/L		93	74 - 124	1	20
Naphthalene	5.00	4.43		ug/L		89	61 - 128	3	20
1,2,3-Trichlorobenzene	5.00	4.72		ug/L		94	69 - 129	4	20
n-Butylbenzene	5.00	5.24		ug/L		105	75 - 128	9	20
1,1,1-Trichloroethane	5.00	5.49		ug/L		110	74 - 131	10	20
N-Propylbenzene	5.00	5.13		ug/L		103	76 - 126	8	20
1,1,2-Trichloroethane	5.00	5.89		ug/L		118	80 - 119	9	20
sec-Butylbenzene	5.00	4.85		ug/L		97	77 - 126	5	20
Styrene	5.00	5.22		ug/L		104	78 - 123	12	20
1,2,4-Trichlorobenzene	5.00	4.62		ug/L		92	69 - 130	5	20
tert-Butylbenzene	5.00	4.90		ug/L		98	78 - 124	8	20
1,2,3-Trichloropropane	5.00	4.95		ug/L		99	73 - 122	2	20
Tetrachloroethene	5.00	5.25		ug/L		105	74 - 129	12	20
1,2,4-Trimethylbenzene	5.00	5.09		ug/L		102	76 - 124	9	20
Toluene	5.00	5.59		ug/L		112	80 - 121	10	20
1,3,5-Trimethylbenzene	5.00	5.04		ug/L		101	75 - 124	8	20
trans-1,2-Dichloroethene	5.00	5.02		ug/L		100	75 - 124	6	20
trans-1,3-Dichloropropene	5.00	5.21		ug/L		104	73 - 127	10	20
o-Xylene	5.00	5.00		ug/L		100	78 - 122	11	20
Trichloroethene	5.00	5.17		ug/L		103	79 - 123	11	20
m-Xylene & p-Xylene	5.00	5.10		ug/L		102	80 - 121	11	20
Trichlorofluoromethane	5.00	5.60		ug/L		112	65 - 141	10	20
Vinyl chloride	5.00	4.92		ug/L		98	58 - 137	8	20
2-Chlorotoluene	5.00	4.97		ug/L		99	79 - 122	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*105*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			4.28	4.38	M	mg/Kg		102	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: 280-117258-3 MS
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10	1.4	U	4.87	3.91	M	mg/Kg	☼	80	79 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*84*		*77 - 123*

Lab Sample ID: 280-117258-3 MSD
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 438635

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.4	U	4.84	3.84	M	mg/Kg	☼	79	79 - 122	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*85*		*77 - 123*

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	82.2		ug/L		105	78 - 122		

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	85		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-438886/4-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438886

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/08/18 11:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	114	M	55 - 130	11/27/18 10:27	12/08/18 11:04	1

Lab Sample ID: LCS 280-438886/2-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.731		ug/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	103	M	55 - 130

Lab Sample ID: LCSD 280-438886/3-A
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.670		ug/Kg		77	70 - 130	9	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	90	M	55 - 130

Lab Sample ID: 280-117258-2 MS
Matrix: Solid
Analysis Batch: 440435

Client Sample ID: V-S3-201118-459
Prep Type: Total/NA
Prep Batch: 438886

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.039	U J1	0.906	0.449	J1	ug/Kg	☼	50	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dibromopropane	104	M	55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: 280-117258-2 MSD — **Client Sample ID: V-S3-201118-459**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 440435 — **Prep Batch: 438886**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.039	U J1	0.906	0.468	J1	ug/Kg	☼	52	70 - 130	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*103*	*M*	*55 - 130*

Lab Sample ID: MB 280-439245/3-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 439714 — **Prep Batch: 439245**

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 01:44*	*1*

Lab Sample ID: LCS 280-439245/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 439714 — **Prep Batch: 439245**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.215		ug/L		86	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*70 - 130*

Lab Sample ID: LCSD 280-439245/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 439714 — **Prep Batch: 439245**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*102*	*M*	*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439507/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 439945 — **Prep Batch: 439507**

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.32	J	8.0	4.0	1.4	mg/Kg		12/05/18 14:41	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/05/18 14:41	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-439507/1-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439507

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	63		45 - 130	11/30/18 19:50	12/05/18 14:41	1
n-Octacosane	107		25 - 162	11/30/18 19:50	12/05/18 14:41	1

Lab Sample ID: LCS 280-439507/2-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	133	89.6		mg/Kg		67	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	64		45 - 130
n-Octacosane	101		25 - 162

Lab Sample ID: LCS 280-439507/3-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	297		mg/Kg		89	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	81		45 - 130
n-Octacosane	116		25 - 162

Lab Sample ID: 280-117258-3 MS
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.8	J	135	100		mg/Kg	☼	72	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	66		45 - 130
n-Octacosane	101		25 - 162

Lab Sample ID: 280-117258-3 MS
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	22	U	322	258		mg/Kg	☼	80	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	71		45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-117258-3 MS
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439507

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane	*104*		*25 - 162*

Lab Sample ID: 280-117258-3 MSD
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	2.8	J	133	89.4		mg/Kg	☼	65	38 - 132	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*65*		*45 - 130*
n-Octacosane	*99*		*25 - 162*

Lab Sample ID: 280-117258-3 MSD
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: P-S3-201118-459
Prep Type: Total/NA
Prep Batch: 439507

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	22	U	330	287		mg/Kg	☼	87	45 - 130	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*45 - 130*
n-Octacosane	*112*		*25 - 162*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

GC/MS VOA

Prep Batch: 439287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-2	V-S3-201118-459	Total/NA	Solid	5035	
280-117258-4	V-S3-201158-459	Total/NA	Solid	5035	
MB 280-439287/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439287/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439287/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
280-117258-2 MS	V-S3-201118-459	Total/NA	Solid	5035	
280-117258-2 MSD	V-S3-201118-459	Total/NA	Solid	5035	

Analysis Batch: 439325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-2	V-S3-201118-459	Total/NA	Solid	8260B	439287
280-117258-4	V-S3-201158-459	Total/NA	Solid	8260B	439287
MB 280-439287/1-A	Method Blank	Total/NA	Solid	8260B	439287
LCS 280-439287/2-A	Lab Control Sample	Total/NA	Solid	8260B	439287
LCSD 280-439287/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439287
280-117258-2 MS	V-S3-201118-459	Total/NA	Solid	8260B	439287
280-117258-2 MSD	V-S3-201118-459	Total/NA	Solid	8260B	439287

Analysis Batch: 439523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-1	TB-S3-2018-01	Total/NA	Water	8260B	
MB 280-439523/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439523/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-439523/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-3	P-S3-201118-459	Total/NA	Solid	5035	
280-117258-5	P-S3-201158-459	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	5035	
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-3	P-S3-201118-459	Total/NA	Solid	8015D GRO	438635
280-117258-5	P-S3-201158-459	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	8015D GRO	438635
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	8015D GRO	438635

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-1	TB-S3-2018-01	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 438886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-2	V-S3-201118-459	Total/NA	Solid	8011	
280-117258-4	V-S3-201158-459	Total/NA	Solid	8011	
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-117258-2 MS	V-S3-201118-459	Total/NA	Solid	8011	
280-117258-2 MSD	V-S3-201118-459	Total/NA	Solid	8011	

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-1	TB-S3-2018-01	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-3	P-S3-201118-459	Total/NA	Solid	3546	
280-117258-5	P-S3-201158-459	Total/NA	Solid	3546	
MB 280-439507/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	3546	
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	3546	
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	3546	
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	3546	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-1	TB-S3-2018-01	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Analysis Batch: 439945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-3	P-S3-201118-459	Total/NA	Solid	8015D DRO	439507
280-117258-5	P-S3-201158-459	Total/NA	Solid	8015D DRO	439507
MB 280-439507/1-A	Method Blank	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	8015D DRO	439507
280-117258-3 MS	P-S3-201118-459	Total/NA	Solid	8015D DRO	439507
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	8015D DRO	439507
280-117258-3 MSD	P-S3-201118-459	Total/NA	Solid	8015D DRO	439507

Analysis Batch: 440435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-2	V-S3-201118-459	Total/NA	Solid	8011	438886
280-117258-4	V-S3-201158-459	Total/NA	Solid	8011	438886
MB 280-438886/4-A	Method Blank	Total/NA	Solid	8011	438886

GC Semi VOA (Continued)

Analysis Batch: 440435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-438886/2-A	Lab Control Sample	Total/NA	Solid	8011	438886
LCSD 280-438886/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	438886
280-117258-2 MS	V-S3-201118-459	Total/NA	Solid	8011	438886
280-117258-2 MSD	V-S3-201118-459	Total/NA	Solid	8011	438886

General Chemistry

Analysis Batch: 438870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117258-2	V-S3-201118-459	Total/NA	Solid	Moisture	
280-117258-3	P-S3-201118-459	Total/NA	Solid	Moisture	
280-117258-4	V-S3-201158-459	Total/NA	Solid	Moisture	
280-117258-5	P-S3-201158-459	Total/NA	Solid	Moisture	

Client Sample ID: TB-S3-2018-01

Lab Sample ID: 280-117258-1

Date Collected: 11/20/18 14:25

Matrix: Water

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439523	12/01/18 12:19	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/29/18 02:39	GPM	TAL DEN
Total/NA	Prep	8011			33.8 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 03:19	JLW	TAL DEN

Client Sample ID: V-S3-201118-459

Lab Sample ID: 280-117258-2

Date Collected: 11/20/18 09:43

Matrix: Solid

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: V-S3-201118-459

Lab Sample ID: 280-117258-2

Date Collected: 11/20/18 09:43

Matrix: Solid

Date Received: 11/21/18 09:15

Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.565 g	5 mL	439287	11/20/18 09:43	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439325	11/29/18 16:53	JLS	TAL DEN
Total/NA	Prep	8011			10.04 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 17:25	JLW	TAL DEN

Client Sample ID: P-S3-201118-459

Lab Sample ID: 280-117258-3

Date Collected: 11/20/18 09:43

Matrix: Solid

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: P-S3-201118-459

Lab Sample ID: 280-117258-3

Date Collected: 11/20/18 09:43

Matrix: Solid

Date Received: 11/21/18 09:15

Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.146 g	5 mL	438635	11/20/18 09:43	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 16:10	GPM	TAL DEN
Total/NA	Prep	3546			16.3 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 19:46	CSM	TAL DEN

Client Sample ID: V-S3-201158-459 — **Lab Sample ID: 280-117258-4**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: V-S3-201158-459 — **Lab Sample ID: 280-117258-4**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 96.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.67 g	5 mL	439287	11/20/18 09:43	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439325	11/29/18 17:54	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	438886	11/27/18 10:27	SU	TAL DEN
Total/NA	Analysis	8011		1			440435	12/08/18 18:41	JLW	TAL DEN

Client Sample ID: P-S3-201158-459 — **Lab Sample ID: 280-117258-5**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: P-S3-201158-459 — **Lab Sample ID: 280-117258-5**
Date Collected: 11/20/18 09:43 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 97.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.651 g	5 mL	438635	11/20/18 09:43	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 17:22	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 21:35	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117258-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3393 0940	COC No: COC1-53-TA-7018/20
Client Contact: Pamela Moss	Phone: 575-430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1of1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-53-2018-01	11/20/18	1425	G	W	N	N	—	—	—	—	—	X	X	—	X	6	—
V-53-201118-459	11/20/18	0943	G	S	N	Y	X	X	X	X	—	—	—	—	—	15	MS/MSD
P-53-201118-459	11/20/18	0943	G	S	N	Y	—	—	—	X	X	—	—	—	—	9	MS/MSD
V-53-201158-459	11/20/18	0943	G	S	N	N	X	X	X	—	—	—	—	—	—	5	—
P-53-201158-459	11/20/18	0943	G	S	N	N	—	—	—	X	X	—	—	—	—	3	—

280-117258 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Joshua Livingston	11/20/18 1800	EA		11/20/18 0915	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.4 / 1.0 frozen JAL

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117258-1

Login Number: 117258
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117265-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/13/2018 11:12:18 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

GC Semi VOA

Qualifier	Qualifier Description
M	Manual integrated compound.
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117265-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117265-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/21/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S3-201118-477 (280-117265-2) and V-S3-201118-489 (280-117265-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/20/2018 and analyzed on 12/03/2018 and 12/04/2018.

cis-1,3-Dichloropropene failed the recovery criteria high for LCS 280-439682/2-A. Associated results have been flagged "Q". Refer to the QC report for details. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

1,1,2,2-Tetrachloroethane exceeded the RPD limit for LCSD 280-439682/3-A. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control for this analyte.

The continuing calibration verification (CCV) associated with batch 280-439624 recovered above the upper control limit for trans-1,3-Dichloropropene (+20.3%D). Associated results have been flagged "Q". The bias was high and the samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-117265-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S3-201118-02 (280-117265-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/01/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S3-201118-477 (280-117265-2) and V-S3-201118-489 (280-117265-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/03/2018 and analyzed on 12/09/2018.

The continuing calibration verification (CCV) associated with batch 280-440502 recovered above the upper control limit for 1,2-Dibromopropane (surrogate). All associated results are flagged "Q". The samples associated with this CCV were within control for this surrogate; therefore, the data have been reported. (CCV 280-440502/50)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S3-201118-02 (280-117265-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: TB-S3-201118-02 (280-117265-1). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S3-201118-477 (280-117265-3) and P-S3-201118-489 (280-117265-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/20/2018 and analyzed on 11/24/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S3-201118-02 (280-117265-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/29/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S3-201118-477 (280-117265-3) and P-S3-201118-489 (280-117265-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 11/30/2018 and analyzed on 12/05/2018.

Per client request, samples were silica gel cleaned prior to analysis: P-S3-201118-477 (280-117265-3), P-S3-201118-489 (280-117265-5), (LCS 280-439507/2-A), (LCS 280-439507/3-A), (MB 280-439507/1-A), (280-117258-A-3-F), (280-117258-A-3-G MS), (280-117258-A-3-I MS), (280-117258-A-3-H MSD) and (280-117258-A-3-J MSD).

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439507/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Job ID: 280-117265-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S3-201118-477 (280-117265-2), P-S3-201118-477 (280-117265-3), V-S3-201118-489 (280-117265-4) and P-S3-201118-489 (280-117265-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S3-201118-02 — Lab Sample ID: 280-117265-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.61	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA

Client Sample ID: V-S3-201118-477 — Lab Sample ID: 280-117265-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	9.0		4.9	3.2	0.57	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	8.1		4.9	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	8.4	J	20	6.3	1.8	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	25		20	13	4.3	ug/Kg	1	☼	8260B	Total/NA
Acetone	43		20	13	5.3	ug/Kg	1	☼	8260B	Total/NA
Benzene	99		4.9	1.6	0.46	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	7.5		4.9	1.6	0.66	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	24		4.9	1.6	0.51	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	1.0	J	4.9	1.6	0.58	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.8	J	4.9	3.2	1.6	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	34		3.2	3.2	1.0	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	5.2		4.9	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.70	J	4.9	1.6	0.57	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	110		4.9	1.6	0.60	ug/Kg	1	☼	8260B	Total/NA
Toluene	19		4.9	1.6	0.68	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	1.4		0.12	0.045	0.018	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-S3-201118-477 — Lab Sample ID: 280-117265-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	8.4	J	8.6	4.3	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S3-201118-489 — Lab Sample ID: 280-117265-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	7.1		4.9	3.1	0.57	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	2.5	J	4.9	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
2-Hexanone	16	J	20	13	4.8	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	12	J	20	13	4.3	ug/Kg	1	☼	8260B	Total/NA
Acetone	40		20	13	5.3	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	19		4.9	1.6	0.65	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	1.2	J	4.9	1.6	0.58	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	4.3	J	4.9	3.1	1.6	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	39		3.1	3.1	1.0	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	6.5		4.9	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	1.5	J	4.9	1.6	0.57	ug/Kg	1	☼	8260B	Total/NA
Styrene	0.64	J	4.9	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
Toluene - DL	280		250	80	39	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S3-201118-489 — Lab Sample ID: 280-117265-5

This Detection Summary does not include radiochemical test results.

Client Sample ID: P-S3-201118-489 (Continued) **Lab Sample ID: 280-117265-5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.8	J	8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117265-1	TB-S3-201118-02	Water	11/20/18 14:30	11/21/18 09:15
280-117265-2	V-S3-201118-477	Solid	11/20/18 13:38	11/21/18 09:15
280-117265-3	P-S3-201118-477	Solid	11/20/18 13:38	11/21/18 09:15
280-117265-4	V-S3-201118-489	Solid	11/20/18 15:29	11/21/18 09:15
280-117265-5	P-S3-201118-489	Solid	11/20/18 15:29	11/21/18 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S3-201118-02
Date Collected: 11/20/18 14:30
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 12:41	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 12:41	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:41	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 12:41	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 12:41	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 12:41	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 12:41	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 12:41	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 12:41	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 12:41	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:41	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 12:41	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 12:41	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 12:41	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:41	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 12:41	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:41	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 12:41	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 12:41	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 12:41	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:41	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:41	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 12:41	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:41	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 12:41	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:41	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:41	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 12:41	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 12:41	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:41	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 12:41	1
Methylene Chloride	**0.61**	**J**	5.0	0.80	0.32	ug/L		12/01/18 12:41	1
4-Methyl-2-pentanone (MIBK)	3.2	U M	5.0	3.2	0.98	ug/L		12/01/18 12:41	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 12:41	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 12:41	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S3-201118-02
Date Collected: 11/20/18 14:30
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:41	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:41	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 12:41	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:41	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 12:41	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 12:41	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 12:41	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/01/18 12:41	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 12:41	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 12:41	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 12:41	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 12:41	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/01/18 12:41	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*12/01/18 12:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*118*		*81 - 118*		*12/01/18 12:41*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*12/01/18 12:41*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 119*		*12/01/18 12:41*	*1*

Client Sample ID: V-S3-201118-477
Date Collected: 11/20/18 13:38
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-2
Matrix: Solid
Percent Solids: 83.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:14	1
1,1,1-Trichloroethane	1.6	U	4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:14	1
1,1,2,2-Tetrachloroethane	1.6	U M Q	4.9	1.6	0.60	ug/Kg	☼	12/03/18 18:14	1
1,1,2-Trichloroethane	3.2	U M	4.9	3.2	0.87	ug/Kg	☼	12/03/18 18:14	1
1,1-Dichloroethane	0.79	U	4.9	0.79	0.21	ug/Kg	☼	12/03/18 18:14	1
1,1-Dichloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:14	1
1,1-Dichloropropene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:14	1
1,2,3-Trichlorobenzene	1.6	U	4.9	1.6	0.74	ug/Kg	☼	12/03/18 18:14	1
1,2,3-Trichloropropane	3.2	U M	4.9	3.2	0.80	ug/Kg	☼	12/03/18 18:14	1
1,2,4-Trichlorobenzene	1.6	U	4.9	1.6	0.72	ug/Kg	☼	12/03/18 18:14	1
1,2,4-Trimethylbenzene	**9.0**		4.9	3.2	0.57	ug/Kg	☼	12/03/18 18:14	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.9	1.6	0.59	ug/Kg	☼	12/03/18 18:14	1
1,2-Dichlorobenzene	1.6	U	4.9	1.6	0.44	ug/Kg	☼	12/03/18 18:14	1
1,2-Dichloroethane	1.6	U	4.9	1.6	0.69	ug/Kg	☼	12/03/18 18:14	1
1,2-Dichloroethene, Total	1.6	U	4.9	1.6	0.39	ug/Kg	☼	12/03/18 18:14	1
1,2-Dichloropropane	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:14	1
1,3,5-Trimethylbenzene	**8.1**		4.9	1.6	0.56	ug/Kg	☼	12/03/18 18:14	1
1,3-Dichlorobenzene	1.6	U	4.9	1.6	0.47	ug/Kg	☼	12/03/18 18:14	1
1,3-Dichloropropane	1.6	U	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:14	1
1,4-Dichlorobenzene	1.6	U	4.9	1.6	0.77	ug/Kg	☼	12/03/18 18:14	1
2,2-Dichloropropane	1.6	U	4.9	1.6	0.43	ug/Kg	☼	12/03/18 18:14	1
2-Butanone (MEK)	**8.4**	**J**	20	6.3	1.8	ug/Kg	☼	12/03/18 18:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-201118-477
Date Collected: 11/20/18 13:38
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-2
Matrix: Solid
Percent Solids: 83.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.6	U	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:14	1
2-Hexanone	13	U M	20	13	4.8	ug/Kg	☼	12/03/18 18:14	1
4-Chlorotoluene	1.6	U	4.9	1.6	0.77	ug/Kg	☼	12/03/18 18:14	1
4-Isopropyltoluene	1.6	U M	4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:14	1
4-Methyl-2-pentanone (MIBK)	**25**		20	13	4.3	ug/Kg	☼	12/03/18 18:14	1
Acetone	**43**		20	13	5.3	ug/Kg	☼	12/03/18 18:14	1
Benzene	**99**		4.9	1.6	0.46	ug/Kg	☼	12/03/18 18:14	1
Bromobenzene	1.6	U	4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:14	1
Bromoform	0.79	U	4.9	0.79	0.23	ug/Kg	☼	12/03/18 18:14	1
Bromomethane	1.6	U	9.9	1.6	0.49	ug/Kg	☼	12/03/18 18:14	1
Carbon disulfide	1.6	U	4.9	1.6	0.41	ug/Kg	☼	12/03/18 18:14	1
Carbon tetrachloride	1.6	U	4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:14	1
Chlorobenzene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:14	1
Bromochloromethane	0.79	U	4.9	0.79	0.30	ug/Kg	☼	12/03/18 18:14	1
Dibromochloromethane	1.6	U	4.9	1.6	0.56	ug/Kg	☼	12/03/18 18:14	1
Chloroethane	3.2	U	9.9	3.2	0.88	ug/Kg	☼	12/03/18 18:14	1
Chloroform	0.79	U	9.9	0.79	0.29	ug/Kg	☼	12/03/18 18:14	1
Chloromethane	1.6	U	9.9	1.6	0.76	ug/Kg	☼	12/03/18 18:14	1
cis-1,2-Dichloroethene	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:14	1
cis-1,3-Dichloropropene	3.2	U Q	4.9	3.2	1.3	ug/Kg	☼	12/03/18 18:14	1
Dibromomethane	3.2	U	4.9	3.2	0.83	ug/Kg	☼	12/03/18 18:14	1
Bromodichloromethane	0.79	U	4.9	0.79	0.22	ug/Kg	☼	12/03/18 18:14	1
Dichlorodifluoromethane	1.6	U	9.9	1.6	0.51	ug/Kg	☼	12/03/18 18:14	1
Ethylbenzene	**7.5**		4.9	1.6	0.66	ug/Kg	☼	12/03/18 18:14	1
Ethylene Dibromide	**24**		4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:14	1
Hexachlorobutadiene	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:14	1
Isopropylbenzene	**1.0**	**J**	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:14	1
Methyl tert-butyl ether	0.79	U	20	0.79	0.34	ug/Kg	☼	12/03/18 18:14	1
Methylene Chloride	**2.8**	**J**	4.9	3.2	1.6	ug/Kg	☼	12/03/18 18:14	1
m-Xylene & p-Xylene	**34**		3.2	3.2	1.0	ug/Kg	☼	12/03/18 18:14	1
Naphthalene	**5.2**		4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:14	1
n-Butylbenzene	1.6	U M	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:14	1
N-Propylbenzene	**0.70**	**J**	4.9	1.6	0.57	ug/Kg	☼	12/03/18 18:14	1
o-Xylene	**110**		4.9	1.6	0.60	ug/Kg	☼	12/03/18 18:14	1
sec-Butylbenzene	1.6	U	4.9	1.6	0.76	ug/Kg	☼	12/03/18 18:14	1
Styrene	1.6	U M	4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:14	1
tert-Butylbenzene	1.6	U	4.9	1.6	0.49	ug/Kg	☼	12/03/18 18:14	1
Tetrachloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:14	1
Toluene	**19**		4.9	1.6	0.68	ug/Kg	☼	12/03/18 18:14	1
trans-1,2-Dichloroethene	0.79	U	4.9	0.79	0.39	ug/Kg	☼	12/03/18 18:14	1
trans-1,3-Dichloropropene	1.6	U Q	4.9	1.6	0.66	ug/Kg	☼	12/03/18 18:14	1
Trichloroethene	0.79	U	4.9	0.79	0.23	ug/Kg	☼	12/03/18 18:14	1
Trichlorofluoromethane	3.2	U	9.9	3.2	1.0	ug/Kg	☼	12/03/18 18:14	1
Vinyl chloride	3.2	U	4.9	3.2	1.3	ug/Kg	☼	12/03/18 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/20/18 13:38*	*12/03/18 18:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*	*11/20/18 13:38*	*12/03/18 18:14*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*11/20/18 13:38*	*12/03/18 18:14*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*11/20/18 13:38*	*12/03/18 18:14*	*1*

Client Sample ID: V-S3-201118-489
Date Collected: 11/20/18 15:29
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-4
Matrix: Solid
Percent Solids: 93.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:34	1
1,1,1-Trichloroethane	1.6	U	4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:34	1
1,1,2,2-Tetrachloroethane	1.6	U M Q	4.9	1.6	0.60	ug/Kg	☼	12/03/18 18:34	1
1,1,2-Trichloroethane	3.1	U	4.9	3.1	0.86	ug/Kg	☼	12/03/18 18:34	1
1,1-Dichloroethane	0.78	U	4.9	0.78	0.21	ug/Kg	☼	12/03/18 18:34	1
1,1-Dichloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:34	1
1,1-Dichloropropene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:34	1
1,2,3-Trichlorobenzene	1.6	U	4.9	1.6	0.73	ug/Kg	☼	12/03/18 18:34	1
1,2,3-Trichloropropane	3.1	U	4.9	3.1	0.79	ug/Kg	☼	12/03/18 18:34	1
1,2,4-Trichlorobenzene	1.6	U	4.9	1.6	0.71	ug/Kg	☼	12/03/18 18:34	1
1,2,4-Trimethylbenzene	**7.1**		4.9	3.1	0.57	ug/Kg	☼	12/03/18 18:34	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.8	1.6	0.59	ug/Kg	☼	12/03/18 18:34	1
1,2-Dichlorobenzene	1.6	U	4.9	1.6	0.44	ug/Kg	☼	12/03/18 18:34	1
1,2-Dichloroethane	1.6	U	4.9	1.6	0.68	ug/Kg	☼	12/03/18 18:34	1
1,2-Dichloroethene, Total	1.6	U	4.9	1.6	0.38	ug/Kg	☼	12/03/18 18:34	1
1,2-Dichloropropane	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:34	1
1,3,5-Trimethylbenzene	**2.5**	**J**	4.9	1.6	0.56	ug/Kg	☼	12/03/18 18:34	1
1,3-Dichlorobenzene	1.6	U	4.9	1.6	0.47	ug/Kg	☼	12/03/18 18:34	1
1,3-Dichloropropane	1.6	U	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:34	1
1,4-Dichlorobenzene	1.6	U	4.9	1.6	0.76	ug/Kg	☼	12/03/18 18:34	1
2,2-Dichloropropane	1.6	U	4.9	1.6	0.43	ug/Kg	☼	12/03/18 18:34	1
2-Butanone (MEK)	6.3	U	20	6.3	1.8	ug/Kg	☼	12/03/18 18:34	1
2-Chlorotoluene	1.6	U	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:34	1
2-Hexanone	**16**	**J**	20	13	4.8	ug/Kg	☼	12/03/18 18:34	1
4-Chlorotoluene	1.6	U	4.9	1.6	0.76	ug/Kg	☼	12/03/18 18:34	1
4-Isopropyltoluene	1.6	U M	4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:34	1
4-Methyl-2-pentanone (MIBK)	**12**	**J**	20	13	4.3	ug/Kg	☼	12/03/18 18:34	1
Acetone	**40**		20	13	5.3	ug/Kg	☼	12/03/18 18:34	1
Benzene	1.6	U	4.9	1.6	0.46	ug/Kg	☼	12/03/18 18:34	1
Bromobenzene	1.6	U	4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:34	1
Bromoform	0.78	U	4.9	0.78	0.22	ug/Kg	☼	12/03/18 18:34	1
Bromomethane	1.6	U	9.8	1.6	0.49	ug/Kg	☼	12/03/18 18:34	1
Carbon disulfide	1.6	U M	4.9	1.6	0.41	ug/Kg	☼	12/03/18 18:34	1
Carbon tetrachloride	1.6	U	4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:34	1
Chlorobenzene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:34	1
Bromochloromethane	0.78	U	4.9	0.78	0.29	ug/Kg	☼	12/03/18 18:34	1
Dibromochloromethane	1.6	U	4.9	1.6	0.56	ug/Kg	☼	12/03/18 18:34	1
Chloroethane	3.1	U	9.8	3.1	0.87	ug/Kg	☼	12/03/18 18:34	1
Chloroform	0.78	U	9.8	0.78	0.28	ug/Kg	☼	12/03/18 18:34	1
Chloromethane	1.6	U	9.8	1.6	0.75	ug/Kg	☼	12/03/18 18:34	1
cis-1,2-Dichloroethene	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:34	1
cis-1,3-Dichloropropene	3.1	U Q	4.9	3.1	1.3	ug/Kg	☼	12/03/18 18:34	1
Dibromomethane	3.1	U	4.9	3.1	0.82	ug/Kg	☼	12/03/18 18:34	1
Bromodichloromethane	0.78	U	4.9	0.78	0.21	ug/Kg	☼	12/03/18 18:34	1
Dichlorodifluoromethane	1.6	U	9.8	1.6	0.51	ug/Kg	☼	12/03/18 18:34	1
Ethylbenzene	**19**		4.9	1.6	0.65	ug/Kg	☼	12/03/18 18:34	1
Ethylene Dibromide	1.6	U	4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:34	1
Hexachlorobutadiene	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:34	1
Isopropylbenzene	**1.2**	**J**	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:34	1
Methyl tert-butyl ether	0.78	U	20	0.78	0.33	ug/Kg	☼	12/03/18 18:34	1
Methylene Chloride	**4.3**	**J**	4.9	3.1	1.6	ug/Kg	☼	12/03/18 18:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-201118-489
Date Collected: 11/20/18 15:29
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-4
Matrix: Solid
Percent Solids: 93.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	**39**		3.1	3.1	1.0	ug/Kg	☼	12/03/18 18:34	1
Naphthalene	**6.5**		4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:34	1
n-Butylbenzene	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:34	1
N-Propylbenzene	**1.5**	**J**	4.9	1.6	0.57	ug/Kg	☼	12/03/18 18:34	1
o-Xylene	1.6	U	4.9	1.6	0.60	ug/Kg	☼	12/03/18 18:34	1
sec-Butylbenzene	1.6	U	4.9	1.6	0.75	ug/Kg	☼	12/03/18 18:34	1
Styrene	**0.64**	**J**	4.9	1.6	0.62	ug/Kg	☼	12/03/18 18:34	1
tert-Butylbenzene	1.6	U	4.9	1.6	0.49	ug/Kg	☼	12/03/18 18:34	1
Tetrachloroethene	1.6	U	4.9	1.6	0.58	ug/Kg	☼	12/03/18 18:34	1
trans-1,2-Dichloroethene	0.78	U	4.9	0.78	0.38	ug/Kg	☼	12/03/18 18:34	1
trans-1,3-Dichloropropene	1.6	U Q	4.9	1.6	0.65	ug/Kg	☼	12/03/18 18:34	1
Trichloroethene	0.78	U	4.9	0.78	0.22	ug/Kg	☼	12/03/18 18:34	1
Trichlorofluoromethane	3.1	U	9.8	3.1	1.0	ug/Kg	☼	12/03/18 18:34	1
Vinyl chloride	3.1	U	4.9	3.1	1.3	ug/Kg	☼	12/03/18 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*11/20/18 15:29*	*12/03/18 18:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/20/18 15:29*	*12/03/18 18:34*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*11/20/18 15:29*	*12/03/18 18:34*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*11/20/18 15:29*	*12/03/18 18:34*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S3-201118-489
Date Collected: 11/20/18 15:29
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-4
Matrix: Solid
Percent Solids: 93.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Toluene	**280**		250	80	39	ug/Kg	☼	12/04/18 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*85 - 116*	*11/20/18 15:29*	*12/04/18 14:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*11/20/18 15:29*	*12/04/18 14:06*	*1*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*	*11/20/18 15:29*	*12/04/18 14:06*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*11/20/18 15:29*	*12/04/18 14:06*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S3-201118-02
Date Collected: 11/20/18 14:30
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/29/18 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*88*		*82 - 110*		*11/29/18 03:03*	*1*

Client Sample ID: P-S3-201118-477
Date Collected: 11/20/18 13:38
Date Received: 11/21/18 09:15

Lab Sample ID: 280-117265-3
Matrix: Solid
Percent Solids: 85.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.5	U	1.6	1.5	0.43	mg/Kg	☼	11/24/18 17:46	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	*84*		*77 - 123*	*11/20/18 13:38*	*11/24/18 17:46*	*1*

Client Sample ID: P-S3-201118-489 — **Lab Sample ID: 280-117265-5**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 91.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.41	mg/Kg	☼	11/24/18 18:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	*83*		*77 - 123*	*11/20/18 15:29*	*11/24/18 18:34*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S3-201118-02 — **Lab Sample ID: 280-117265-1**
Date Collected: 11/20/18 14:30 — **Matrix: Water**
Date Received: 11/21/18 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 03:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*105*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 03:38*	*1*

Client Sample ID: V-S3-201118-477 — **Lab Sample ID: 280-117265-2**
Date Collected: 11/20/18 13:38 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**1.4**		0.12	0.045	0.018	ug/Kg	☼	12/09/18 16:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*82*	*Q M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 16:46*	*1*

Client Sample ID: V-S3-201118-489 — **Lab Sample ID: 280-117265-4**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 93.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.041	U	0.11	0.041	0.016	ug/Kg	☼	12/09/18 17:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*99*	*Q M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 17:05*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-201118-477 — **Lab Sample ID: 280-117265-3**
Date Collected: 11/20/18 13:38 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 85.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**8.4**	**J**	8.6	4.3	1.5	mg/Kg	☼	12/05/18 22:40	1
Motor Oil (C20-C38)	25	U	26	25	8.5	mg/Kg	☼	12/05/18 22:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*68*		*45 - 130*	*11/30/18 19:50*	*12/05/18 22:40*	*1*
n-Octacosane	*109*		*25 - 162*	*11/30/18 19:50*	*12/05/18 22:40*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-201118-489 — **Lab Sample ID: 280-117265-5**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 91.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.8	J	8.2	4.1	1.4	mg/Kg	☼	12/05/18 23:02	1
Motor Oil (C20-C38)	24	U	25	24	8.0	mg/Kg	☼	12/05/18 23:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*45 - 130*	*11/30/18 19:50*	*12/05/18 23:02*	*1*
n-Octacosane	*106*		*25 - 162*	*11/30/18 19:50*	*12/05/18 23:02*	*1*

General Chemistry

Client Sample ID: V-S3-201118-477 — **Lab Sample ID: 280-117265-2**
Date Collected: 11/20/18 13:38 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.2		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: P-S3-201118-477 — **Lab Sample ID: 280-117265-3**
Date Collected: 11/20/18 13:38 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 85.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	14.9		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: V-S3-201118-489 — **Lab Sample ID: 280-117265-4**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 93.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	7.0		0.1	0.05	0.1	%		11/27/18 09:45	1

Client Sample ID: P-S3-201118-489 — **Lab Sample ID: 280-117265-5**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 91.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.7		0.1	0.05	0.1	%		11/27/18 09:45	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117265-2	V-S3-201118-477	101	89	100	97
280-117265-4	V-S3-201118-489	104	95	100	99
280-117265-4 - DL	V-S3-201118-489	93	94	91	94
LCS 280-439682/2-A	Lab Control Sample	103	94	96	100
LCS 280-439812/2-A	Lab Control Sample	98	105	97	103
LCSD 280-439682/3-A	Lab Control Sample Dup	101	93	95	103
LCSD 280-439812/3-A	Lab Control Sample Dup	97	107	100	105
MB 280-439682/1-A	Method Blank	109	103	105	107
MB 280-439812/1-A	Method Blank	101	104	99	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117265-1	TB-S3-201118-02	98	118	100	108
LCS 280-439523/4	Lab Control Sample	99	112	102	107
LCSD 280-439523/5	Lab Control Sample Dup	102	115	102	105
MB 280-439523/6	Method Blank	95	116	99	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117265-3	P-S3-201118-477	84
280-117265-5	P-S3-201118-489	83
LCS 280-438635/1-A	Lab Control Sample	91
MB 280-438635/2-A	Method Blank	90

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117265-1	TB-S3-201118-02	88
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117265-2	V-S3-201118-477	82 Q M
280-117265-4	V-S3-201118-489	99 Q M
LCS 280-439660/2-A	Lab Control Sample	94 M
LCSD 280-439660/3-A	Lab Control Sample Dup	95 M
MB 280-439660/4-A	Method Blank	91 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117265-1	TB-S3-201118-02	105 M
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117265-3	P-S3-201118-477	68	109
280-117265-5	P-S3-201118-489	65	106
LCS 280-439507/2-A	Lab Control Sample	64	101
LCS 280-439507/3-A	Lab Control Sample	81	116
MB 280-439507/1-A	Method Blank	63	107

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/01/18 07:25	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/01/18 07:25	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/01/18 07:25	1
Acetone	6.4	U	10	6.4	1.9	ug/L		12/01/18 07:25	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/01/18 07:25	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/01/18 07:25	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/01/18 07:25	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/01/18 07:25	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/01/18 07:25	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/01/18 07:25	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/01/18 07:25	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/01/18 07:25	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/01/18 07:25	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/01/18 07:25	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/01/18 07:25	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/01/18 07:25	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/01/18 07:25	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/01/18 07:25	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/01/18 07:25	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/01/18 07:25	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/01/18 07:25	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439523/6
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/01/18 07:25	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/01/18 07:25	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
1,2,3-Trichloropropane	0.80	U M	3.0	0.80	0.33	ug/L		12/01/18 07:25	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/01/18 07:25	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/01/18 07:25	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/01/18 07:25	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/01/18 07:25	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/01/18 07:25	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/01/18 07:25	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/01/18 07:25	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/01/18 07:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/01/18 07:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*81 - 118*		*12/01/18 07:25*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/01/18 07:25*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*12/01/18 07:25*	*1*

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.51	J	ug/L		90	62 - 128
2-Butanone (MEK)	20.0	16.3		ug/L		82	56 - 143
1,2-Dichlorobenzene	5.00	4.79		ug/L		96	80 - 119
1,3-Dichlorobenzene	5.00	4.63		ug/L		93	80 - 119
4-Chlorotoluene	5.00	4.74		ug/L		95	78 - 122
1,4-Dichlorobenzene	5.00	4.79		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	4.67		ug/L		93	77 - 125
1,2-Dichloroethane	5.00	5.27		ug/L		105	73 - 128
Acetone	20.0	22.3		ug/L		112	39 - 160
1,1-Dichloroethene	5.00	4.76		ug/L		95	71 - 131
Benzene	5.00	4.65		ug/L		93	79 - 120
Bromobenzene	5.00	5.11		ug/L		102	80 - 120
Bromoform	5.00	4.85		ug/L		97	66 - 130
Bromomethane	5.00	4.51		ug/L		90	53 - 141
1,2-Dichloropropane	5.00	4.96		ug/L		99	78 - 122
Carbon disulfide	5.00	4.75		ug/L		95	64 - 133
1,3-Dichloropropane	5.00	4.86		ug/L		97	80 - 119
Carbon tetrachloride	5.00	5.35		ug/L		107	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	4.82		ug/L		96	60 - 139
Chlorobenzene	5.00	4.70		ug/L		94	82 - 118
1,1-Dichloropropene	5.00	4.59		ug/L		92	79 - 125
Bromochloromethane	5.00	4.99		ug/L		100	78 - 123
Dibromochloromethane	5.00	5.17		ug/L		103	74 - 126
Chloroethane	5.00	4.96		ug/L		99	60 - 138
Chloroform	5.00	4.96		ug/L		99	79 - 124
2-Hexanone	20.0	16.2		ug/L		81	57 - 139
Chloromethane	5.00	4.49		ug/L		90	50 - 139
cis-1,2-Dichloroethene	5.00	4.78		ug/L		96	78 - 123
cis-1,3-Dichloropropene	5.00	4.76		ug/L		95	75 - 124
4-Isopropyltoluene	5.00	4.85		ug/L		97	77 - 127
Dibromomethane	5.00	5.08		ug/L		102	79 - 123
Bromodichloromethane	5.00	4.98		ug/L		100	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	17.7		ug/L		89	67 - 130
Dichlorodifluoromethane	5.00	4.51		ug/L		90	32 - 152
Ethylbenzene	5.00	4.64		ug/L		93	79 - 121
Ethylene Dibromide	5.00	4.87		ug/L		97	77 - 121
Hexachlorobutadiene	5.00	4.63		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.51		ug/L		90	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.83		ug/L		97	78 - 124
Methyl tert-butyl ether	5.00	4.41	J	ug/L		88	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	71 - 121
Methylene Chloride	5.00	4.63	J	ug/L		93	74 - 124
Naphthalene	5.00	4.57		ug/L		91	61 - 128
1,2,3-Trichlorobenzene	5.00	4.51		ug/L		90	69 - 129
n-Butylbenzene	5.00	4.76		ug/L		95	75 - 128
1,1,1-Trichloroethane	5.00	4.99		ug/L		100	74 - 131
N-Propylbenzene	5.00	4.71		ug/L		94	76 - 126
1,1,2-Trichloroethane	5.00	5.38		ug/L		108	80 - 119
sec-Butylbenzene	5.00	4.59		ug/L		92	77 - 126
Styrene	5.00	4.65		ug/L		93	78 - 123
1,2,4-Trichlorobenzene	5.00	4.37		ug/L		87	69 - 130
tert-Butylbenzene	5.00	4.51		ug/L		90	78 - 124
1,2,3-Trichloropropane	5.00	4.84		ug/L		97	73 - 122
Tetrachloroethene	5.00	4.64		ug/L		93	74 - 129
1,2,4-Trimethylbenzene	5.00	4.64		ug/L		93	76 - 124
Toluene	5.00	5.07		ug/L		101	80 - 121
1,3,5-Trimethylbenzene	5.00	4.66		ug/L		93	75 - 124
trans-1,2-Dichloroethene	5.00	4.75		ug/L		95	75 - 124
trans-1,3-Dichloropropene	5.00	4.74		ug/L		95	73 - 127
o-Xylene	5.00	4.47		ug/L		89	78 - 122
Trichloroethene	5.00	4.63		ug/L		93	79 - 123
m-Xylene & p-Xylene	5.00	4.56		ug/L		91	80 - 121
Trichlorofluoromethane	5.00	5.08		ug/L		102	65 - 141
Vinyl chloride	5.00	4.54		ug/L		91	58 - 137
2-Chlorotoluene	5.00	4.68		ug/L		94	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439523/4
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*112*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*107*		*80 - 119*

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			5.00	4.87	J	ug/L		97	62 - 128	8	20
2-Butanone (MEK)			20.0	17.5		ug/L		87	56 - 143	7	20
1,2-Dichlorobenzene			5.00	5.18		ug/L		104	80 - 119	8	20
1,3-Dichlorobenzene			5.00	5.05		ug/L		101	80 - 119	9	20
4-Chlorotoluene			5.00	5.18		ug/L		104	78 - 122	9	20
1,4-Dichlorobenzene			5.00	5.08		ug/L		102	79 - 118	6	20
1,1-Dichloroethane			5.00	5.07		ug/L		101	77 - 125	8	20
1,2-Dichloroethane			5.00	5.72		ug/L		114	73 - 128	8	20
Acetone			20.0	23.5		ug/L		117	39 - 160	5	20
1,1-Dichloroethene			5.00	5.00		ug/L		100	71 - 131	5	20
Benzene			5.00	5.12		ug/L		102	79 - 120	10	20
Bromobenzene			5.00	5.24		ug/L		105	80 - 120	3	20
Bromoform			5.00	5.34		ug/L		107	66 - 130	10	20
Bromomethane			5.00	4.87		ug/L		97	53 - 141	8	20
1,2-Dichloropropane			5.00	5.33		ug/L		107	78 - 122	7	20
Carbon disulfide			5.00	5.06		ug/L		101	64 - 133	6	20
1,3-Dichloropropane			5.00	5.13		ug/L		103	80 - 119	5	20
Carbon tetrachloride			5.00	5.84		ug/L		117	72 - 136	9	20
2,2-Dichloropropane			5.00	5.43		ug/L		109	60 - 139	12	20
Chlorobenzene			5.00	5.35		ug/L		107	82 - 118	13	20
1,1-Dichloropropene			5.00	5.16		ug/L		103	79 - 125	12	20
Bromochloromethane			5.00	5.10		ug/L		102	78 - 123	2	20
Dibromochloromethane			5.00	5.79		ug/L		116	74 - 126	11	20
Chloroethane			5.00	5.38		ug/L		108	60 - 138	8	20
Chloroform			5.00	5.29		ug/L		106	79 - 124	6	20
2-Hexanone			20.0	19.0		ug/L		95	57 - 139	16	20
Chloromethane			5.00	4.73		ug/L		95	50 - 139	5	20
cis-1,2-Dichloroethene			5.00	4.84		ug/L		97	78 - 123	1	20
cis-1,3-Dichloropropene			5.00	5.27		ug/L		105	75 - 124	10	20
4-Isopropyltoluene			5.00	5.27		ug/L		105	77 - 127	8	20
Dibromomethane			5.00	5.48		ug/L		110	79 - 123	7	20
Bromodichloromethane			5.00	5.62		ug/L		112	79 - 125	12	20
4-Methyl-2-pentanone (MIBK)			20.0	20.1		ug/L		100	67 - 130	12	20
Dichlorodifluoromethane			5.00	4.90		ug/L		98	32 - 152	8	20
Ethylbenzene			5.00	5.13		ug/L		103	79 - 121	10	20
Ethylene Dibromide			5.00	5.20		ug/L		104	77 - 121	7	20
Hexachlorobutadiene			5.00	5.15		ug/L		103	66 - 134	11	20
Isopropylbenzene			5.00	4.86		ug/L		97	72 - 131	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439523/5
Matrix: Water
Analysis Batch: 439523

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			5.00	5.28		ug/L		106	78 - 124	9	20
Methyl tert-butyl ether			5.00	4.63	J	ug/L		93	71 - 124	5	20
1,1,2,2-Tetrachloroethane			5.00	4.85		ug/L		97	71 - 121	2	20
Methylene Chloride			5.00	4.67	J	ug/L		93	74 - 124	1	20
Naphthalene			5.00	4.43		ug/L		89	61 - 128	3	20
1,2,3-Trichlorobenzene			5.00	4.72		ug/L		94	69 - 129	4	20
n-Butylbenzene			5.00	5.24		ug/L		105	75 - 128	9	20
1,1,1-Trichloroethane			5.00	5.49		ug/L		110	74 - 131	10	20
N-Propylbenzene			5.00	5.13		ug/L		103	76 - 126	8	20
1,1,2-Trichloroethane			5.00	5.89		ug/L		118	80 - 119	9	20
sec-Butylbenzene			5.00	4.85		ug/L		97	77 - 126	5	20
Styrene			5.00	5.22		ug/L		104	78 - 123	12	20
1,2,4-Trichlorobenzene			5.00	4.62		ug/L		92	69 - 130	5	20
tert-Butylbenzene			5.00	4.90		ug/L		98	78 - 124	8	20
1,2,3-Trichloropropane			5.00	4.95		ug/L		99	73 - 122	2	20
Tetrachloroethene			5.00	5.25		ug/L		105	74 - 129	12	20
1,2,4-Trimethylbenzene			5.00	5.09		ug/L		102	76 - 124	9	20
Toluene			5.00	5.59		ug/L		112	80 - 121	10	20
1,3,5-Trimethylbenzene			5.00	5.04		ug/L		101	75 - 124	8	20
trans-1,2-Dichloroethene			5.00	5.02		ug/L		100	75 - 124	6	20
trans-1,3-Dichloropropene			5.00	5.21		ug/L		104	73 - 127	10	20
o-Xylene			5.00	5.00		ug/L		100	78 - 122	11	20
Trichloroethene			5.00	5.17		ug/L		103	79 - 123	11	20
m-Xylene & p-Xylene			5.00	5.10		ug/L		102	80 - 121	11	20
Trichlorofluoromethane			5.00	5.60		ug/L		112	65 - 141	10	20
Vinyl chloride			5.00	4.92		ug/L		98	58 - 137	8	20
2-Chlorotoluene			5.00	4.97		ug/L		99	79 - 122	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*115*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*105*		*80 - 119*

Lab Sample ID: MB 280-439682/1-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439682

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/03/18 12:09	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		12/03/18 12:09	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/03/18 12:09	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/03/18 12:09	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/03/18 12:09	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/03/18 12:09	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/03/18 12:09	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/03/18 12:09	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/03/18 12:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439682/1-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439682

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		12/03/18 12:09	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/03/18 12:09	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/03/18 12:09	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/03/18 12:09	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/03/18 12:09	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/03/18 12:09	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/03/18 12:09	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/03/18 12:09	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/03/18 12:09	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/03/18 12:09	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/03/18 12:09	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/03/18 12:09	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/03/18 12:09	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/03/18 12:09	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/03/18 12:09	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/03/18 12:09	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/03/18 12:09	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/03/18 12:09	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/03/18 12:09	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/03/18 12:09	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/03/18 12:09	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/03/18 12:09	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		12/03/18 12:09	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/03/18 12:09	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/03/18 12:09	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/03/18 12:09	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/03/18 12:09	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/03/18 12:09	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/03/18 12:09	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/03/18 12:09	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/03/18 12:09	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/03/18 12:09	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/03/18 12:09	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/03/18 12:09	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
1,2,4-Trichlorobenzene	1.6	U M	5.0	1.6	0.73	ug/Kg		12/03/18 12:09	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/03/18 12:09	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/03/18 12:09	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		12/03/18 12:09	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/03/18 12:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439682/1-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439682

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/03/18 12:09	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/03/18 12:09	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/03/18 12:09	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/03/18 12:09	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		12/03/18 12:09	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/03/18 12:09	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/03/18 12:09	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/03/18 12:09	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/03/18 12:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*85 - 116*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 136*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
Dibromofluoromethane (Surr)	*107*		*78 - 119*	*12/03/18 07:00*	*12/03/18 12:09*	*1*

Lab Sample ID: LCS 280-439682/2-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	56.6		ug/Kg		113	61 - 132
2-Butanone (MEK)	200	258		ug/Kg		129	51 - 148
1,2-Dichlorobenzene	50.0	55.7		ug/Kg		111	78 - 121
1,3-Dichlorobenzene	50.0	55.6		ug/Kg		111	77 - 121
4-Chlorotoluene	50.0	57.4		ug/Kg		115	72 - 124
1,4-Dichlorobenzene	50.0	52.8		ug/Kg		106	75 - 120
1,1-Dichloroethane	50.0	57.2		ug/Kg		114	76 - 125
1,2-Dichloroethane	50.0	56.3		ug/Kg		113	73 - 128
Acetone	200	252		ug/Kg		126	36 - 164
1,1-Dichloroethene	50.0	60.6		ug/Kg		121	70 - 131
Benzene	50.0	58.0		ug/Kg		116	77 - 121
Bromobenzene	50.0	56.0		ug/Kg		112	78 - 121
Bromoform	50.0	61.0		ug/Kg		122	67 - 132
Bromomethane	50.0	62.4		ug/Kg		125	53 - 143
1,2-Dichloropropane	50.0	59.2		ug/Kg		118	76 - 123
Carbon disulfide	50.0	61.7		ug/Kg		123	63 - 132
1,3-Dichloropropane	50.0	58.9		ug/Kg		118	77 - 121
Carbon tetrachloride	50.0	52.3		ug/Kg		105	70 - 135
2,2-Dichloropropane	50.0	53.4		ug/Kg		107	67 - 133
Chlorobenzene	50.0	54.8		ug/Kg		110	79 - 120
1,1-Dichloropropene	50.0	56.6		ug/Kg		113	76 - 125
Bromochloromethane	50.0	57.4		ug/Kg		115	78 - 125
Dibromochloromethane	50.0	59.2		ug/Kg		118	74 - 126
Chloroethane	50.0	58.8		ug/Kg		118	59 - 139
Chloroform	50.0	54.2		ug/Kg		108	78 - 123
2-Hexanone	200	259		ug/Kg		129	53 - 145
Chloromethane	50.0	54.2		ug/Kg		108	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439682/2-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	50.0	57.8		ug/Kg		116	77 - 123
cis-1,3-Dichloropropene	50.0	64.4	Q	ug/Kg		129	74 - 126
4-Isopropyltoluene	50.0	57.0		ug/Kg		114	73 - 127
Dibromomethane	50.0	56.5		ug/Kg		113	78 - 125
Bromodichloromethane	50.0	57.4		ug/Kg		115	75 - 127
4-Methyl-2-pentanone (MIBK)	200	256		ug/Kg		128	65 - 135
Dichlorodifluoromethane	50.0	46.2		ug/Kg		92	29 - 149
Ethylbenzene	50.0	57.3		ug/Kg		115	76 - 122
Ethylene Dibromide	50.0	59.8		ug/Kg		120	78 - 122
Hexachlorobutadiene	50.0	50.3		ug/Kg		101	61 - 135
Isopropylbenzene	50.0	55.6		ug/Kg		111	68 - 134
1,1,1,2-Tetrachloroethane	50.0	54.8		ug/Kg		110	78 - 125
Methyl tert-butyl ether	50.0	56.5		ug/Kg		113	73 - 125
1,1,2,2-Tetrachloroethane	50.0	60.1		ug/Kg		120	70 - 124
Methylene Chloride	50.0	61.7		ug/Kg		123	70 - 128
Naphthalene	50.0	57.4		ug/Kg		115	62 - 129
1,2,3-Trichlorobenzene	50.0	53.1		ug/Kg		106	66 - 130
n-Butylbenzene	50.0	58.5		ug/Kg		117	70 - 128
1,1,1-Trichloroethane	50.0	53.7		ug/Kg		107	73 - 130
N-Propylbenzene	50.0	55.9		ug/Kg		112	73 - 125
1,1,2-Trichloroethane	50.0	59.1		ug/Kg		118	78 - 121
sec-Butylbenzene	50.0	57.4		ug/Kg		115	73 - 126
Styrene	50.0	59.7		ug/Kg		119	76 - 124
1,2,4-Trichlorobenzene	50.0	57.1		ug/Kg		114	67 - 129
tert-Butylbenzene	50.0	55.6		ug/Kg		111	73 - 125
1,2,3-Trichloropropane	50.0	57.9		ug/Kg		116	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	55.1		ug/Kg		110	75 - 123
Toluene	50.0	56.5		ug/Kg		113	77 - 121
1,3,5-Trimethylbenzene	50.0	56.2		ug/Kg		112	73 - 124
trans-1,2-Dichloroethene	50.0	60.0		ug/Kg		120	74 - 125
trans-1,3-Dichloropropene	50.0	62.5		ug/Kg		125	71 - 130
o-Xylene	50.0	59.0		ug/Kg		118	77 - 123
Trichloroethene	50.0	56.0		ug/Kg		112	77 - 123
m-Xylene & p-Xylene	50.0	57.3		ug/Kg		115	77 - 124
Trichlorofluoromethane	50.0	51.2		ug/Kg		102	62 - 140
Vinyl chloride	50.0	55.4		ug/Kg		111	56 - 135
2-Chlorotoluene	50.0	58.6		ug/Kg		117	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439682/3-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	52.3		ug/Kg		105	61 - 132	8	20
2-Butanone (MEK)	200	235		ug/Kg		117	51 - 148	9	20
1,2-Dichlorobenzene	50.0	48.4		ug/Kg		97	78 - 121	14	20
1,3-Dichlorobenzene	50.0	47.2		ug/Kg		94	77 - 121	17	20
4-Chlorotoluene	50.0	51.0		ug/Kg		102	72 - 124	12	20
1,4-Dichlorobenzene	50.0	48.1		ug/Kg		96	75 - 120	9	20
1,1-Dichloroethane	50.0	54.8		ug/Kg		110	76 - 125	4	20
1,2-Dichloroethane	50.0	53.8		ug/Kg		108	73 - 128	4	20
Acetone	200	241		ug/Kg		121	36 - 164	4	20
1,1-Dichloroethene	50.0	58.9		ug/Kg		118	70 - 131	3	20
Benzene	50.0	54.1		ug/Kg		108	77 - 121	7	20
Bromobenzene	50.0	51.1		ug/Kg		102	78 - 121	9	20
Bromoform	50.0	57.6		ug/Kg		115	67 - 132	6	20
Bromomethane	50.0	62.0		ug/Kg		124	53 - 143	1	20
1,2-Dichloropropane	50.0	56.3		ug/Kg		113	76 - 123	5	20
Carbon disulfide	50.0	58.2		ug/Kg		116	63 - 132	6	20
1,3-Dichloropropane	50.0	52.8		ug/Kg		106	77 - 121	11	20
Carbon tetrachloride	50.0	50.4		ug/Kg		101	70 - 135	4	20
2,2-Dichloropropane	50.0	50.2		ug/Kg		100	67 - 133	6	20
Chlorobenzene	50.0	48.8		ug/Kg		98	79 - 120	12	20
1,1-Dichloropropene	50.0	52.7		ug/Kg		105	76 - 125	7	20
Bromochloromethane	50.0	56.5		ug/Kg		113	78 - 125	2	20
Dibromochloromethane	50.0	54.0		ug/Kg		108	74 - 126	9	20
Chloroethane	50.0	56.8		ug/Kg		114	59 - 139	4	20
Chloroform	50.0	52.2		ug/Kg		104	78 - 123	4	20
2-Hexanone	200	234		ug/Kg		117	53 - 145	10	20
Chloromethane	50.0	55.1		ug/Kg		110	50 - 136	2	20
cis-1,2-Dichloroethene	50.0	55.2		ug/Kg		110	77 - 123	5	20
cis-1,3-Dichloropropene	50.0	57.8		ug/Kg		116	74 - 126	11	20
4-Isopropyltoluene	50.0	49.6		ug/Kg		99	73 - 127	14	20
Dibromomethane	50.0	54.7		ug/Kg		109	78 - 125	3	20
Bromodichloromethane	50.0	55.3		ug/Kg		111	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)	200	245		ug/Kg		123	65 - 135	4	20
Dichlorodifluoromethane	50.0	46.0		ug/Kg		92	29 - 149	0	20
Ethylbenzene	50.0	50.0		ug/Kg		100	76 - 122	13	20
Ethylene Dibromide	50.0	54.5		ug/Kg		109	78 - 122	9	20
Hexachlorobutadiene	50.0	43.7		ug/Kg		87	61 - 135	14	20
Isopropylbenzene	50.0	49.8		ug/Kg		100	68 - 134	11	20
1,1,1,2-Tetrachloroethane	50.0	51.1		ug/Kg		102	78 - 125	7	20
Methyl tert-butyl ether	50.0	56.9		ug/Kg		114	73 - 125	1	20
1,1,2,2-Tetrachloroethane	50.0	46.8	Q	ug/Kg		94	70 - 124	25	20
Methylene Chloride	50.0	57.8		ug/Kg		116	70 - 128	7	20
Naphthalene	50.0	52.5		ug/Kg		105	62 - 129	9	20
1,2,3-Trichlorobenzene	50.0	48.5		ug/Kg		97	66 - 130	9	20
n-Butylbenzene	50.0	48.2		ug/Kg		96	70 - 128	19	20
1,1,1-Trichloroethane	50.0	51.1		ug/Kg		102	73 - 130	5	20
N-Propylbenzene	50.0	48.2		ug/Kg		96	73 - 125	15	20
1,1,2-Trichloroethane	50.0	54.7		ug/Kg		109	78 - 121	8	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439682/3-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439682

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			50.0	51.0		ug/Kg		102	73 - 126	12	20
Styrene			50.0	52.2		ug/Kg		104	76 - 124	13	20
1,2,4-Trichlorobenzene			50.0	49.4		ug/Kg		99	67 - 129	14	20
tert-Butylbenzene			50.0	49.8		ug/Kg		100	73 - 125	11	20
1,2,3-Trichloropropane			50.0	53.7		ug/Kg		107	73 - 125	8	20
Tetrachloroethene			50.0	46.7		ug/Kg		93	73 - 128	11	20
1,2,4-Trimethylbenzene			50.0	48.3		ug/Kg		97	75 - 123	13	20
Toluene			50.0	52.1		ug/Kg		104	77 - 121	8	20
1,3,5-Trimethylbenzene			50.0	49.0		ug/Kg		98	73 - 124	14	20
trans-1,2-Dichloroethene			50.0	55.8		ug/Kg		112	74 - 125	7	20
trans-1,3-Dichloropropene			50.0	57.5		ug/Kg		115	71 - 130	8	20
o-Xylene			50.0	52.9		ug/Kg		106	77 - 123	11	20
Trichloroethene			50.0	55.8		ug/Kg		112	77 - 123	0	20
m-Xylene & p-Xylene			50.0	50.7		ug/Kg		101	77 - 124	12	20
Trichlorofluoromethane			50.0	49.9		ug/Kg		100	62 - 140	3	20
Vinyl chloride			50.0	56.1		ug/Kg		112	56 - 135	1	20
2-Chlorotoluene			50.0	51.3		ug/Kg		103	75 - 122	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Lab Sample ID: MB 280-439812/1-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/04/18 12:12	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/04/18 12:12	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/04/18 12:12	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/04/18 12:12	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/04/18 12:12	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
Acetone	1300	U M	1500	1300	400	ug/Kg		12/04/18 12:12	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/04/18 12:12	1
Benzene	160	U	250	160	45	ug/Kg		12/04/18 12:12	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/04/18 12:12	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/04/18 12:12	1
Bromoform	160	U	250	160	160	ug/Kg		12/04/18 12:12	1
Bromomethane	160	U	500	160	44	ug/Kg		12/04/18 12:12	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/04/18 12:12	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/04/18 12:12	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/04/18 12:12	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/04/18 12:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439812/1-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/04/18 12:12	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/04/18 12:12	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/04/18 12:12	1
Chloroethane	160	U	500	160	44	ug/Kg		12/04/18 12:12	1
Chloroform	160	U	250	160	46	ug/Kg		12/04/18 12:12	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/04/18 12:12	1
Chloromethane	160	U	500	160	50	ug/Kg		12/04/18 12:12	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/04/18 12:12	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/04/18 12:12	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/04/18 12:12	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/04/18 12:12	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/04/18 12:12	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/04/18 12:12	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/04/18 12:12	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/04/18 12:12	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/04/18 12:12	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/04/18 12:12	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/04/18 12:12	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/04/18 12:12	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/04/18 12:12	1
Naphthalene	80	U	500	80	38	ug/Kg		12/04/18 12:12	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/04/18 12:12	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/04/18 12:12	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/04/18 12:12	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/04/18 12:12	1
Styrene	80	U	250	80	26	ug/Kg		12/04/18 12:12	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/04/18 12:12	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/04/18 12:12	1
Toluene	80	U	250	80	39	ug/Kg		12/04/18 12:12	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/04/18 12:12	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/04/18 12:12	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1
o-Xylene	80	U M	130	80	35	ug/Kg		12/04/18 12:12	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/04/18 12:12	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/04/18 12:12	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/04/18 12:12	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/04/18 12:12	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/04/18 12:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439812/1-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439812

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		85 - 116	12/04/18 07:00	12/04/18 12:12	1
1,2-Dichloroethane-d4 (Surr)	104		71 - 136	12/04/18 07:00	12/04/18 12:12	1
4-Bromofluorobenzene (Surr)	99		79 - 119	12/04/18 07:00	12/04/18 12:12	1
Dibromofluoromethane (Surr)	102		78 - 119	12/04/18 07:00	12/04/18 12:12	1

Lab Sample ID: LCS 280-439812/2-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1940		ug/Kg		97	61 - 132
2-Butanone (MEK)	8000	7910		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	2000	2120		ug/Kg		106	78 - 121
1,3-Dichlorobenzene	2000	2120		ug/Kg		106	77 - 121
4-Chlorotoluene	2000	2090		ug/Kg		104	72 - 124
1,4-Dichlorobenzene	2000	2120		ug/Kg		106	75 - 120
1,1-Dichloroethane	2000	2070		ug/Kg		103	76 - 125
1,2-Dichloroethane	2000	2270		ug/Kg		114	73 - 128
Acetone	8000	8250		ug/Kg		103	36 - 164
1,1-Dichloroethene	2000	2010		ug/Kg		101	70 - 131
Benzene	2000	2040		ug/Kg		102	77 - 121
Bromobenzene	2000	2020		ug/Kg		101	78 - 121
Bromoform	2000	2210		ug/Kg		111	67 - 132
Bromomethane	2000	1630		ug/Kg		81	53 - 143
1,2-Dichloropropane	2000	2120		ug/Kg		106	76 - 123
Carbon disulfide	2000	1940		ug/Kg		97	63 - 132
1,3-Dichloropropane	2000	2000		ug/Kg		100	77 - 121
Carbon tetrachloride	2000	2180		ug/Kg		109	70 - 135
2,2-Dichloropropane	2000	2120		ug/Kg		106	67 - 133
Chlorobenzene	2000	2080		ug/Kg		104	79 - 120
1,1-Dichloropropene	2000	2060		ug/Kg		103	76 - 125
Bromochloromethane	2000	2170		ug/Kg		108	78 - 125
Dibromochloromethane	2000	2120		ug/Kg		106	74 - 126
Chloroethane	2000	1630		ug/Kg		81	59 - 139
Chloroform	2000	2140		ug/Kg		107	78 - 123
2-Hexanone	8000	7760		ug/Kg		97	53 - 145
Chloromethane	2000	1530		ug/Kg		77	50 - 136
cis-1,2-Dichloroethene	2000	2060		ug/Kg		103	77 - 123
cis-1,3-Dichloropropene	2000	2050		ug/Kg		103	74 - 126
4-Isopropyltoluene	2000	2220		ug/Kg		111	73 - 127
Dibromomethane	2000	2120		ug/Kg		106	78 - 125
Bromodichloromethane	2000	2150		ug/Kg		108	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	8230		ug/Kg		103	65 - 135
Dichlorodifluoromethane	2000	1510		ug/Kg		75	29 - 149
Ethylbenzene	2000	2030		ug/Kg		101	76 - 122
Ethylene Dibromide	2000	2020		ug/Kg		101	78 - 122
Hexachlorobutadiene	2000	2030		ug/Kg		102	61 - 135
Isopropylbenzene	2000	2070		ug/Kg		103	68 - 134

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439812/2-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	2000	2120		ug/Kg		106	78 - 125
Methyl tert-butyl ether	2000	2140		ug/Kg		107	73 - 125
1,1,2,2-Tetrachloroethane	2000	1910		ug/Kg		96	70 - 124
Methylene Chloride	2000	1910		ug/Kg		96	70 - 128
Naphthalene	2000	2060		ug/Kg		103	62 - 129
1,2,3-Trichlorobenzene	2000	2190		ug/Kg		109	66 - 130
n-Butylbenzene	2000	2150		ug/Kg		107	70 - 128
1,1,1-Trichloroethane	2000	2180		ug/Kg		109	73 - 130
N-Propylbenzene	2000	2090		ug/Kg		104	73 - 125
1,1,2-Trichloroethane	2000	2170		ug/Kg		109	78 - 121
sec-Butylbenzene	2000	2120		ug/Kg		106	73 - 126
Styrene	2000	2020		ug/Kg		101	76 - 124
1,2,4-Trichlorobenzene	2000	2210		ug/Kg		111	67 - 129
tert-Butylbenzene	2000	2110		ug/Kg		105	73 - 125
1,2,3-Trichloropropane	2000	2110		ug/Kg		105	73 - 125
Tetrachloroethene	2000	2040		ug/Kg		102	73 - 128
1,2,4-Trimethylbenzene	2000	2110		ug/Kg		106	75 - 123
Toluene	2000	2080		ug/Kg		104	77 - 121
1,3,5-Trimethylbenzene	2000	2090		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	2000	2120		ug/Kg		106	74 - 125
trans-1,3-Dichloropropene	2000	2150		ug/Kg		107	71 - 130
o-Xylene	2000	2040		ug/Kg		102	77 - 123
Trichloroethene	2000	2080		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	2000	2030		ug/Kg		102	77 - 124
Trichlorofluoromethane	2000	2200		ug/Kg		110	62 - 140
Vinyl chloride	2000	1580		ug/Kg		79	56 - 135
2-Chlorotoluene	2000	2060		ug/Kg		103	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*105*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Lab Sample ID: LCSD 280-439812/3-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	1960		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)	8000	8220		ug/Kg		103	51 - 148	4	20
1,2-Dichlorobenzene	2000	2130		ug/Kg		107	78 - 121	0	20
1,3-Dichlorobenzene	2000	2120		ug/Kg		106	77 - 121	0	20
4-Chlorotoluene	2000	2110		ug/Kg		106	72 - 124	1	20
1,4-Dichlorobenzene	2000	2150		ug/Kg		107	75 - 120	1	20
1,1-Dichloroethane	2000	2070		ug/Kg		103	76 - 125	0	20
1,2-Dichloroethane	2000	2350		ug/Kg		117	73 - 128	3	20
Acetone	8000	8120		ug/Kg		101	36 - 164	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439812/3-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	2000	2000		ug/Kg		100	70 - 131	1	20
Benzene	2000	2070		ug/Kg		103	77 - 121	1	20
Bromobenzene	2000	2050		ug/Kg		102	78 - 121	1	20
Bromoform	2000	2300		ug/Kg		115	67 - 132	4	20
Bromomethane	2000	1680		ug/Kg		84	53 - 143	3	20
1,2-Dichloropropane	2000	2150		ug/Kg		108	76 - 123	2	20
Carbon disulfide	2000	1930		ug/Kg		97	63 - 132	0	20
1,3-Dichloropropane	2000	2070		ug/Kg		103	77 - 121	3	20
Carbon tetrachloride	2000	2200		ug/Kg		110	70 - 135	1	20
2,2-Dichloropropane	2000	2130		ug/Kg		106	67 - 133	0	20
Chlorobenzene	2000	2100		ug/Kg		105	79 - 120	1	20
1,1-Dichloropropene	2000	2080		ug/Kg		104	76 - 125	1	20
Bromochloromethane	2000	2190		ug/Kg		110	78 - 125	1	20
Dibromochloromethane	2000	2190		ug/Kg		110	74 - 126	3	20
Chloroethane	2000	1840		ug/Kg		92	59 - 139	12	20
Chloroform	2000	2170		ug/Kg		109	78 - 123	1	20
2-Hexanone	8000	8070		ug/Kg		101	53 - 145	4	20
Chloromethane	2000	1510		ug/Kg		75	50 - 136	1	20
cis-1,2-Dichloroethene	2000	2080		ug/Kg		104	77 - 123	1	20
cis-1,3-Dichloropropene	2000	2080		ug/Kg		104	74 - 126	1	20
4-Isopropyltoluene	2000	2220		ug/Kg		111	73 - 127	0	20
Dibromomethane	2000	2230		ug/Kg		111	78 - 125	5	20
Bromodichloromethane	2000	2230		ug/Kg		112	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)	8000	8730		ug/Kg		109	65 - 135	6	20
Dichlorodifluoromethane	2000	1490		ug/Kg		74	29 - 149	1	20
Ethylbenzene	2000	2050		ug/Kg		102	76 - 122	1	20
Ethylene Dibromide	2000	2070		ug/Kg		103	78 - 122	2	20
Hexachlorobutadiene	2000	2040		ug/Kg		102	61 - 135	0	20
Isopropylbenzene	2000	2100		ug/Kg		105	68 - 134	2	20
1,1,1,2-Tetrachloroethane	2000	2110		ug/Kg		105	78 - 125	0	20
Methyl tert-butyl ether	2000	2200		ug/Kg		110	73 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	2030		ug/Kg		102	70 - 124	6	20
Methylene Chloride	2000	1940		ug/Kg		97	70 - 128	1	20
Naphthalene	2000	2070		ug/Kg		104	62 - 129	1	20
1,2,3-Trichlorobenzene	2000	2270		ug/Kg		113	66 - 130	4	20
n-Butylbenzene	2000	2130		ug/Kg		106	70 - 128	1	20
1,1,1-Trichloroethane	2000	2170		ug/Kg		109	73 - 130	1	20
N-Propylbenzene	2000	2090		ug/Kg		105	73 - 125	0	20
1,1,2-Trichloroethane	2000	2260		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene	2000	2140		ug/Kg		107	73 - 126	1	20
Styrene	2000	2040		ug/Kg		102	76 - 124	1	20
1,2,4-Trichlorobenzene	2000	2260		ug/Kg		113	67 - 129	2	20
tert-Butylbenzene	2000	2150		ug/Kg		107	73 - 125	2	20
1,2,3-Trichloropropane	2000	2200		ug/Kg		110	73 - 125	4	20
Tetrachloroethene	2000	2050		ug/Kg		103	73 - 128	1	20
1,2,4-Trimethylbenzene	2000	2120		ug/Kg		106	75 - 123	1	20
Toluene	2000	2130		ug/Kg		107	77 - 121	3	20
1,3,5-Trimethylbenzene	2000	2120		ug/Kg		106	73 - 124	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439812/3-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439812

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
trans-1,2-Dichloroethene			2000	2090		ug/Kg		104	74 - 125	2	20
trans-1,3-Dichloropropene			2000	2270		ug/Kg		113	71 - 130	5	20
o-Xylene			2000	2030		ug/Kg		101	77 - 123	1	20
Trichloroethene			2000	2110		ug/Kg		106	77 - 123	1	20
m-Xylene & p-Xylene			2000	2040		ug/Kg		102	77 - 124	0	20
Trichlorofluoromethane			2000	2230		ug/Kg		111	62 - 140	1	20
Vinyl chloride			2000	1580		ug/Kg		79	56 - 135	0	20
2-Chlorotoluene			2000	2080		ug/Kg		104	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*105*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-438635/2-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 438635

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		11/24/18 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*11/24/18 08:25*	*11/24/18 11:48*	*1*

Lab Sample ID: LCS 280-438635/1-A
Matrix: Solid
Analysis Batch: 438644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 438635

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			4.28	4.38	M	mg/Kg		102	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	82.2		ug/L		105	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 01:44*	*1*

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.215		ug/L		86	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*70 - 130*

Lab Sample ID: LCSD 280-439245/2-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*102*	*M*	*70 - 130*

Lab Sample ID: MB 280-439660/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439660

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 16:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*91*	*M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 16:27*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-439660/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439660

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.746		ug/Kg		85	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*94*	*M*	*55 - 130*

Lab Sample ID: LCSD 280-439660/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439660

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.756		ug/Kg		86	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*95*	*M*	*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439507/1-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439507

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.32	J	8.0	4.0	1.4	mg/Kg		12/05/18 14:41	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/05/18 14:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*11/30/18 19:50*	*12/05/18 14:41*	*1*
n-Octacosane	*107*		*25 - 162*	*11/30/18 19:50*	*12/05/18 14:41*	*1*

Lab Sample ID: LCS 280-439507/2-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			133	89.6		mg/Kg		67	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-439507/3-A
Matrix: Solid
Analysis Batch: 439945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439507

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			334	297		mg/Kg		89	39 - 106		

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	81		45 - 130
n-Octacosane	116		25 - 162

GC/MS VOA

Analysis Batch: 439523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-1	TB-S3-201118-02	Total/NA	Water	8260B	
MB 280-439523/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439523/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-439523/5	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 439624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-2	V-S3-201118-477	Total/NA	Solid	8260B	439682
280-117265-4	V-S3-201118-489	Total/NA	Solid	8260B	439682
MB 280-439682/1-A	Method Blank	Total/NA	Solid	8260B	439682
LCS 280-439682/2-A	Lab Control Sample	Total/NA	Solid	8260B	439682
LCSD 280-439682/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439682

Prep Batch: 439682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-2	V-S3-201118-477	Total/NA	Solid	5035	
280-117265-4	V-S3-201118-489	Total/NA	Solid	5035	
MB 280-439682/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439682/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439682/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 439785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-4 - DL	V-S3-201118-489	Total/NA	Solid	8260B	439812
MB 280-439812/1-A	Method Blank	Total/NA	Solid	8260B	439812
LCS 280-439812/2-A	Lab Control Sample	Total/NA	Solid	8260B	439812
LCSD 280-439812/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439812

Prep Batch: 439812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-4 - DL	V-S3-201118-489	Total/NA	Solid	5035	
MB 280-439812/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439812/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439812/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA

Prep Batch: 438635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-3	P-S3-201118-477	Total/NA	Solid	5035	
280-117265-5	P-S3-201118-489	Total/NA	Solid	5035	
MB 280-438635/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 438644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-3	P-S3-201118-477	Total/NA	Solid	8015D GRO	438635
280-117265-5	P-S3-201118-489	Total/NA	Solid	8015D GRO	438635
MB 280-438635/2-A	Method Blank	Total/NA	Solid	8015D GRO	438635
LCS 280-438635/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	438635

GC VOA (Continued)

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-1	TB-S3-201118-02	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-1	TB-S3-201118-02	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-3	P-S3-201118-477	Total/NA	Solid	3546	
280-117265-5	P-S3-201118-489	Total/NA	Solid	3546	
MB 280-439507/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 439660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-2	V-S3-201118-477	Total/NA	Solid	8011	
280-117265-4	V-S3-201118-489	Total/NA	Solid	8011	
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-1	TB-S3-201118-02	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Analysis Batch: 439945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-3	P-S3-201118-477	Total/NA	Solid	8015D DRO	439507
280-117265-5	P-S3-201118-489	Total/NA	Solid	8015D DRO	439507
MB 280-439507/1-A	Method Blank	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507
LCS 280-439507/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439507

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-2	V-S3-201118-477	Total/NA	Solid	8011	439660
280-117265-4	V-S3-201118-489	Total/NA	Solid	8011	439660
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	439660
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	439660

GC Semi VOA (Continued)

Analysis Batch: 440502 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	439660

General Chemistry

Analysis Batch: 438870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117265-2	V-S3-201118-477	Total/NA	Solid	Moisture	
280-117265-3	P-S3-201118-477	Total/NA	Solid	Moisture	
280-117265-4	V-S3-201118-489	Total/NA	Solid	Moisture	
280-117265-5	P-S3-201118-489	Total/NA	Solid	Moisture	

Client Sample ID: TB-S3-201118-02

Lab Sample ID: 280-117265-1

Date Collected: 11/20/18 14:30

Matrix: Water

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439523	12/01/18 12:41	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/29/18 03:03	GPM	TAL DEN
Total/NA	Prep	8011			34.9 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 03:38	JLW	TAL DEN

Client Sample ID: V-S3-201118-477

Lab Sample ID: 280-117265-2

Date Collected: 11/20/18 13:38

Matrix: Solid

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: V-S3-201118-477

Lab Sample ID: 280-117265-2

Date Collected: 11/20/18 13:38

Matrix: Solid

Date Received: 11/21/18 09:15

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.043 g	5 mL	439682	11/20/18 13:38	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439624	12/03/18 18:14	JLS	TAL DEN
Total/NA	Prep	8011			10.05 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 16:46	JLW	TAL DEN

Client Sample ID: P-S3-201118-477

Lab Sample ID: 280-117265-3

Date Collected: 11/20/18 13:38

Matrix: Solid

Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: P-S3-201118-477

Lab Sample ID: 280-117265-3

Date Collected: 11/20/18 13:38

Matrix: Solid

Date Received: 11/21/18 09:15

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.089 g	5 mL	438635	11/20/18 13:38	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 17:46	GPM	TAL DEN
Total/NA	Prep	3546			16.3 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 22:40	CSM	TAL DEN

Client Sample ID: V-S3-201118-489 — **Lab Sample ID: 280-117265-4**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: V-S3-201118-489 — **Lab Sample ID: 280-117265-4**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 93.0**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.505 g	5 mL	439682	11/20/18 15:29	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439624	12/03/18 18:34	JLS	TAL DEN
Total/NA	Prep	5035	DL		5.381 g	1000 mL	439812	11/20/18 15:29	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	1	20 mL	20 mL	439785	12/04/18 14:06	JLS	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 17:05	JLW	TAL DEN

Client Sample ID: P-S3-201118-489 — **Lab Sample ID: 280-117265-5**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			438870	11/27/18 09:45	LMD	TAL DEN

Client Sample ID: P-S3-201118-489 — **Lab Sample ID: 280-117265-5**
Date Collected: 11/20/18 15:29 — **Matrix: Solid**
Date Received: 11/21/18 09:15 — **Percent Solids: 91.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.651 g	5 mL	438635	11/20/18 15:29	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	438644	11/24/18 18:34	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	439507	11/30/18 19:50	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			439945	12/05/18 23:02	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117265-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3393 0950	COC No: COC2-58-TA-20181120
Client Contact: Pamela Moss	Phone: 575-430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-53-201118-02	11/20/18	1430	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-53-201118-477	11/20/18	1338	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-53-201118-477	11/20/18	1338	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-53-201118-487	11/20/18	1529	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-53-201118-489	11/20/18	1529	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

280-117265 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Joshua Livingston	11/20/18 1800	EA		11/21/18 0915	TA DEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, +1.0, IRS, offered by SS, 11/21/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117265-1

Login Number: 117265
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117359-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/18/2018 8:07:58 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117359-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117359-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

It should be noted that samples with elevated Limits of Quantitation (LOQs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the LOQs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/27/2018 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8º C.

Receipt Exceptions

One of Two Sodium Thiosulfate VOA vials for sample ID TB-S3-211118-01 was received containing a bubble greater than 6mm in diameter. Sufficient volume was available to proceed without using this vial for analysis.

The DI Water Terracores for sample V-S3-211118-492 (280-117359-2) and V-S3-211118-512 (280-117359-4) were received after the 48 hour hold time for freezing had expired. As instructed by the client, the laboratory proceeded with the standard analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S3-211118-492 (280-117359-2) and V-S3-211118-512 (280-117359-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/21/2018 and analyzed on 12/03/2018 and 12/04/2018.

cis-1,3-Dichloropropene failed the recovery criteria high for LCS 280-439682/2-A. All associated results have been flagged "Q". This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

1,1,2,2-Tetrachloroethane exceeded the RPD limit for LCSD 280-439682/3-A. All associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control limits for this analyte.

Job ID: 280-117359-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The continuing calibration verification (CCV) associated with batch 280-439624 recovered above the upper control limit for trans-1,3-Dichloropropene (+20.3%D). The bias was high and the samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S3-211118-01 (280-117359-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/03/2018.

Acetone, a common laboratory contaminant, was detected in method blank MB 280-439604/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S3-211118-492 (280-117359-2) and V-S3-211118-512 (280-117359-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/03/2018 and analyzed on 12/09/2018 and 12/10/2018.

The continuing calibration verification (CCV) associated with batch 280-440502 recovered above the upper control limit for 1,2-Dibromopropane (surrogate). The samples associated with this CCV were within control for this surrogate; therefore, the data have been reported. (CCV 280-440502/50). The following sample is associated: V-S3-211118-492 (280-117359-2).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S3-211118-01 (280-117359-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S3-211118-492 (280-117359-3) and P-S3-211118-512 (280-117359-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/21/2018 and analyzed on 12/03/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S3-211118-01 (280-117359-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 11/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S3-211118-492 (280-117359-3) and P-S3-211118-512 (280-117359-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/04/2018 and analyzed on 12/07/2018.

Job ID: 280-117359-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439845/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S3-211118-492 (280-117359-2), P-S3-211118-492 (280-117359-3), V-S3-211118-512 (280-117359-4) and P-S3-211118-512 (280-117359-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/28/2018 and 11/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S3-211118-01 — Lab Sample ID: 280-117359-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.7	J	10	6.4	1.9	ug/L	1		8260B	Total/NA

Client Sample ID: V-S3-211118-492 — Lab Sample ID: 280-117359-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	150		4.9	3.1	0.56	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	67		4.9	1.6	0.55	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	39		19	6.2	1.8	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	13		4.9	1.6	0.48	ug/Kg	1	☼	8260B	Total/NA
Acetone	120		19	12	5.2	ug/Kg	1	☼	8260B	Total/NA
Benzene	140		4.9	1.6	0.46	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	100		4.9	1.6	0.65	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	25		4.9	1.6	0.57	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	47		4.9	1.6	0.61	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	35		4.9	1.6	0.54	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	43		4.9	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	120		4.9	1.6	0.59	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	52		4.9	1.6	0.75	ug/Kg	1	☼	8260B	Total/NA
Toluene - DL	280		250	80	39	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	190	J	250	160	78	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S3-211118-492 — Lab Sample ID: 280-117359-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	15		1.3	1.2	0.35	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	21		9.0	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S3-211118-512 — Lab Sample ID: 280-117359-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	130		17	5.5	1.6	ug/Kg	1	☼	8260B	Total/NA
Acetone	28		17	11	4.6	ug/Kg	1	☼	8260B	Total/NA
Benzene	0.54	J	4.3	1.4	0.40	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	0.63	J	4.3	1.4	0.54	ug/Kg	1	☼	8260B	Total/NA
Toluene	0.81	J	4.3	1.4	0.59	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S3-211118-512 — Lab Sample ID: 280-117359-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.0	J	8.8	4.4	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117359-1	TB-S3-211118-01	Water	11/21/18 12:00	11/27/18 09:45
280-117359-2	V-S3-211118-492	Solid	11/21/18 07:44	11/27/18 09:45
280-117359-3	P-S3-211118-492	Solid	11/21/18 07:44	11/27/18 09:45
280-117359-4	V-S3-211118-512	Solid	11/21/18 09:30	11/27/18 09:45
280-117359-5	P-S3-211118-512	Solid	11/21/18 09:30	11/27/18 09:45

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S3-211118-01
Date Collected: 11/21/18 12:00
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.7	J	10	6.4	1.9	ug/L		12/03/18 13:35	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/03/18 13:35	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:35	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/03/18 13:35	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/03/18 13:35	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/03/18 13:35	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/03/18 13:35	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/03/18 13:35	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/03/18 13:35	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/03/18 13:35	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:35	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/03/18 13:35	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/03/18 13:35	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:35	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:35	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 13:35	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 13:35	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 13:35	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/03/18 13:35	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/03/18 13:35	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:35	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:35	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:35	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 13:35	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:35	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:35	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:35	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/03/18 13:35	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/03/18 13:35	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:35	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 13:35	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/03/18 13:35	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/03/18 13:35	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/03/18 13:35	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 13:35	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S3-211118-01
Date Collected: 11/21/18 12:00
Date Received: 11/27/18 09:45
Lab Sample ID: 280-117359-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:35	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:35	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 13:35	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:35	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/03/18 13:35	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/03/18 13:35	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:35	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/03/18 13:35	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:35	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:35	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/03/18 13:35	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:35	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/03/18 13:35	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/03/18 13:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*		*12/03/18 13:35*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*12/03/18 13:35*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/03/18 13:35*	*1*

Client Sample ID: V-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45
Lab Sample ID: 280-117359-2
Matrix: Solid
Percent Solids: 90.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:54	1
1,1,1-Trichloroethane	1.6	U	4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:54	1
1,1,2,2-Tetrachloroethane	1.6	U M Q	4.9	1.6	0.59	ug/Kg	☼	12/03/18 18:54	1
1,1,2-Trichloroethane	3.1	U M	4.9	3.1	0.86	ug/Kg	☼	12/03/18 18:54	1
1,1-Dichloroethane	0.78	U	4.9	0.78	0.20	ug/Kg	☼	12/03/18 18:54	1
1,1-Dichloroethene	1.6	U	4.9	1.6	0.57	ug/Kg	☼	12/03/18 18:54	1
1,1-Dichloropropene	1.6	U	4.9	1.6	0.52	ug/Kg	☼	12/03/18 18:54	1
1,2,3-Trichlorobenzene	1.6	U M	4.9	1.6	0.73	ug/Kg	☼	12/03/18 18:54	1
1,2,3-Trichloropropane	3.1	U M	4.9	3.1	0.79	ug/Kg	☼	12/03/18 18:54	1
1,2,4-Trichlorobenzene	1.6	U M	4.9	1.6	0.71	ug/Kg	☼	12/03/18 18:54	1
1,2,4-Trimethylbenzene	**150**		4.9	3.1	0.56	ug/Kg	☼	12/03/18 18:54	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.7	1.6	0.58	ug/Kg	☼	12/03/18 18:54	1
1,2-Dichlorobenzene	1.6	U	4.9	1.6	0.44	ug/Kg	☼	12/03/18 18:54	1
1,2-Dichloroethane	1.6	U	4.9	1.6	0.68	ug/Kg	☼	12/03/18 18:54	1
1,2-Dichloroethene, Total	1.6	U	4.9	1.6	0.38	ug/Kg	☼	12/03/18 18:54	1
1,2-Dichloropropane	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:54	1
1,3,5-Trimethylbenzene	**67**		4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:54	1
1,3-Dichlorobenzene	1.6	U	4.9	1.6	0.47	ug/Kg	☼	12/03/18 18:54	1
1,3-Dichloropropane	1.6	U	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:54	1
1,4-Dichlorobenzene	1.6	U	4.9	1.6	0.76	ug/Kg	☼	12/03/18 18:54	1
2,2-Dichloropropane	1.6	U	4.9	1.6	0.43	ug/Kg	☼	12/03/18 18:54	1
2-Butanone (MEK)	**39**		19	6.2	1.8	ug/Kg	☼	12/03/18 18:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-2
Matrix: Solid
Percent Solids: 90.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.6	U M	4.9	1.6	0.50	ug/Kg	☼	12/03/18 18:54	1
2-Hexanone	12	U M	19	12	4.8	ug/Kg	☼	12/03/18 18:54	1
4-Chlorotoluene	1.6	U M	4.9	1.6	0.76	ug/Kg	☼	12/03/18 18:54	1
4-Isopropyltoluene	**13**		4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:54	1
4-Methyl-2-pentanone (MIBK)	12	U M	19	12	4.2	ug/Kg	☼	12/03/18 18:54	1
Acetone	**120**		19	12	5.2	ug/Kg	☼	12/03/18 18:54	1
Benzene	**140**		4.9	1.6	0.46	ug/Kg	☼	12/03/18 18:54	1
Bromobenzene	1.6	U	4.9	1.6	0.48	ug/Kg	☼	12/03/18 18:54	1
Bromoform	0.78	U	4.9	0.78	0.22	ug/Kg	☼	12/03/18 18:54	1
Bromomethane	1.6	U	9.7	1.6	0.49	ug/Kg	☼	12/03/18 18:54	1
Carbon disulfide	1.6	U M	4.9	1.6	0.41	ug/Kg	☼	12/03/18 18:54	1
Carbon tetrachloride	1.6	U	4.9	1.6	0.61	ug/Kg	☼	12/03/18 18:54	1
Chlorobenzene	1.6	U	4.9	1.6	0.52	ug/Kg	☼	12/03/18 18:54	1
Bromochloromethane	0.78	U	4.9	0.78	0.29	ug/Kg	☼	12/03/18 18:54	1
Dibromochloromethane	1.6	U	4.9	1.6	0.55	ug/Kg	☼	12/03/18 18:54	1
Chloroethane	3.1	U	9.7	3.1	0.86	ug/Kg	☼	12/03/18 18:54	1
Chloroform	0.78	U	9.7	0.78	0.28	ug/Kg	☼	12/03/18 18:54	1
Chloromethane	1.6	U	9.7	1.6	0.75	ug/Kg	☼	12/03/18 18:54	1
cis-1,2-Dichloroethene	1.6	U	4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:54	1
cis-1,3-Dichloropropene	3.1	U Q	4.9	3.1	1.3	ug/Kg	☼	12/03/18 18:54	1
Dibromomethane	3.1	U	4.9	3.1	0.82	ug/Kg	☼	12/03/18 18:54	1
Bromodichloromethane	0.78	U M	4.9	0.78	0.21	ug/Kg	☼	12/03/18 18:54	1
Dichlorodifluoromethane	1.6	U	9.7	1.6	0.51	ug/Kg	☼	12/03/18 18:54	1
Ethylbenzene	**100**		4.9	1.6	0.65	ug/Kg	☼	12/03/18 18:54	1
Ethylene Dibromide	1.6	U	4.9	1.6	0.51	ug/Kg	☼	12/03/18 18:54	1
Hexachlorobutadiene	1.6	U	4.9	1.6	0.53	ug/Kg	☼	12/03/18 18:54	1
Isopropylbenzene	**25**		4.9	1.6	0.57	ug/Kg	☼	12/03/18 18:54	1
Methyl tert-butyl ether	0.78	U	19	0.78	0.33	ug/Kg	☼	12/03/18 18:54	1
Methylene Chloride	3.1	U	4.9	3.1	1.6	ug/Kg	☼	12/03/18 18:54	1
Naphthalene	**47**		4.9	1.6	0.61	ug/Kg	☼	12/03/18 18:54	1
n-Butylbenzene	**35**		4.9	1.6	0.54	ug/Kg	☼	12/03/18 18:54	1
N-Propylbenzene	**43**		4.9	1.6	0.56	ug/Kg	☼	12/03/18 18:54	1
o-Xylene	**120**		4.9	1.6	0.59	ug/Kg	☼	12/03/18 18:54	1
sec-Butylbenzene	**52**		4.9	1.6	0.75	ug/Kg	☼	12/03/18 18:54	1
Styrene	1.6	U	4.9	1.6	0.61	ug/Kg	☼	12/03/18 18:54	1
tert-Butylbenzene	1.6	U M	4.9	1.6	0.49	ug/Kg	☼	12/03/18 18:54	1
Tetrachloroethene	1.6	U	4.9	1.6	0.57	ug/Kg	☼	12/03/18 18:54	1
trans-1,2-Dichloroethene	0.78	U	4.9	0.78	0.38	ug/Kg	☼	12/03/18 18:54	1
trans-1,3-Dichloropropene	1.6	U M Q	4.9	1.6	0.65	ug/Kg	☼	12/03/18 18:54	1
Trichloroethene	0.78	U	4.9	0.78	0.22	ug/Kg	☼	12/03/18 18:54	1
Trichlorofluoromethane	3.1	U	9.7	3.1	1.0	ug/Kg	☼	12/03/18 18:54	1
Vinyl chloride	3.1	U	4.9	3.1	1.3	ug/Kg	☼	12/03/18 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*85 - 116*	*11/21/18 07:44*	*12/03/18 18:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*11/21/18 07:44*	*12/03/18 18:54*	*1*
4-Bromofluorobenzene (Surr)	*106*		*79 - 119*	*11/21/18 07:44*	*12/03/18 18:54*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*11/21/18 07:44*	*12/03/18 18:54*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-S3-211118-512
Date Collected: 11/21/18 09:30
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-4
Matrix: Solid
Percent Solids: 92.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.4	U	4.3	1.4	0.48	ug/Kg	☼	12/03/18 19:15	1
1,1,1-Trichloroethane	1.4	U	4.3	1.4	0.45	ug/Kg	☼	12/03/18 19:15	1
1,1,2,2-Tetrachloroethane	1.4	U M Q	4.3	1.4	0.53	ug/Kg	☼	12/03/18 19:15	1
1,1,2-Trichloroethane	2.8	U	4.3	2.8	0.76	ug/Kg	☼	12/03/18 19:15	1
1,1-Dichloroethane	0.69	U	4.3	0.69	0.18	ug/Kg	☼	12/03/18 19:15	1
1,1-Dichloroethene	1.4	U	4.3	1.4	0.51	ug/Kg	☼	12/03/18 19:15	1
1,1-Dichloropropene	1.4	U	4.3	1.4	0.47	ug/Kg	☼	12/03/18 19:15	1
1,2,3-Trichlorobenzene	1.4	U	4.3	1.4	0.65	ug/Kg	☼	12/03/18 19:15	1
1,2,3-Trichloropropane	2.8	U	4.3	2.8	0.70	ug/Kg	☼	12/03/18 19:15	1
1,2,4-Trichlorobenzene	1.4	U	4.3	1.4	0.63	ug/Kg	☼	12/03/18 19:15	1
1,2,4-Trimethylbenzene	2.8	U	4.3	2.8	0.50	ug/Kg	☼	12/03/18 19:15	1
1,2-Dibromo-3-Chloropropane	1.4	U	8.6	1.4	0.52	ug/Kg	☼	12/03/18 19:15	1
1,2-Dichlorobenzene	1.4	U	4.3	1.4	0.39	ug/Kg	☼	12/03/18 19:15	1
1,2-Dichloroethane	1.4	U	4.3	1.4	0.60	ug/Kg	☼	12/03/18 19:15	1
1,2-Dichloroethene, Total	1.4	U	4.3	1.4	0.34	ug/Kg	☼	12/03/18 19:15	1
1,2-Dichloropropane	1.4	U	4.3	1.4	0.47	ug/Kg	☼	12/03/18 19:15	1
1,3,5-Trimethylbenzene	1.4	U	4.3	1.4	0.49	ug/Kg	☼	12/03/18 19:15	1
1,3-Dichlorobenzene	1.4	U	4.3	1.4	0.41	ug/Kg	☼	12/03/18 19:15	1
1,3-Dichloropropane	1.4	U	4.3	1.4	0.44	ug/Kg	☼	12/03/18 19:15	1
1,4-Dichlorobenzene	1.4	U	4.3	1.4	0.67	ug/Kg	☼	12/03/18 19:15	1
2,2-Dichloropropane	1.4	U	4.3	1.4	0.38	ug/Kg	☼	12/03/18 19:15	1
2-Butanone (MEK)	**130**		17	5.5	1.6	ug/Kg	☼	12/03/18 19:15	1
2-Chlorotoluene	1.4	U	4.3	1.4	0.44	ug/Kg	☼	12/03/18 19:15	1
2-Hexanone	11	U	17	11	4.2	ug/Kg	☼	12/03/18 19:15	1
4-Chlorotoluene	1.4	U	4.3	1.4	0.67	ug/Kg	☼	12/03/18 19:15	1
4-Isopropyltoluene	1.4	U	4.3	1.4	0.42	ug/Kg	☼	12/03/18 19:15	1
4-Methyl-2-pentanone (MIBK)	11	U	17	11	3.8	ug/Kg	☼	12/03/18 19:15	1
Acetone	**28**		17	11	4.6	ug/Kg	☼	12/03/18 19:15	1
Benzene	**0.54**	**J**	4.3	1.4	0.40	ug/Kg	☼	12/03/18 19:15	1
Bromobenzene	1.4	U	4.3	1.4	0.42	ug/Kg	☼	12/03/18 19:15	1
Bromoform	0.69	U	4.3	0.69	0.20	ug/Kg	☼	12/03/18 19:15	1
Bromomethane	1.4	U	8.6	1.4	0.43	ug/Kg	☼	12/03/18 19:15	1
Carbon disulfide	1.4	U	4.3	1.4	0.36	ug/Kg	☼	12/03/18 19:15	1
Carbon tetrachloride	1.4	U	4.3	1.4	0.54	ug/Kg	☼	12/03/18 19:15	1
Chlorobenzene	1.4	U	4.3	1.4	0.47	ug/Kg	☼	12/03/18 19:15	1
Bromochloromethane	0.69	U	4.3	0.69	0.26	ug/Kg	☼	12/03/18 19:15	1
Dibromochloromethane	1.4	U	4.3	1.4	0.49	ug/Kg	☼	12/03/18 19:15	1
Chloroethane	2.8	U	8.6	2.8	0.77	ug/Kg	☼	12/03/18 19:15	1
Chloroform	0.69	U	8.6	0.69	0.25	ug/Kg	☼	12/03/18 19:15	1
Chloromethane	1.4	U	8.6	1.4	0.66	ug/Kg	☼	12/03/18 19:15	1
cis-1,2-Dichloroethene	1.4	U	4.3	1.4	0.48	ug/Kg	☼	12/03/18 19:15	1
cis-1,3-Dichloropropene	2.8	U Q	4.3	2.8	1.1	ug/Kg	☼	12/03/18 19:15	1
Dibromomethane	2.8	U	4.3	2.8	0.72	ug/Kg	☼	12/03/18 19:15	1
Bromodichloromethane	0.69	U	4.3	0.69	0.19	ug/Kg	☼	12/03/18 19:15	1
Dichlorodifluoromethane	1.4	U	8.6	1.4	0.45	ug/Kg	☼	12/03/18 19:15	1
Ethylbenzene	1.4	U	4.3	1.4	0.58	ug/Kg	☼	12/03/18 19:15	1
Ethylene Dibromide	1.4	U	4.3	1.4	0.45	ug/Kg	☼	12/03/18 19:15	1
Hexachlorobutadiene	1.4	U	4.3	1.4	0.47	ug/Kg	☼	12/03/18 19:15	1
Isopropylbenzene	1.4	U	4.3	1.4	0.51	ug/Kg	☼	12/03/18 19:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S3-211118-512
Date Collected: 11/21/18 09:30
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-4
Matrix: Solid
Percent Solids: 92.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methyl tert-butyl ether	0.69	U	17	0.69	0.29	ug/Kg	☼	12/03/18 19:15	1
Methylene Chloride	2.8	U	4.3	2.8	1.4	ug/Kg	☼	12/03/18 19:15	1
m-Xylene & p-Xylene	2.8	U	2.8	2.8	0.90	ug/Kg	☼	12/03/18 19:15	1
Naphthalene	**0.63**	**J**	4.3	1.4	0.54	ug/Kg	☼	12/03/18 19:15	1
n-Butylbenzene	1.4	U	4.3	1.4	0.48	ug/Kg	☼	12/03/18 19:15	1
N-Propylbenzene	1.4	U	4.3	1.4	0.50	ug/Kg	☼	12/03/18 19:15	1
o-Xylene	1.4	U	4.3	1.4	0.53	ug/Kg	☼	12/03/18 19:15	1
sec-Butylbenzene	1.4	U	4.3	1.4	0.66	ug/Kg	☼	12/03/18 19:15	1
Styrene	1.4	U	4.3	1.4	0.54	ug/Kg	☼	12/03/18 19:15	1
tert-Butylbenzene	1.4	U	4.3	1.4	0.43	ug/Kg	☼	12/03/18 19:15	1
Tetrachloroethene	1.4	U	4.3	1.4	0.51	ug/Kg	☼	12/03/18 19:15	1
Toluene	**0.81**	**J**	4.3	1.4	0.59	ug/Kg	☼	12/03/18 19:15	1
trans-1,2-Dichloroethene	0.69	U	4.3	0.69	0.34	ug/Kg	☼	12/03/18 19:15	1
trans-1,3-Dichloropropene	1.4	U Q	4.3	1.4	0.58	ug/Kg	☼	12/03/18 19:15	1
Trichloroethene	0.69	U	4.3	0.69	0.20	ug/Kg	☼	12/03/18 19:15	1
Trichlorofluoromethane	2.8	U	8.6	2.8	0.90	ug/Kg	☼	12/03/18 19:15	1
Vinyl chloride	2.8	U	4.3	2.8	1.2	ug/Kg	☼	12/03/18 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*11/21/18 09:30*	*12/03/18 19:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/21/18 09:30*	*12/03/18 19:15*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*11/21/18 09:30*	*12/03/18 19:15*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 119*	*11/21/18 09:30*	*12/03/18 19:15*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-2
Matrix: Solid
Percent Solids: 90.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Toluene	**280**		250	80	39	ug/Kg	☼	12/04/18 14:25	1
m-Xylene & p-Xylene	**190**	**J**	250	160	78	ug/Kg	☼	12/04/18 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*85*		*85 - 116*	*11/21/18 07:44*	*12/04/18 14:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*11/21/18 07:44*	*12/04/18 14:25*	*1*
4-Bromofluorobenzene (Surr)	*84*		*79 - 119*	*11/21/18 07:44*	*12/04/18 14:25*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 119*	*11/21/18 07:44*	*12/04/18 14:25*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S3-211118-01
Date Collected: 11/21/18 12:00
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/29/18 03:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*11/29/18 03:27*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-3
Matrix: Solid
Percent Solids: 89.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**15**		1.3	1.2	0.35	mg/Kg	☼	12/03/18 20:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*	*11/21/18 07:44*	*12/03/18 20:39*	*1*

Client Sample ID: P-S3-211118-512
Date Collected: 11/21/18 09:30
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-5
Matrix: Solid
Percent Solids: 91.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.36	mg/Kg	☼	12/03/18 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*80*		*77 - 123*	*11/21/18 09:30*	*12/03/18 21:03*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S3-211118-01
Date Collected: 11/21/18 12:00
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.015	U	0.021	0.015	0.0039	ug/L		12/04/18 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*70 - 130*	*11/29/18 11:04*	*12/04/18 03:57*	*1*

Client Sample ID: V-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-2
Matrix: Solid
Percent Solids: 90.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U	0.11	0.042	0.016	ug/Kg	☼	12/09/18 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*100*	*Q M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 17:24*	*1*

Client Sample ID: V-S3-211118-512
Date Collected: 11/21/18 09:30
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-4
Matrix: Solid
Percent Solids: 92.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.041	U	0.11	0.041	0.016	ug/Kg	☼	12/10/18 18:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*90*	*M*	*55 - 130*	*12/03/18 10:24*	*12/10/18 18:16*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S3-211118-492
Date Collected: 11/21/18 07:44
Date Received: 11/27/18 09:45

Lab Sample ID: 280-117359-3
Matrix: Solid
Percent Solids: 89.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**21**		9.0	4.5	1.5	mg/Kg	☼	12/07/18 05:08	1
Motor Oil (C20-C38)	26	U	27	26	8.8	mg/Kg	☼	12/07/18 05:08	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*76*		*45 - 130*	*12/04/18 20:18*	*12/07/18 05:08*	*1*
n-Octacosane	*45*	*M*	*25 - 162*	*12/04/18 20:18*	*12/07/18 05:08*	*1*

Client Sample ID: P-S3-211118-512 — **Lab Sample ID: 280-117359-5**
Date Collected: 11/21/18 09:30 — **Matrix: Solid**
Date Received: 11/27/18 09:45 — **Percent Solids: 91.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**4.0**	**J**	8.8	4.4	1.5	mg/Kg	☼	12/07/18 05:28	1
Motor Oil (C20-C38)	26	U	26	26	8.6	mg/Kg	☼	12/07/18 05:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*80*		*45 - 130*	*12/04/18 20:18*	*12/07/18 05:28*	*1*
n-Octacosane	*51*		*25 - 162*	*12/04/18 20:18*	*12/07/18 05:28*	*1*

General Chemistry

Client Sample ID: V-S3-211118-492 — **Lab Sample ID: 280-117359-2**
Date Collected: 11/21/18 07:44 — **Matrix: Solid**
Date Received: 11/27/18 09:45 — **Percent Solids: 90.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.3**		0.1	0.05	0.1	%		11/28/18 13:28	1

Client Sample ID: P-S3-211118-492 — **Lab Sample ID: 280-117359-3**
Date Collected: 11/21/18 07:44 — **Matrix: Solid**
Date Received: 11/27/18 09:45 — **Percent Solids: 89.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**10.7**		0.1	0.05	0.1	%		11/28/18 13:28	1

Client Sample ID: V-S3-211118-512 — **Lab Sample ID: 280-117359-4**
Date Collected: 11/21/18 09:30 — **Matrix: Solid**
Date Received: 11/27/18 09:45 — **Percent Solids: 92.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.0**		0.1	0.05	0.1	%		11/28/18 13:28	1

Client Sample ID: P-S3-211118-512 — **Lab Sample ID: 280-117359-5**
Date Collected: 11/21/18 09:30 — **Matrix: Solid**
Date Received: 11/27/18 09:45 — **Percent Solids: 91.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.9**		0.1	0.05	0.1	%		11/29/18 12:16	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117359-2	V-S3-211118-492	108	92	106	99
280-117359-2 - DL	V-S3-211118-492	85	88	84	87
280-117359-4	V-S3-211118-512	100	91	94	98
LCS 280-439682/2-A	Lab Control Sample	103	94	96	100
LCS 280-439812/2-A	Lab Control Sample	98	105	97	103
LCSD 280-439682/3-A	Lab Control Sample Dup	101	93	95	103
LCSD 280-439812/3-A	Lab Control Sample Dup	97	107	100	105
MB 280-439682/1-A	Method Blank	109	103	105	107
MB 280-439812/1-A	Method Blank	101	104	99	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117359-1	TB-S3-211118-01	97	100	95	101
LCS 280-439604/4	Lab Control Sample	97	99	97	102
MB 280-439604/6	Method Blank	95	98	94	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117359-3	P-S3-211118-492	94
280-117359-5	P-S3-211118-512	80
LCS 280-439713/1-A	Lab Control Sample	91
MB 280-439713/2-A	Method Blank	89

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117359-1	TB-S3-211118-01	91
LCS 280-439074/19	Lab Control Sample	85
MB 280-439074/20	Method Blank	86

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117359-2	V-S3-211118-492	100 Q M
280-117359-4	V-S3-211118-512	90 M
LCS 280-439660/2-A	Lab Control Sample	94 M
LCSD 280-439660/3-A	Lab Control Sample Dup	95 M
MB 280-439660/4-A	Method Blank	91 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117359-1	TB-S3-211118-01	106
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117359-3	P-S3-211118-492	76	45 M
280-117359-5	P-S3-211118-512	80	51
280-117359-5 MS	P-S3-211118-512	76	47
280-117359-5 MS	P-S3-211118-512	89	139
280-117359-5 MSD	P-S3-211118-512	69	70
280-117359-5 MSD	P-S3-211118-512	93	58
LCS 280-439845/2-A	Lab Control Sample	69	69
LCS 280-439845/3-A	Lab Control Sample	85 M	51 M

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
MB 280-439845/1-A	Method Blank	60	52 M								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439604/6
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/03/18 11:10	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/03/18 11:10	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 11:10	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
1,4-Dichlorobenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 11:10	1
Acetone	3.85	J	10	6.4	1.9	ug/L		12/03/18 11:10	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/03/18 11:10	1
Benzene	0.40	U M	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/03/18 11:10	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/03/18 11:10	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/03/18 11:10	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/03/18 11:10	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/03/18 11:10	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/03/18 11:10	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/03/18 11:10	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/03/18 11:10	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 11:10	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/03/18 11:10	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/03/18 11:10	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/03/18 11:10	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/03/18 11:10	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/03/18 11:10	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/03/18 11:10	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439604/6
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/03/18 11:10	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/03/18 11:10	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 11:10	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/03/18 11:10	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/03/18 11:10	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/03/18 11:10	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/03/18 11:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*12/03/18 11:10*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*12/03/18 11:10*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/03/18 11:10*	*1*

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.60	J	ug/L		92	62 - 128
2-Butanone (MEK)	20.0	21.4		ug/L		107	56 - 143
1,2-Dichlorobenzene	5.00	4.89		ug/L		98	80 - 119
1,3-Dichlorobenzene	5.00	4.77		ug/L		95	80 - 119
4-Chlorotoluene	5.00	4.77		ug/L		95	78 - 122
1,4-Dichlorobenzene	5.00	4.78		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	5.25		ug/L		105	77 - 125
1,2-Dichloroethane	5.00	5.25		ug/L		105	73 - 128
Acetone	20.0	22.4		ug/L		112	39 - 160
1,1-Dichloroethene	5.00	5.38		ug/L		108	71 - 131
Benzene	5.00	5.19		ug/L		104	79 - 120
Bromobenzene	5.00	4.79		ug/L		96	80 - 120
Bromoform	5.00	4.60		ug/L		92	66 - 130
Bromomethane	5.00	5.46		ug/L		109	53 - 141
1,2-Dichloropropane	5.00	5.34		ug/L		107	78 - 122
Carbon disulfide	5.00	5.49		ug/L		110	64 - 133
1,3-Dichloropropane	5.00	4.87		ug/L		97	80 - 119
Carbon tetrachloride	5.00	5.16		ug/L		103	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.12		ug/L		102	60 - 139
Chlorobenzene	5.00	4.89		ug/L		98	82 - 118
1,1-Dichloropropene	5.00	5.19		ug/L		104	79 - 125
Bromochloromethane	5.00	5.16		ug/L		103	78 - 123
Dibromochloromethane	5.00	4.81		ug/L		96	74 - 126
Chloroethane	5.00	5.29		ug/L		106	60 - 138
Chloroform	5.00	5.12		ug/L		102	79 - 124
2-Hexanone	20.0	18.7		ug/L		93	57 - 139
Chloromethane	5.00	5.72		ug/L		114	50 - 139
cis-1,2-Dichloroethene	5.00	5.20		ug/L		104	78 - 123
cis-1,3-Dichloropropene	5.00	5.10		ug/L		102	75 - 124
4-Isopropyltoluene	5.00	4.83		ug/L		97	77 - 127
Dibromomethane	5.00	5.18		ug/L		104	79 - 123
Bromodichloromethane	5.00	5.05		ug/L		101	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	21.2		ug/L		106	67 - 130
Dichlorodifluoromethane	5.00	3.92		ug/L		78	32 - 152
Ethylbenzene	5.00	4.83		ug/L		97	79 - 121
Ethylene Dibromide	5.00	4.87		ug/L		97	77 - 121
Hexachlorobutadiene	5.00	4.63		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.88		ug/L		98	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.86		ug/L		97	78 - 124
Methyl tert-butyl ether	5.00	5.11		ug/L		102	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.13		ug/L		103	71 - 121
Methylene Chloride	5.00	5.33		ug/L		107	74 - 124
Naphthalene	5.00	4.64		ug/L		93	61 - 128
1,2,3-Trichlorobenzene	5.00	4.67		ug/L		93	69 - 129
n-Butylbenzene	5.00	4.77		ug/L		95	75 - 128
1,1,1-Trichloroethane	5.00	5.19		ug/L		104	74 - 131
N-Propylbenzene	5.00	4.84		ug/L		97	76 - 126
1,1,2-Trichloroethane	5.00	5.46		ug/L		109	80 - 119
sec-Butylbenzene	5.00	4.82		ug/L		96	77 - 126
Styrene	5.00	4.63		ug/L		93	78 - 123
1,2,4-Trichlorobenzene	5.00	4.58		ug/L		92	69 - 130
tert-Butylbenzene	5.00	4.86		ug/L		97	78 - 124
1,2,3-Trichloropropane	5.00	4.90		ug/L		98	73 - 122
Tetrachloroethene	5.00	4.86		ug/L		97	74 - 129
1,2,4-Trimethylbenzene	5.00	4.76		ug/L		95	76 - 124
Toluene	5.00	5.27		ug/L		105	80 - 121
1,3,5-Trimethylbenzene	5.00	4.83		ug/L		97	75 - 124
trans-1,2-Dichloroethene	5.00	5.43		ug/L		109	75 - 124
trans-1,3-Dichloropropene	5.00	5.11		ug/L		102	73 - 127
o-Xylene	5.00	4.87		ug/L		97	78 - 122
Trichloroethene	5.00	4.95		ug/L		99	79 - 123
m-Xylene & p-Xylene	5.00	4.85		ug/L		97	80 - 121
Trichlorofluoromethane	5.00	5.25		ug/L		105	65 - 141
Vinyl chloride	5.00	6.00		ug/L		120	58 - 137
2-Chlorotoluene	5.00	4.94		ug/L		99	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*
Dibromofluoromethane (Surr)	*102*		*80 - 119*

Lab Sample ID: MB 280-439682/1-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439682

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/03/18 12:09	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		12/03/18 12:09	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/03/18 12:09	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/03/18 12:09	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/03/18 12:09	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/03/18 12:09	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/03/18 12:09	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/03/18 12:09	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/03/18 12:09	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		12/03/18 12:09	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/03/18 12:09	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/03/18 12:09	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/03/18 12:09	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/03/18 12:09	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/03/18 12:09	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/03/18 12:09	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/03/18 12:09	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/03/18 12:09	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/03/18 12:09	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/03/18 12:09	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/03/18 12:09	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/03/18 12:09	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/03/18 12:09	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/03/18 12:09	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/03/18 12:09	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/03/18 12:09	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/03/18 12:09	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/03/18 12:09	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/03/18 12:09	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/03/18 12:09	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/03/18 12:09	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		12/03/18 12:09	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/03/18 12:09	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/03/18 12:09	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/03/18 12:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439682/1-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439682

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/03/18 12:09	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/03/18 12:09	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/03/18 12:09	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/03/18 12:09	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/03/18 12:09	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/03/18 12:09	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/03/18 12:09	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/03/18 12:09	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/03/18 12:09	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/03/18 12:09	1
1,2,4-Trichlorobenzene	1.6	U M	5.0	1.6	0.73	ug/Kg		12/03/18 12:09	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/03/18 12:09	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/03/18 12:09	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/03/18 12:09	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		12/03/18 12:09	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/03/18 12:09	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/03/18 12:09	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/03/18 12:09	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/03/18 12:09	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/03/18 12:09	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		12/03/18 12:09	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/03/18 12:09	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/03/18 12:09	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/03/18 12:09	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/03/18 12:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*85 - 116*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 136*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*	*12/03/18 07:00*	*12/03/18 12:09*	*1*
Dibromofluoromethane (Surr)	*107*		*78 - 119*	*12/03/18 07:00*	*12/03/18 12:09*	*1*

Lab Sample ID: LCS 280-439682/2-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	56.6		ug/Kg		113	61 - 132
2-Butanone (MEK)	200	258		ug/Kg		129	51 - 148
1,2-Dichlorobenzene	50.0	55.7		ug/Kg		111	78 - 121
1,3-Dichlorobenzene	50.0	55.6		ug/Kg		111	77 - 121
4-Chlorotoluene	50.0	57.4		ug/Kg		115	72 - 124
1,4-Dichlorobenzene	50.0	52.8		ug/Kg		106	75 - 120
1,1-Dichloroethane	50.0	57.2		ug/Kg		114	76 - 125
1,2-Dichloroethane	50.0	56.3		ug/Kg		113	73 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439682/2-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	252		ug/Kg		126	36 - 164
1,1-Dichloroethene	50.0	60.6		ug/Kg		121	70 - 131
Benzene	50.0	58.0		ug/Kg		116	77 - 121
Bromobenzene	50.0	56.0		ug/Kg		112	78 - 121
Bromoform	50.0	61.0		ug/Kg		122	67 - 132
Bromomethane	50.0	62.4		ug/Kg		125	53 - 143
1,2-Dichloropropane	50.0	59.2		ug/Kg		118	76 - 123
Carbon disulfide	50.0	61.7		ug/Kg		123	63 - 132
1,3-Dichloropropane	50.0	58.9		ug/Kg		118	77 - 121
Carbon tetrachloride	50.0	52.3		ug/Kg		105	70 - 135
2,2-Dichloropropane	50.0	53.4		ug/Kg		107	67 - 133
Chlorobenzene	50.0	54.8		ug/Kg		110	79 - 120
1,1-Dichloropropene	50.0	56.6		ug/Kg		113	76 - 125
Bromochloromethane	50.0	57.4		ug/Kg		115	78 - 125
Dibromochloromethane	50.0	59.2		ug/Kg		118	74 - 126
Chloroethane	50.0	58.8		ug/Kg		118	59 - 139
Chloroform	50.0	54.2		ug/Kg		108	78 - 123
2-Hexanone	200	259		ug/Kg		129	53 - 145
Chloromethane	50.0	54.2		ug/Kg		108	50 - 136
cis-1,2-Dichloroethene	50.0	57.8		ug/Kg		116	77 - 123
cis-1,3-Dichloropropene	50.0	64.4	Q	ug/Kg		129	74 - 126
4-Isopropyltoluene	50.0	57.0		ug/Kg		114	73 - 127
Dibromomethane	50.0	56.5		ug/Kg		113	78 - 125
Bromodichloromethane	50.0	57.4		ug/Kg		115	75 - 127
4-Methyl-2-pentanone (MIBK)	200	256		ug/Kg		128	65 - 135
Dichlorodifluoromethane	50.0	46.2		ug/Kg		92	29 - 149
Ethylbenzene	50.0	57.3		ug/Kg		115	76 - 122
Ethylene Dibromide	50.0	59.8		ug/Kg		120	78 - 122
Hexachlorobutadiene	50.0	50.3		ug/Kg		101	61 - 135
Isopropylbenzene	50.0	55.6		ug/Kg		111	68 - 134
1,1,1,2-Tetrachloroethane	50.0	54.8		ug/Kg		110	78 - 125
Methyl tert-butyl ether	50.0	56.5		ug/Kg		113	73 - 125
1,1,2,2-Tetrachloroethane	50.0	60.1		ug/Kg		120	70 - 124
Methylene Chloride	50.0	61.7		ug/Kg		123	70 - 128
Naphthalene	50.0	57.4		ug/Kg		115	62 - 129
1,2,3-Trichlorobenzene	50.0	53.1		ug/Kg		106	66 - 130
n-Butylbenzene	50.0	58.5		ug/Kg		117	70 - 128
1,1,1-Trichloroethane	50.0	53.7		ug/Kg		107	73 - 130
N-Propylbenzene	50.0	55.9		ug/Kg		112	73 - 125
1,1,2-Trichloroethane	50.0	59.1		ug/Kg		118	78 - 121
sec-Butylbenzene	50.0	57.4		ug/Kg		115	73 - 126
Styrene	50.0	59.7		ug/Kg		119	76 - 124
1,2,4-Trichlorobenzene	50.0	57.1		ug/Kg		114	67 - 129
tert-Butylbenzene	50.0	55.6		ug/Kg		111	73 - 125
1,2,3-Trichloropropane	50.0	57.9		ug/Kg		116	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	55.1		ug/Kg		110	75 - 123
Toluene	50.0	56.5		ug/Kg		113	77 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439682/2-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	50.0	56.2		ug/Kg		112	73 - 124
trans-1,2-Dichloroethene	50.0	60.0		ug/Kg		120	74 - 125
trans-1,3-Dichloropropene	50.0	62.5		ug/Kg		125	71 - 130
o-Xylene	50.0	59.0		ug/Kg		118	77 - 123
Trichloroethene	50.0	56.0		ug/Kg		112	77 - 123
m-Xylene & p-Xylene	50.0	57.3		ug/Kg		115	77 - 124
Trichlorofluoromethane	50.0	51.2		ug/Kg		102	62 - 140
Vinyl chloride	50.0	55.4		ug/Kg		111	56 - 135
2-Chlorotoluene	50.0	58.6		ug/Kg		117	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*78 - 119*

Lab Sample ID: LCSD 280-439682/3-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439682

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	52.3		ug/Kg		105	61 - 132	8	20
2-Butanone (MEK)	200	235		ug/Kg		117	51 - 148	9	20
1,2-Dichlorobenzene	50.0	48.4		ug/Kg		97	78 - 121	14	20
1,3-Dichlorobenzene	50.0	47.2		ug/Kg		94	77 - 121	17	20
4-Chlorotoluene	50.0	51.0		ug/Kg		102	72 - 124	12	20
1,4-Dichlorobenzene	50.0	48.1		ug/Kg		96	75 - 120	9	20
1,1-Dichloroethane	50.0	54.8		ug/Kg		110	76 - 125	4	20
1,2-Dichloroethane	50.0	53.8		ug/Kg		108	73 - 128	4	20
Acetone	200	241		ug/Kg		121	36 - 164	4	20
1,1-Dichloroethene	50.0	58.9		ug/Kg		118	70 - 131	3	20
Benzene	50.0	54.1		ug/Kg		108	77 - 121	7	20
Bromobenzene	50.0	51.1		ug/Kg		102	78 - 121	9	20
Bromoform	50.0	57.6		ug/Kg		115	67 - 132	6	20
Bromomethane	50.0	62.0		ug/Kg		124	53 - 143	1	20
1,2-Dichloropropane	50.0	56.3		ug/Kg		113	76 - 123	5	20
Carbon disulfide	50.0	58.2		ug/Kg		116	63 - 132	6	20
1,3-Dichloropropane	50.0	52.8		ug/Kg		106	77 - 121	11	20
Carbon tetrachloride	50.0	50.4		ug/Kg		101	70 - 135	4	20
2,2-Dichloropropane	50.0	50.2		ug/Kg		100	67 - 133	6	20
Chlorobenzene	50.0	48.8		ug/Kg		98	79 - 120	12	20
1,1-Dichloropropene	50.0	52.7		ug/Kg		105	76 - 125	7	20
Bromochloromethane	50.0	56.5		ug/Kg		113	78 - 125	2	20
Dibromochloromethane	50.0	54.0		ug/Kg		108	74 - 126	9	20
Chloroethane	50.0	56.8		ug/Kg		114	59 - 139	4	20
Chloroform	50.0	52.2		ug/Kg		104	78 - 123	4	20
2-Hexanone	200	234		ug/Kg		117	53 - 145	10	20
Chloromethane	50.0	55.1		ug/Kg		110	50 - 136	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439682/3-A
Matrix: Solid
Analysis Batch: 439624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439682

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene			50.0	55.2		ug/Kg		110	77 - 123	5	20
cis-1,3-Dichloropropene			50.0	57.8		ug/Kg		116	74 - 126	11	20
4-Isopropyltoluene			50.0	49.6		ug/Kg		99	73 - 127	14	20
Dibromomethane			50.0	54.7		ug/Kg		109	78 - 125	3	20
Bromodichloromethane			50.0	55.3		ug/Kg		111	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			200	245		ug/Kg		123	65 - 135	4	20
Dichlorodifluoromethane			50.0	46.0		ug/Kg		92	29 - 149	0	20
Ethylbenzene			50.0	50.0		ug/Kg		100	76 - 122	13	20
Ethylene Dibromide			50.0	54.5		ug/Kg		109	78 - 122	9	20
Hexachlorobutadiene			50.0	43.7		ug/Kg		87	61 - 135	14	20
Isopropylbenzene			50.0	49.8		ug/Kg		100	68 - 134	11	20
1,1,1,2-Tetrachloroethane			50.0	51.1		ug/Kg		102	78 - 125	7	20
Methyl tert-butyl ether			50.0	56.9		ug/Kg		114	73 - 125	1	20
1,1,2,2-Tetrachloroethane			50.0	46.8	Q	ug/Kg		94	70 - 124	25	20
Methylene Chloride			50.0	57.8		ug/Kg		116	70 - 128	7	20
Naphthalene			50.0	52.5		ug/Kg		105	62 - 129	9	20
1,2,3-Trichlorobenzene			50.0	48.5		ug/Kg		97	66 - 130	9	20
n-Butylbenzene			50.0	48.2		ug/Kg		96	70 - 128	19	20
1,1,1-Trichloroethane			50.0	51.1		ug/Kg		102	73 - 130	5	20
N-Propylbenzene			50.0	48.2		ug/Kg		96	73 - 125	15	20
1,1,2-Trichloroethane			50.0	54.7		ug/Kg		109	78 - 121	8	20
sec-Butylbenzene			50.0	51.0		ug/Kg		102	73 - 126	12	20
Styrene			50.0	52.2		ug/Kg		104	76 - 124	13	20
1,2,4-Trichlorobenzene			50.0	49.4		ug/Kg		99	67 - 129	14	20
tert-Butylbenzene			50.0	49.8		ug/Kg		100	73 - 125	11	20
1,2,3-Trichloropropane			50.0	53.7		ug/Kg		107	73 - 125	8	20
Tetrachloroethene			50.0	46.7		ug/Kg		93	73 - 128	11	20
1,2,4-Trimethylbenzene			50.0	48.3		ug/Kg		97	75 - 123	13	20
Toluene			50.0	52.1		ug/Kg		104	77 - 121	8	20
1,3,5-Trimethylbenzene			50.0	49.0		ug/Kg		98	73 - 124	14	20
trans-1,2-Dichloroethene			50.0	55.8		ug/Kg		112	74 - 125	7	20
trans-1,3-Dichloropropene			50.0	57.5		ug/Kg		115	71 - 130	8	20
o-Xylene			50.0	52.9		ug/Kg		106	77 - 123	11	20
Trichloroethene			50.0	55.8		ug/Kg		112	77 - 123	0	20
m-Xylene & p-Xylene			50.0	50.7		ug/Kg		101	77 - 124	12	20
Trichlorofluoromethane			50.0	49.9		ug/Kg		100	62 - 140	3	20
Vinyl chloride			50.0	56.1		ug/Kg		112	56 - 135	1	20
2-Chlorotoluene			50.0	51.3		ug/Kg		103	75 - 122	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439812/1-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/04/18 12:12	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/04/18 12:12	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/04/18 12:12	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/04/18 12:12	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/04/18 12:12	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
Acetone	1300	U M	1500	1300	400	ug/Kg		12/04/18 12:12	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/04/18 12:12	1
Benzene	160	U	250	160	45	ug/Kg		12/04/18 12:12	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/04/18 12:12	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/04/18 12:12	1
Bromoform	160	U	250	160	160	ug/Kg		12/04/18 12:12	1
Bromomethane	160	U	500	160	44	ug/Kg		12/04/18 12:12	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/04/18 12:12	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/04/18 12:12	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/04/18 12:12	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/04/18 12:12	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/04/18 12:12	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/04/18 12:12	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/04/18 12:12	1
Chloroethane	160	U	500	160	44	ug/Kg		12/04/18 12:12	1
Chloroform	160	U	250	160	46	ug/Kg		12/04/18 12:12	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/04/18 12:12	1
Chloromethane	160	U	500	160	50	ug/Kg		12/04/18 12:12	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/04/18 12:12	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/04/18 12:12	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/04/18 12:12	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/04/18 12:12	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/04/18 12:12	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/04/18 12:12	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/04/18 12:12	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/04/18 12:12	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/04/18 12:12	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/04/18 12:12	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/04/18 12:12	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/04/18 12:12	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/04/18 12:12	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/04/18 12:12	1
Naphthalene	80	U	500	80	38	ug/Kg		12/04/18 12:12	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/04/18 12:12	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/04/18 12:12	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/04/18 12:12	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439812/1-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/04/18 12:12	1
Styrene	80	U	250	80	26	ug/Kg		12/04/18 12:12	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/04/18 12:12	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/04/18 12:12	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/04/18 12:12	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/04/18 12:12	1
Toluene	80	U	250	80	39	ug/Kg		12/04/18 12:12	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/04/18 12:12	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/04/18 12:12	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/04/18 12:12	1
o-Xylene	80	U M	130	80	35	ug/Kg		12/04/18 12:12	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/04/18 12:12	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/04/18 12:12	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/04/18 12:12	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/04/18 12:12	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/04/18 12:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*12/04/18 07:00*	*12/04/18 12:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 136*	*12/04/18 07:00*	*12/04/18 12:12*	*1*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*12/04/18 07:00*	*12/04/18 12:12*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*12/04/18 07:00*	*12/04/18 12:12*	*1*

Lab Sample ID: LCS 280-439812/2-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1940		ug/Kg		97	61 - 132
2-Butanone (MEK)	8000	7910		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	2000	2120		ug/Kg		106	78 - 121
1,3-Dichlorobenzene	2000	2120		ug/Kg		106	77 - 121
4-Chlorotoluene	2000	2090		ug/Kg		104	72 - 124
1,4-Dichlorobenzene	2000	2120		ug/Kg		106	75 - 120
1,1-Dichloroethane	2000	2070		ug/Kg		103	76 - 125
1,2-Dichloroethane	2000	2270		ug/Kg		114	73 - 128
Acetone	8000	8250		ug/Kg		103	36 - 164
1,1-Dichloroethene	2000	2010		ug/Kg		101	70 - 131
Benzene	2000	2040		ug/Kg		102	77 - 121
Bromobenzene	2000	2020		ug/Kg		101	78 - 121
Bromoform	2000	2210		ug/Kg		111	67 - 132
Bromomethane	2000	1630		ug/Kg		81	53 - 143
1,2-Dichloropropane	2000	2120		ug/Kg		106	76 - 123
Carbon disulfide	2000	1940		ug/Kg		97	63 - 132
1,3-Dichloropropane	2000	2000		ug/Kg		100	77 - 121
Carbon tetrachloride	2000	2180		ug/Kg		109	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439812/2-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	2000	2120		ug/Kg		106	67 - 133
Chlorobenzene	2000	2080		ug/Kg		104	79 - 120
1,1-Dichloropropene	2000	2060		ug/Kg		103	76 - 125
Bromochloromethane	2000	2170		ug/Kg		108	78 - 125
Dibromochloromethane	2000	2120		ug/Kg		106	74 - 126
Chloroethane	2000	1630		ug/Kg		81	59 - 139
Chloroform	2000	2140		ug/Kg		107	78 - 123
2-Hexanone	8000	7760		ug/Kg		97	53 - 145
Chloromethane	2000	1530		ug/Kg		77	50 - 136
cis-1,2-Dichloroethene	2000	2060		ug/Kg		103	77 - 123
cis-1,3-Dichloropropene	2000	2050		ug/Kg		103	74 - 126
4-Isopropyltoluene	2000	2220		ug/Kg		111	73 - 127
Dibromomethane	2000	2120		ug/Kg		106	78 - 125
Bromodichloromethane	2000	2150		ug/Kg		108	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	8230		ug/Kg		103	65 - 135
Dichlorodifluoromethane	2000	1510		ug/Kg		75	29 - 149
Ethylbenzene	2000	2030		ug/Kg		101	76 - 122
Ethylene Dibromide	2000	2020		ug/Kg		101	78 - 122
Hexachlorobutadiene	2000	2030		ug/Kg		102	61 - 135
Isopropylbenzene	2000	2070		ug/Kg		103	68 - 134
1,1,1,2-Tetrachloroethane	2000	2120		ug/Kg		106	78 - 125
Methyl tert-butyl ether	2000	2140		ug/Kg		107	73 - 125
1,1,2,2-Tetrachloroethane	2000	1910		ug/Kg		96	70 - 124
Methylene Chloride	2000	1910		ug/Kg		96	70 - 128
Naphthalene	2000	2060		ug/Kg		103	62 - 129
1,2,3-Trichlorobenzene	2000	2190		ug/Kg		109	66 - 130
n-Butylbenzene	2000	2150		ug/Kg		107	70 - 128
1,1,1-Trichloroethane	2000	2180		ug/Kg		109	73 - 130
N-Propylbenzene	2000	2090		ug/Kg		104	73 - 125
1,1,2-Trichloroethane	2000	2170		ug/Kg		109	78 - 121
sec-Butylbenzene	2000	2120		ug/Kg		106	73 - 126
Styrene	2000	2020		ug/Kg		101	76 - 124
1,2,4-Trichlorobenzene	2000	2210		ug/Kg		111	67 - 129
tert-Butylbenzene	2000	2110		ug/Kg		105	73 - 125
1,2,3-Trichloropropane	2000	2110		ug/Kg		105	73 - 125
Tetrachloroethene	2000	2040		ug/Kg		102	73 - 128
1,2,4-Trimethylbenzene	2000	2110		ug/Kg		106	75 - 123
Toluene	2000	2080		ug/Kg		104	77 - 121
1,3,5-Trimethylbenzene	2000	2090		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	2000	2120		ug/Kg		106	74 - 125
trans-1,3-Dichloropropene	2000	2150		ug/Kg		107	71 - 130
o-Xylene	2000	2040		ug/Kg		102	77 - 123
Trichloroethene	2000	2080		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	2000	2030		ug/Kg		102	77 - 124
Trichlorofluoromethane	2000	2200		ug/Kg		110	62 - 140
Vinyl chloride	2000	1580		ug/Kg		79	56 - 135
2-Chlorotoluene	2000	2060		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439812/2-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439812

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*105*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*103*		*78 - 119*

Lab Sample ID: LCSD 280-439812/3-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439812

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			2000	1960		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)			8000	8220		ug/Kg		103	51 - 148	4	20
1,2-Dichlorobenzene			2000	2130		ug/Kg		107	78 - 121	0	20
1,3-Dichlorobenzene			2000	2120		ug/Kg		106	77 - 121	0	20
4-Chlorotoluene			2000	2110		ug/Kg		106	72 - 124	1	20
1,4-Dichlorobenzene			2000	2150		ug/Kg		107	75 - 120	1	20
1,1-Dichloroethane			2000	2070		ug/Kg		103	76 - 125	0	20
1,2-Dichloroethane			2000	2350		ug/Kg		117	73 - 128	3	20
Acetone			8000	8120		ug/Kg		101	36 - 164	2	20
1,1-Dichloroethene			2000	2000		ug/Kg		100	70 - 131	1	20
Benzene			2000	2070		ug/Kg		103	77 - 121	1	20
Bromobenzene			2000	2050		ug/Kg		102	78 - 121	1	20
Bromoform			2000	2300		ug/Kg		115	67 - 132	4	20
Bromomethane			2000	1680		ug/Kg		84	53 - 143	3	20
1,2-Dichloropropane			2000	2150		ug/Kg		108	76 - 123	2	20
Carbon disulfide			2000	1930		ug/Kg		97	63 - 132	0	20
1,3-Dichloropropane			2000	2070		ug/Kg		103	77 - 121	3	20
Carbon tetrachloride			2000	2200		ug/Kg		110	70 - 135	1	20
2,2-Dichloropropane			2000	2130		ug/Kg		106	67 - 133	0	20
Chlorobenzene			2000	2100		ug/Kg		105	79 - 120	1	20
1,1-Dichloropropene			2000	2080		ug/Kg		104	76 - 125	1	20
Bromochloromethane			2000	2190		ug/Kg		110	78 - 125	1	20
Dibromochloromethane			2000	2190		ug/Kg		110	74 - 126	3	20
Chloroethane			2000	1840		ug/Kg		92	59 - 139	12	20
Chloroform			2000	2170		ug/Kg		109	78 - 123	1	20
2-Hexanone			8000	8070		ug/Kg		101	53 - 145	4	20
Chloromethane			2000	1510		ug/Kg		75	50 - 136	1	20
cis-1,2-Dichloroethene			2000	2080		ug/Kg		104	77 - 123	1	20
cis-1,3-Dichloropropene			2000	2080		ug/Kg		104	74 - 126	1	20
4-Isopropyltoluene			2000	2220		ug/Kg		111	73 - 127	0	20
Dibromomethane			2000	2230		ug/Kg		111	78 - 125	5	20
Bromodichloromethane			2000	2230		ug/Kg		112	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			8000	8730		ug/Kg		109	65 - 135	6	20
Dichlorodifluoromethane			2000	1490		ug/Kg		74	29 - 149	1	20
Ethylbenzene			2000	2050		ug/Kg		102	76 - 122	1	20
Ethylene Dibromide			2000	2070		ug/Kg		103	78 - 122	2	20
Hexachlorobutadiene			2000	2040		ug/Kg		102	61 - 135	0	20
Isopropylbenzene			2000	2100		ug/Kg		105	68 - 134	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-439812/3-A
Matrix: Solid
Analysis Batch: 439785

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	2000	2110		ug/Kg		105	78 - 125	0	20
Methyl tert-butyl ether	2000	2200		ug/Kg		110	73 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	2030		ug/Kg		102	70 - 124	6	20
Methylene Chloride	2000	1940		ug/Kg		97	70 - 128	1	20
Naphthalene	2000	2070		ug/Kg		104	62 - 129	1	20
1,2,3-Trichlorobenzene	2000	2270		ug/Kg		113	66 - 130	4	20
n-Butylbenzene	2000	2130		ug/Kg		106	70 - 128	1	20
1,1,1-Trichloroethane	2000	2170		ug/Kg		109	73 - 130	1	20
N-Propylbenzene	2000	2090		ug/Kg		105	73 - 125	0	20
1,1,2-Trichloroethane	2000	2260		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene	2000	2140		ug/Kg		107	73 - 126	1	20
Styrene	2000	2040		ug/Kg		102	76 - 124	1	20
1,2,4-Trichlorobenzene	2000	2260		ug/Kg		113	67 - 129	2	20
tert-Butylbenzene	2000	2150		ug/Kg		107	73 - 125	2	20
1,2,3-Trichloropropane	2000	2200		ug/Kg		110	73 - 125	4	20
Tetrachloroethene	2000	2050		ug/Kg		103	73 - 128	1	20
1,2,4-Trimethylbenzene	2000	2120		ug/Kg		106	75 - 123	1	20
Toluene	2000	2130		ug/Kg		107	77 - 121	3	20
1,3,5-Trimethylbenzene	2000	2120		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene	2000	2090		ug/Kg		104	74 - 125	2	20
trans-1,3-Dichloropropene	2000	2270		ug/Kg		113	71 - 130	5	20
o-Xylene	2000	2030		ug/Kg		101	77 - 123	1	20
Trichloroethene	2000	2110		ug/Kg		106	77 - 123	1	20
m-Xylene & p-Xylene	2000	2040		ug/Kg		102	77 - 124	0	20
Trichlorofluoromethane	2000	2230		ug/Kg		111	62 - 140	1	20
Vinyl chloride	2000	1580		ug/Kg		79	56 - 135	0	20
2-Chlorotoluene	2000	2080		ug/Kg		104	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*105*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-439074/20
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		11/28/18 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*86*		*82 - 110*		*11/28/18 20:17*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-439074/19
Matrix: Water
Analysis Batch: 439074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.2		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*85*		*82 - 110*

Lab Sample ID: MB 280-439713/2-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439713

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/03/18 13:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*	*12/03/18 12:00*	*12/03/18 13:56*	*1*

Lab Sample ID: LCS 280-439713/1-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.53		mg/Kg		106	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*	*M*	*70 - 130*	*11/29/18 11:04*	*12/04/18 01:44*	*1*

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.215		ug/L		86	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	98		70 - 130

Lab Sample ID: LCSD 280-439245/2-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	102	M	70 - 130

Lab Sample ID: MB 280-439660/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439660

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 16:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	91	M	55 - 130	12/03/18 10:24	12/09/18 16:27	1

Lab Sample ID: LCS 280-439660/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439660

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.746		ug/Kg		85	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	94	M	55 - 130

Lab Sample ID: LCSD 280-439660/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439660

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.756		ug/Kg		86	70 - 130	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	95	M	55 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439845/1-A
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439845

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.87	J	7.8	3.9	1.3	mg/Kg		12/07/18 04:08	1
Motor Oil (C20-C38)	23	U	23	23	7.6	mg/Kg		12/07/18 04:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*		*45 - 130*	*12/04/18 20:18*	*12/07/18 04:08*	*1*
n-Octacosane	*52*	*M*	*25 - 162*	*12/04/18 20:18*	*12/07/18 04:08*	*1*

Lab Sample ID: LCS 280-439845/2-A
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	132	86.0		mg/Kg		65	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*69*		*25 - 162*

Lab Sample ID: LCS 280-439845/3-A
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	330	328		mg/Kg		99	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*85*	*M*	*45 - 130*
n-Octacosane	*51*	*M*	*25 - 162*

Lab Sample ID: 280-117359-5 MS
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: P-S3-211118-512
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	4.0	J	134	104		mg/Kg	☼	75	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*47*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-117359-5 MS
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: P-S3-211118-512
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	26	U	340	348		mg/Kg	☼	102	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*45 - 130*
n-Octacosane	*139*		*25 - 162*

Lab Sample ID: 280-117359-5 MSD
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: P-S3-211118-512
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.0	J	137	88.4		mg/Kg	☼	62	38 - 132	16	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*70*		*25 - 162*

Lab Sample ID: 280-117359-5 MSD
Matrix: Solid
Analysis Batch: 440185

Client Sample ID: P-S3-211118-512
Prep Type: Total/NA
Prep Batch: 439845

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	26	U	357	380		mg/Kg	☼	106	45 - 130	9	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*93*		*45 - 130*
n-Octacosane	*58*		*25 - 162*

GC/MS VOA

Analysis Batch: 439604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-1	TB-S3-211118-01	Total/NA	Water	8260B	
MB 280-439604/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439604/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 439624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2	V-S3-211118-492	Total/NA	Solid	8260B	439682
280-117359-4	V-S3-211118-512	Total/NA	Solid	8260B	439682
MB 280-439682/1-A	Method Blank	Total/NA	Solid	8260B	439682
LCS 280-439682/2-A	Lab Control Sample	Total/NA	Solid	8260B	439682
LCSD 280-439682/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439682

Prep Batch: 439682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2	V-S3-211118-492	Total/NA	Solid	5035	
280-117359-4	V-S3-211118-512	Total/NA	Solid	5035	
MB 280-439682/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439682/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439682/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 439785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2 - DL	V-S3-211118-492	Total/NA	Solid	8260B	439812
MB 280-439812/1-A	Method Blank	Total/NA	Solid	8260B	439812
LCS 280-439812/2-A	Lab Control Sample	Total/NA	Solid	8260B	439812
LCSD 280-439812/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	439812

Prep Batch: 439812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2 - DL	V-S3-211118-492	Total/NA	Solid	5035	
MB 280-439812/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439812/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-439812/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA

Analysis Batch: 439074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-1	TB-S3-211118-01	Total/NA	Water	8015D GRO	
MB 280-439074/20	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439074/19	Lab Control Sample	Total/NA	Water	8015D GRO	

Prep Batch: 439713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-3	P-S3-211118-492	Total/NA	Solid	5035	
280-117359-5	P-S3-211118-512	Total/NA	Solid	5035	
MB 280-439713/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	5035	

GC VOA (Continued)

Analysis Batch: 439797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-3	P-S3-211118-492	Total/NA	Solid	8015D GRO	439713
280-117359-5	P-S3-211118-512	Total/NA	Solid	8015D GRO	439713
MB 280-439713/2-A	Method Blank	Total/NA	Solid	8015D GRO	439713
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	439713

GC Semi VOA

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-1	TB-S3-211118-01	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2	V-S3-211118-492	Total/NA	Solid	8011	
280-117359-4	V-S3-211118-512	Total/NA	Solid	8011	
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-1	TB-S3-211118-01	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Prep Batch: 439845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-3	P-S3-211118-492	Total/NA	Solid	3546	
280-117359-5	P-S3-211118-512	Total/NA	Solid	3546	
MB 280-439845/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439845/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439845/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-117359-5 MS	P-S3-211118-512	Total/NA	Solid	3546	
280-117359-5 MS	P-S3-211118-512	Total/NA	Solid	3546	
280-117359-5 MSD	P-S3-211118-512	Total/NA	Solid	3546	
280-117359-5 MSD	P-S3-211118-512	Total/NA	Solid	3546	

Analysis Batch: 440185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-3	P-S3-211118-492	Total/NA	Solid	8015D DRO	439845
280-117359-5	P-S3-211118-512	Total/NA	Solid	8015D DRO	439845
MB 280-439845/1-A	Method Blank	Total/NA	Solid	8015D DRO	439845
LCS 280-439845/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439845
LCS 280-439845/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439845
280-117359-5 MS	P-S3-211118-512	Total/NA	Solid	8015D DRO	439845
280-117359-5 MS	P-S3-211118-512	Total/NA	Solid	8015D DRO	439845

GC Semi VOA (Continued)

Analysis Batch: 440185 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-5 MSD	P-S3-211118-512	Total/NA	Solid	8015D DRO	439845
280-117359-5 MSD	P-S3-211118-512	Total/NA	Solid	8015D DRO	439845

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2	V-S3-211118-492	Total/NA	Solid	8011	439660
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	439660
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	439660
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	439660

Analysis Batch: 440628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-4	V-S3-211118-512	Total/NA	Solid	8011	439660

General Chemistry

Analysis Batch: 439071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-2	V-S3-211118-492	Total/NA	Solid	Moisture	
280-117359-3	P-S3-211118-492	Total/NA	Solid	Moisture	
280-117359-4	V-S3-211118-512	Total/NA	Solid	Moisture	

Analysis Batch: 439268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117359-5	P-S3-211118-512	Total/NA	Solid	Moisture	

Client Sample ID: TB-S3-211118-01

Lab Sample ID: 280-117359-1

Date Collected: 11/21/18 12:00

Matrix: Water

Date Received: 11/27/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439604	12/03/18 13:35	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439074	11/29/18 03:27	GPM	TAL DEN
Total/NA	Prep	8011			33.3 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 03:57	JLW	TAL DEN

Client Sample ID: V-S3-211118-492

Lab Sample ID: 280-117359-2

Date Collected: 11/21/18 07:44

Matrix: Solid

Date Received: 11/27/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439071	11/28/18 13:28	LMD	TAL DEN

Client Sample ID: V-S3-211118-492

Lab Sample ID: 280-117359-2

Date Collected: 11/21/18 07:44

Matrix: Solid

Date Received: 11/27/18 09:45

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.67 g	5 mL	439682	11/21/18 07:44	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439624	12/03/18 18:54	JLS	TAL DEN
Total/NA	Prep	5035	DL		5.5 g	1000 mL	439812	11/21/18 07:44	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	1	20 mL	20 mL	439785	12/04/18 14:25	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 17:24	JLW	TAL DEN

Client Sample ID: P-S3-211118-492

Lab Sample ID: 280-117359-3

Date Collected: 11/21/18 07:44

Matrix: Solid

Date Received: 11/27/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439071	11/28/18 13:28	LMD	TAL DEN

Client Sample ID: P-S3-211118-492

Lab Sample ID: 280-117359-3

Date Collected: 11/21/18 07:44

Matrix: Solid

Date Received: 11/27/18 09:45

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.888 g	5 mL	439713	11/21/18 07:44	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 20:39	GPM	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	439845	12/04/18 20:18	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			440185	12/07/18 05:08	CSM	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Client Sample ID: V-S3-211118-512
Lab Sample ID: 280-117359-4
Date Collected: 11/21/18 09:30
Matrix: Solid
Date Received: 11/27/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439071	11/28/18 13:28	LMD	TAL DEN

Client Sample ID: V-S3-211118-512
Lab Sample ID: 280-117359-4
Date Collected: 11/21/18 09:30
Matrix: Solid
Date Received: 11/27/18 09:45
Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.307 g	5 mL	439682	11/21/18 09:30	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	439624	12/03/18 19:15	JLS	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440628	12/10/18 18:16	JLW	TAL DEN

Client Sample ID: P-S3-211118-512
Lab Sample ID: 280-117359-5
Date Collected: 11/21/18 09:30
Matrix: Solid
Date Received: 11/27/18 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439268	11/29/18 12:16	LMD	TAL DEN

Client Sample ID: P-S3-211118-512
Lab Sample ID: 280-117359-5
Date Collected: 11/21/18 09:30
Matrix: Solid
Date Received: 11/27/18 09:45
Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.467 g	5 mL	439713	11/21/18 09:30	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 21:03	GPM	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	439845	12/04/18 20:18	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			440185	12/07/18 05:28	CSM	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117359-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kevin McKenzie	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4437 3392 7689	COC No: COC1-53-TA-20181121
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil		8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water					Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F		A	R	N	A					X	
TB-53-211118-01	11/21/18	1200	G	W	N	N	—						X	X	-	X	—				6	
V-53-211118-494 492	11/21/18	0744	G	S	N	N	X	X	X	—											5	
P-53-211118-494 492	11/21/18	0744	G	S	N	N	—			X	X										3	
V-53-211118-512	11/21/18	0930	G	S	N	N	X	X	X	—											5	
P-53-211118-512	11/21/18	0930	G	S	N	N	—			X	X										3	

280-117359 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Kevin McKenzie	11/26/18 1800	EA		11/27/18 0945	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.8, 1.0 tr

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117359-1

Login Number: 117359
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117391-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/31/2018 10:46:42 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117391-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117391-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 11/28/2018 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6° C.

GASOLINE RANGE ORGANICS (GRO) - Solid
Sample P-S1-271118-020 (280-117391-2) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 11/27/2018 and analyzed on 12/03/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S1-271118-01 (280-117391-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/04/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Sample P-S1-271118-020 (280-117391-2) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/01/2018 and analyzed on 12/05/2018 and 12/10/2018.

The following samples were silica gel cleaned (Silica Gel lot number 00007): P-S1-271118-020 (280-117391-2), (280-117391-A-2-B MS), (280-117391-A-2-D MS), (280-117391-A-2-C MSD) and (280-117391-A-2-E MSD). This is for preparation batch 280-439571 and analytical batch 280-440601.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439571/1-A in analysis batch 440601 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to

Job ID: 280-117391-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

the QC report for details. This is considered acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Sample P-S1-271118-020 (280-117391-2) was analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 11/29/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Client Sample ID: TB-S1-271118-01 — Lab Sample ID: 280-117391-1

No Detections.

Client Sample ID: P-S1-271118-020 — Lab Sample ID: 280-117391-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	1.6	J	7.8	3.9	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Method	Method Description	Protocol	Laboratory
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117391-1	TB-S1-271118-01	Water	11/27/18 16:00	11/28/18 12:24
280-117391-2	P-S1-271118-020	Solid	11/27/18 08:52	11/28/18 12:24

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S1-271118-01 — **Lab Sample ID: 280-117391-1**
Date Collected: 11/27/18 16:00 — **Matrix: Water**
Date Received: 11/28/18 12:24

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/04/18 12:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*82 - 110*		*12/04/18 12:52*	*1*

Client Sample ID: P-S1-271118-020 — **Lab Sample ID: 280-117391-2**
Date Collected: 11/27/18 08:52 — **Matrix: Solid**
Date Received: 11/28/18 12:24 — **Percent Solids: 91.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.5	U	1.6	1.5	0.43	mg/Kg	☼	12/03/18 21:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*84*		*77 - 123*	*11/27/18 08:52*	*12/03/18 21:27*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-271118-020 — **Lab Sample ID: 280-117391-2**
Date Collected: 11/27/18 08:52 — **Matrix: Solid**
Date Received: 11/28/18 12:24 — **Percent Solids: 91.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1.6**	**J**	7.8	3.9	1.3	mg/Kg	☼	12/10/18 17:13	1
Motor Oil (C20-C38)	23	U	23	23	7.7	mg/Kg	☼	12/10/18 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*45 - 130*	*12/01/18 16:56*	*12/10/18 17:13*	*1*
n-Octacosane	*79*		*25 - 162*	*12/01/18 16:56*	*12/10/18 17:13*	*1*

General Chemistry

Client Sample ID: P-S1-271118-020 — **Lab Sample ID: 280-117391-2**
Date Collected: 11/27/18 08:52 — **Matrix: Solid**
Date Received: 11/28/18 12:24 — **Percent Solids: 91.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.2**		0.1	0.05	0.1	%		11/29/18 12:16	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117391-2	P-S1-271118-020	84
LCS 280-439713/1-A	Lab Control Sample	91
MB 280-439713/2-A	Method Blank	89

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117391-1	TB-S1-271118-01	90
LCS 280-439783/3	Lab Control Sample	91
LCSD 280-439783/5	Lab Control Sample Dup	92
MB 280-439783/4	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-117391-2	P-S1-271118-020	74	79
280-117391-2 MS	P-S1-271118-020	78	71
280-117391-2 MS	P-S1-271118-020	84	77
280-117391-2 MSD	P-S1-271118-020	75	62
280-117391-2 MSD	P-S1-271118-020	78	69 M
LCS 280-439571/2-A	Lab Control Sample	85	83
LCS 280-439571/3-A	Lab Control Sample	92	120 M
MB 280-439571/1-A	Method Blank	75	64

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-439713/2-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439713

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/03/18 13:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*	*12/03/18 12:00*	*12/03/18 13:56*	*1*

Lab Sample ID: LCS 280-439713/1-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	4.28	4.53		mg/Kg		106	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Lab Sample ID: MB 280-439783/4
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/04/18 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*82 - 110*		*12/04/18 12:04*	*1*

Lab Sample ID: LCS 280-439783/3
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	78.4	73.5		ug/L		94	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*91*		*82 - 110*

Lab Sample ID: LCSD 280-439783/5
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	78.4	64.5		ug/L		82	78 - 122	13	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*92*		*82 - 110*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439571/1-A
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439571

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.54	J	8.0	4.0	1.4	mg/Kg		12/10/18 16:12	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/10/18 16:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*12/01/18 16:56*	*12/10/18 16:12*	*1*
n-Octacosane	*64*		*25 - 162*	*12/01/18 16:56*	*12/10/18 16:12*	*1*

Lab Sample ID: LCS 280-439571/2-A
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	133	121		mg/Kg		91	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*85*		*45 - 130*
n-Octacosane	*83*		*25 - 162*

Lab Sample ID: LCS 280-439571/3-A
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	341		mg/Kg		102	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*92*		*45 - 130*
n-Octacosane	*120*	*M*	*25 - 162*

Lab Sample ID: 280-117391-2 MS
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: P-S1-271118-020
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	1.6	J	145	124		mg/Kg	☼	84	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*71*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-117391-2 MS
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: P-S1-271118-020
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	23	U	362	337		mg/Kg	☼	93	45 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*84*		*45 - 130*
n-Octacosane	*77*		*25 - 162*

Lab Sample ID: 280-117391-2 MSD
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: P-S1-271118-020
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	1.6	J	145	116		mg/Kg	☼	79	38 - 132	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*75*		*45 - 130*
n-Octacosane	*62*		*25 - 162*

Lab Sample ID: 280-117391-2 MSD
Matrix: Solid
Analysis Batch: 440601

Client Sample ID: P-S1-271118-020
Prep Type: Total/NA
Prep Batch: 439571

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	23	U	352	294		mg/Kg	☼	83	45 - 130	14	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*45 - 130*
n-Octacosane	*69*	*M*	*25 - 162*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

GC VOA

Prep Batch: 439713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-2	P-S1-271118-020	Total/NA	Solid	5035	
MB 280-439713/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 439783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-1	TB-S1-271118-01	Total/NA	Water	8015D GRO	
MB 280-439783/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439783/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-439783/5	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Analysis Batch: 439797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-2	P-S1-271118-020	Total/NA	Solid	8015D GRO	439713
MB 280-439713/2-A	Method Blank	Total/NA	Solid	8015D GRO	439713
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	439713

GC Semi VOA

Prep Batch: 439571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-2	P-S1-271118-020	Total/NA	Solid	3546	
MB 280-439571/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439571/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439571/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-117391-2 MS	P-S1-271118-020	Total/NA	Solid	3546	
280-117391-2 MS	P-S1-271118-020	Total/NA	Solid	3546	
280-117391-2 MSD	P-S1-271118-020	Total/NA	Solid	3546	
280-117391-2 MSD	P-S1-271118-020	Total/NA	Solid	3546	

Analysis Batch: 440601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-2	P-S1-271118-020	Total/NA	Solid	8015D DRO	439571
MB 280-439571/1-A	Method Blank	Total/NA	Solid	8015D DRO	439571
LCS 280-439571/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439571
LCS 280-439571/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439571
280-117391-2 MS	P-S1-271118-020	Total/NA	Solid	8015D DRO	439571
280-117391-2 MS	P-S1-271118-020	Total/NA	Solid	8015D DRO	439571
280-117391-2 MSD	P-S1-271118-020	Total/NA	Solid	8015D DRO	439571
280-117391-2 MSD	P-S1-271118-020	Total/NA	Solid	8015D DRO	439571

General Chemistry

Analysis Batch: 439268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117391-2	P-S1-271118-020	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Client Sample ID: TB-S1-271118-01

Lab Sample ID: 280-117391-1
Matrix: Water
Date Collected: 11/27/18 16:00
Date Received: 11/28/18 12:24

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439783	12/04/18 12:52	SU	TAL DEN

Client Sample ID: P-S1-271118-020

Lab Sample ID: 280-117391-2
Matrix: Solid
Date Collected: 11/27/18 08:52
Date Received: 11/28/18 12:24

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439268	11/29/18 12:16	LMD	TAL DEN

Client Sample ID: P-S1-271118-020

Lab Sample ID: 280-117391-2
Matrix: Solid
Date Collected: 11/27/18 08:52
Date Received: 11/28/18 12:24
Percent Solids: 91.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.403 g	5 mL	439713	11/27/18 08:52	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 21:27	GPM	TAL DEN
Total/NA	Prep	3546			16.7 g	1 mL	439571	12/01/18 16:56	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			440601	12/10/18 17:13	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117391-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TA-208116

Client Information	Sampler: Kevin McKoane	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 443733927678	COC No: COC1-SI-271118
Client Contact: Pamela Moss	Phone: 316-765-1486	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#: —	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A		
TB-SI-271118-01	11/27/18	1600	G	W	N	N	—	—	—	—	—	—	—	—	X	2	—
P-SI-271118-020	11/27/18	0852	G	S	N	N	—	—	X	X	—	—	—	—	—	3	—

280-117391 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by: Kevin McKoane	11/27/18 1800	EA		11/28/18 0900	TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.6, +0.1, IR5 opened by SZ 11/28/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117391-1

Login Number: 117391
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117400-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
12/19/2018 2:01:40 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
M	Manual integrated compound.
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117400-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117400-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/28/2018 9:00 AM; the samples arrived in good condition (except as noted below), properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6° C.

Receipt Exceptions

The containers listed below were received partially frozen. As instructed by the client, the laboratory proceeded with analysis.
1) RB-S3-271118-01: 2 of 3 VOA vials were received frozen for VOC analysis and GRO analysis. 1 of 3 VOA vials were received frozen for EDB analysis.

2) RB-S3-271118-02: 1 of 2 VOA vials were received frozen for VOC analysis. 3 of 3 VOA vials were received frozen for GRO analysis. 2 of 3 VOA vials were received frozen for EDB analysis, with the third VOA vial received with a compromised septum (not leaking but visibly bulging unevenly out of the cap).

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples RB-S3-271118-01 (280-117400-1) and RB-S3-271118-02 (280-117400-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/03/2018.

Acetone was detected in method blank MB 280-439604/6 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples RB-S3-271118-01 (280-117400-1) and RB-S3-271118-02 (280-117400-2) were analyzed for EDB and DBCP in accordance with

Job ID: 280-117400-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

8011. The samples were prepared on 11/29/2018 and analyzed on 12/04/2018.

Compound 1,2-Dibromopropane, Ethylene Dibromide, 1,2-Dibromo-3-Chloropropane, and 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (LCSD 280-439245/2-A). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

1,2-Dibromopropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/39). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

Compound 1,2-Dibromo-3-Chloropropane eluted outside the retention time window on the primary and secondary columns for the following sample: (CCV 280-439714/43). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples RB-S3-271118-01 (280-117400-1) and RB-S3-271118-02 (280-117400-2) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/04/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples RB-S3-271118-01 (280-117400-1) and RB-S3-271118-02 (280-117400-2) were analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 11/29/2018 and analyzed on 12/07/2018.

Motor Oil (C20-C38) failed the recovery criteria high for LCS 280-439312/4-A and LCSD 280-439312/5-A. Associated results have been flagged "Q". Refer to the QC report for details. The associated samples were either non-detect or <LOQ for this analyte; therefore, the data have been qualified and reported.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-439312. A duplicate LCS (:LCSD) was performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Client Sample ID: RB-S3-271118-01 — Lab Sample ID: 280-117400-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	8.4	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Benzene	1.1		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Ethylbenzene	1.2		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Toluene	7.3		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.35	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	1.0		1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	2.7		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	23	J	25	25	10	ug/L	1		8015D GRO	Total/NA
Ethylene Dibromide	0.090		0.020	0.014	0.0038	ug/L	1		8011	Total/NA
Diesel Range Organics [C10-C28]	0.12	J	0.25	0.12	0.033	mg/L	1		8015D DRO	Total/NA
Motor Oil (C20-C38)	0.15	J Q	0.50	0.13	0.057	mg/L	1		8015D DRO	Total/NA

Client Sample ID: RB-S3-271118-02 — Lab Sample ID: 280-117400-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	9.5	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Benzene	1.6		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
1,2-Dichloroethane	0.13	J	1.0	0.40	0.13	ug/L	1		8260B	Total/NA
Ethylbenzene	1.6		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
N-Propylbenzene	0.23	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Toluene	10		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.62	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	0.19	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
o-Xylene	1.5		1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	4.1		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10	36		25	25	10	ug/L	1		8015D GRO	Total/NA
Ethylene Dibromide	0.094		0.020	0.014	0.0037	ug/L	1		8011	Total/NA
Diesel Range Organics [C10-C28]	0.058	J	0.25	0.12	0.032	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117400-1	RB-S3-271118-01	Water	11/27/18 08:01	11/28/18 09:00
280-117400-2	RB-S3-271118-02	Water	11/27/18 08:11	11/28/18 09:00

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S3-271118-01
Date Collected: 11/27/18 08:01
Date Received: 11/28/18 09:00

Lab Sample ID: 280-117400-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**8.4**	**J**	10	6.4	1.9	ug/L		12/03/18 13:56	1
Benzene	**1.1**		1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/03/18 13:56	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:56	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/03/18 13:56	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/03/18 13:56	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/03/18 13:56	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/03/18 13:56	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/03/18 13:56	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/03/18 13:56	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/03/18 13:56	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:56	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/03/18 13:56	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/03/18 13:56	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:56	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:56	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 13:56	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 13:56	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 13:56	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/03/18 13:56	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/03/18 13:56	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:56	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 13:56	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:56	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 13:56	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 13:56	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:56	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:56	1
Ethylbenzene	**1.2**		1.0	0.40	0.16	ug/L		12/03/18 13:56	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/03/18 13:56	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/03/18 13:56	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 13:56	1
4-Isopropyltoluene	0.40	U M	1.0	0.40	0.20	ug/L		12/03/18 13:56	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/03/18 13:56	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/03/18 13:56	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/03/18 13:56	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/03/18 13:56	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Styrene	0.40	U M	1.0	0.40	0.17	ug/L		12/03/18 13:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S3-271118-01
Date Collected: 11/27/18 08:01
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:56	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:56	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 13:56	1
Toluene	**7.3**		1.0	0.40	0.17	ug/L		12/03/18 13:56	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:56	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/03/18 13:56	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/03/18 13:56	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 13:56	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/03/18 13:56	1
1,2,4-Trimethylbenzene	**0.35**	**J**	1.0	0.40	0.15	ug/L		12/03/18 13:56	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 13:56	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/03/18 13:56	1
o-Xylene	**1.0**		1.0	0.40	0.19	ug/L		12/03/18 13:56	1
m-Xylene & p-Xylene	**2.7**		2.0	0.80	0.34	ug/L		12/03/18 13:56	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*89 - 112*		*12/03/18 13:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/03/18 13:56*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*12/03/18 13:56*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/03/18 13:56*	*1*

Client Sample ID: RB-S3-271118-02
Date Collected: 11/27/18 08:11
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**9.5**	**J**	10	6.4	1.9	ug/L		12/03/18 12:51	1
Benzene	**1.6**		1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/03/18 12:51	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 12:51	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/03/18 12:51	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/03/18 12:51	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/03/18 12:51	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/03/18 12:51	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/03/18 12:51	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/03/18 12:51	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/03/18 12:51	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 12:51	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/03/18 12:51	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/03/18 12:51	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S3-271118-02
Date Collected: 11/27/18 08:11
Date Received: 11/28/18 09:00

Lab Sample ID: 280-117400-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 12:51	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 12:51	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 12:51	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 12:51	1
1,2-Dichloroethane	**0.13**	**J**	1.0	0.40	0.13	ug/L		12/03/18 12:51	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/03/18 12:51	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/03/18 12:51	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 12:51	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 12:51	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		12/03/18 12:51	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 12:51	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 12:51	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 12:51	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 12:51	1
Ethylbenzene	**1.6**		1.0	0.40	0.16	ug/L		12/03/18 12:51	1
2-Hexanone	4.0	U M	5.0	4.0	1.7	ug/L		12/03/18 12:51	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/03/18 12:51	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 12:51	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 12:51	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/03/18 12:51	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/03/18 12:51	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/03/18 12:51	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 12:51	1
N-Propylbenzene	**0.23**	**J**	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Styrene	0.40	U M	1.0	0.40	0.17	ug/L		12/03/18 12:51	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 12:51	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 12:51	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 12:51	1
Toluene	**10**		1.0	0.40	0.17	ug/L		12/03/18 12:51	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 12:51	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/03/18 12:51	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/03/18 12:51	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 12:51	1
1,2,3-Trichloropropane	0.80	U M	3.0	0.80	0.33	ug/L		12/03/18 12:51	1
1,2,4-Trimethylbenzene	**0.62**	**J**	1.0	0.40	0.15	ug/L		12/03/18 12:51	1
1,3,5-Trimethylbenzene	**0.19**	**J**	1.0	0.40	0.16	ug/L		12/03/18 12:51	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/03/18 12:51	1
o-Xylene	**1.5**		1.0	0.40	0.19	ug/L		12/03/18 12:51	1
m-Xylene & p-Xylene	**4.1**		2.0	0.80	0.34	ug/L		12/03/18 12:51	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*89 - 112*		*12/03/18 12:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/03/18 12:51*	*1*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*12/03/18 12:51*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 119*		*12/03/18 12:51*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S3-271118-01
Date Collected: 11/27/18 08:01
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	23	J	25	25	10	ug/L		12/04/18 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	89		82 - 110		12/04/18 15:42	1

Client Sample ID: RB-S3-271118-02
Date Collected: 11/27/18 08:11
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	36		25	25	10	ug/L		12/04/18 16:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	88		82 - 110		12/04/18 16:06	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S3-271118-01
Date Collected: 11/27/18 08:01
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.090		0.020	0.014	0.0038	ug/L		12/04/18 05:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	121		70 - 130	11/29/18 11:04	12/04/18 05:51	1

Client Sample ID: RB-S3-271118-02
Date Collected: 11/27/18 08:11
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.094		0.020	0.014	0.0037	ug/L		12/04/18 06:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	95	M	70 - 130	11/29/18 11:04	12/04/18 06:10	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S3-271118-01
Date Collected: 11/27/18 08:01
Date Received: 11/28/18 09:00
Lab Sample ID: 280-117400-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	J	0.25	0.12	0.033	mg/L		12/07/18 16:26	1
Motor Oil (C20-C38)	0.15	J Q	0.50	0.13	0.057	mg/L		12/07/18 16:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	86		56 - 125	11/29/18 17:11	12/07/18 16:26	1
n-Octacosane	114		60 - 142	11/29/18 17:11	12/07/18 16:26	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S3-271118-02
Date Collected: 11/27/18 08:11
Date Received: 11/28/18 09:00

Lab Sample ID: 280-117400-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.058**	**J**	0.25	0.12	0.032	mg/L		12/07/18 16:46	1
Motor Oil (C20-C38)	0.12	U Q	0.49	0.12	0.055	mg/L		12/07/18 16:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*56 - 125*	*11/29/18 17:11*	*12/07/18 16:46*	*1*
n-Octacosane	*104*		*60 - 142*	*11/29/18 17:11*	*12/07/18 16:46*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117400-1	RB-S3-271118-01	101	101	97	101
280-117400-2	RB-S3-271118-02	101	101	96	104
LCS 280-439604/4	Lab Control Sample	97	99	97	102
MB 280-439604/6	Method Blank	95	98	94	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117400-1	RB-S3-271118-01	89
280-117400-2	RB-S3-271118-02	88
LCS 280-439783/3	Lab Control Sample	91
LCSD 280-439783/5	Lab Control Sample Dup	92
MB 280-439783/4	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-117400-1	RB-S3-271118-01	121
280-117400-2	RB-S3-271118-02	95 M
LCS 280-439245/1-A	Lab Control Sample	98
LCSD 280-439245/2-A	Lab Control Sample Dup	102 M
MB 280-439245/3-A	Method Blank	102 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-117400-1	RB-S3-271118-01	86	114
280-117400-2	RB-S3-271118-02	82	104
LCS 280-439312/2-A	Lab Control Sample	93	114

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
LCS 280-439312/4-A	Lab Control Sample	108	130								
LCSD 280-439312/3-A	Lab Control Sample Dup	97	117								
LCSD 280-439312/5-A	Lab Control Sample Dup	110	123								
MB 280-439312/1-A	Method Blank	92	114								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-439604/6
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	3.85	J	10	6.4	1.9	ug/L		12/03/18 11:10	1
Benzene	0.40	U M	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/03/18 11:10	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/03/18 11:10	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/03/18 11:10	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/03/18 11:10	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/03/18 11:10	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/03/18 11:10	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/03/18 11:10	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/03/18 11:10	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/03/18 11:10	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/03/18 11:10	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 11:10	1
1,4-Dichlorobenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/03/18 11:10	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/03/18 11:10	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/03/18 11:10	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/03/18 11:10	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/03/18 11:10	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/03/18 11:10	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 11:10	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/03/18 11:10	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/03/18 11:10	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/03/18 11:10	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/03/18 11:10	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-439604/6
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/03/18 11:10	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/03/18 11:10	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/03/18 11:10	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/03/18 11:10	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/03/18 11:10	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/03/18 11:10	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/03/18 11:10	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/03/18 11:10	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/03/18 11:10	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/03/18 11:10	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/03/18 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/03/18 11:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*12/03/18 11:10*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*12/03/18 11:10*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*12/03/18 11:10*	*1*

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	22.4		ug/L		112	39 - 160
Benzene	5.00	5.19		ug/L		104	79 - 120
Bromobenzene	5.00	4.79		ug/L		96	80 - 120
Bromochloromethane	5.00	5.16		ug/L		103	78 - 123
Bromodichloromethane	5.00	5.05		ug/L		101	79 - 125
Bromoform	5.00	4.60		ug/L		92	66 - 130
Bromomethane	5.00	5.46		ug/L		109	53 - 141
2-Butanone (MEK)	20.0	21.4		ug/L		107	56 - 143
n-Butylbenzene	5.00	4.77		ug/L		95	75 - 128
sec-Butylbenzene	5.00	4.82		ug/L		96	77 - 126
tert-Butylbenzene	5.00	4.86		ug/L		97	78 - 124
Carbon disulfide	5.00	5.49		ug/L		110	64 - 133
Carbon tetrachloride	5.00	5.16		ug/L		103	72 - 136
Chlorobenzene	5.00	4.89		ug/L		98	82 - 118
Chloroethane	5.00	5.29		ug/L		106	60 - 138
Chloroform	5.00	5.12		ug/L		102	79 - 124
Chloromethane	5.00	5.72		ug/L		114	50 - 139
4-Chlorotoluene	5.00	4.77		ug/L		95	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	4.81		ug/L		96	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.60	J	ug/L		92	62 - 128
Dichlorodifluoromethane	5.00	3.92		ug/L		78	32 - 152
Dibromomethane	5.00	5.18		ug/L		104	79 - 123
Ethylene Dibromide	5.00	4.87		ug/L		97	77 - 121
1,2-Dichlorobenzene	5.00	4.89		ug/L		98	80 - 119
1,3-Dichlorobenzene	5.00	4.77		ug/L		95	80 - 119
1,4-Dichlorobenzene	5.00	4.78		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	5.25		ug/L		105	77 - 125
1,2-Dichloroethane	5.00	5.25		ug/L		105	73 - 128
1,1-Dichloroethene	5.00	5.38		ug/L		108	71 - 131
cis-1,2-Dichloroethene	5.00	5.20		ug/L		104	78 - 123
trans-1,2-Dichloroethene	5.00	5.43		ug/L		109	75 - 124
1,2-Dichloropropane	5.00	5.34		ug/L		107	78 - 122
1,3-Dichloropropane	5.00	4.87		ug/L		97	80 - 119
2,2-Dichloropropane	5.00	5.12		ug/L		102	60 - 139
1,1-Dichloropropene	5.00	5.19		ug/L		104	79 - 125
cis-1,3-Dichloropropene	5.00	5.10		ug/L		102	75 - 124
trans-1,3-Dichloropropene	5.00	5.11		ug/L		102	73 - 127
Ethylbenzene	5.00	4.83		ug/L		97	79 - 121
2-Hexanone	20.0	18.7		ug/L		93	57 - 139
Hexachlorobutadiene	5.00	4.63		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.88		ug/L		98	72 - 131
4-Isopropyltoluene	5.00	4.83		ug/L		97	77 - 127
Methylene Chloride	5.00	5.33		ug/L		107	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	21.2		ug/L		106	67 - 130
Methyl tert-butyl ether	5.00	5.11		ug/L		102	71 - 124
Naphthalene	5.00	4.64		ug/L		93	61 - 128
N-Propylbenzene	5.00	4.84		ug/L		97	76 - 126
Styrene	5.00	4.63		ug/L		93	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.86		ug/L		97	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.13		ug/L		103	71 - 121
Tetrachloroethene	5.00	4.86		ug/L		97	74 - 129
Toluene	5.00	5.27		ug/L		105	80 - 121
1,2,3-Trichlorobenzene	5.00	4.67		ug/L		93	69 - 129
1,1,1-Trichloroethane	5.00	5.19		ug/L		104	74 - 131
1,1,2-Trichloroethane	5.00	5.46		ug/L		109	80 - 119
Trichloroethene	5.00	4.95		ug/L		99	79 - 123
Trichlorofluoromethane	5.00	5.25		ug/L		105	65 - 141
1,2,4-Trichlorobenzene	5.00	4.58		ug/L		92	69 - 130
1,2,3-Trichloropropane	5.00	4.90		ug/L		98	73 - 122
1,2,4-Trimethylbenzene	5.00	4.76		ug/L		95	76 - 124
1,3,5-Trimethylbenzene	5.00	4.83		ug/L		97	75 - 124
Vinyl chloride	5.00	6.00		ug/L		120	58 - 137
o-Xylene	5.00	4.87		ug/L		97	78 - 122
m-Xylene & p-Xylene	5.00	4.85		ug/L		97	80 - 121
2-Chlorotoluene	5.00	4.94		ug/L		99	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-439604/4
Matrix: Water
Analysis Batch: 439604

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*
Dibromofluoromethane (Surr)	*102*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-439783/4
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/04/18 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*82 - 110*		*12/04/18 12:04*	*1*

Lab Sample ID: LCS 280-439783/3
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	73.5		ug/L		94	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*91*		*82 - 110*

Lab Sample ID: LCSD 280-439783/5
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	64.5		ug/L		82	78 - 122	13	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*92*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/04/18 01:44	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-439245/3-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439245

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	102	M	70 - 130	11/29/18 11:04	12/04/18 01:44	1

Lab Sample ID: LCS 280-439245/1-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.215		ug/L		86	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	98		70 - 130

Lab Sample ID: LCSD 280-439245/2-A
Matrix: Water
Analysis Batch: 439714

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439245

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.225	M	ug/L		90	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	102	M	70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439312/1-A
Matrix: Water
Analysis Batch: 440352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439312

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		12/07/18 14:45	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		12/07/18 14:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	92		56 - 125	11/29/18 17:11	12/07/18 14:45	1
n-Octacosane	114		60 - 142	11/29/18 17:11	12/07/18 14:45	1

Lab Sample ID: LCS 280-439312/2-A
Matrix: Water
Analysis Batch: 440352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439312

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			2.00	1.75		mg/L		87	36 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	93		56 - 125
n-Octacosane	114		60 - 142

Lab Sample ID: LCS 280-439312/4-A
Matrix: Water
Analysis Batch: 440352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439312

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.79	Q	mg/L		115	41 - 113		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*108*		*56 - 125*
n-Octacosane	*130*		*60 - 142*

Lab Sample ID: LCSD 280-439312/3-A
Matrix: Water
Analysis Batch: 440352

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439312

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.87		mg/L		94	36 - 132	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*97*		*56 - 125*
n-Octacosane	*117*		*60 - 142*

Lab Sample ID: LCSD 280-439312/5-A
Matrix: Water
Analysis Batch: 440352

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439312

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	5.75	Q	mg/L		115	41 - 113	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*110*		*56 - 125*
n-Octacosane	*123*		*60 - 142*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

GC/MS VOA

Analysis Batch: 439604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	8260B	
280-117400-2	RB-S3-271118-02	Total/NA	Water	8260B	
MB 280-439604/6	Method Blank	Total/NA	Water	8260B	
LCS 280-439604/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 439783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	8015D GRO	
280-117400-2	RB-S3-271118-02	Total/NA	Water	8015D GRO	
MB 280-439783/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439783/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-439783/5	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 439245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	8011	
280-117400-2	RB-S3-271118-02	Total/NA	Water	8011	
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 439312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	3510C	
280-117400-2	RB-S3-271118-02	Total/NA	Water	3510C	
MB 280-439312/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-439312/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-439312/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-439312/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-439312/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 439714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	8011	439245
280-117400-2	RB-S3-271118-02	Total/NA	Water	8011	439245
MB 280-439245/3-A	Method Blank	Total/NA	Water	8011	439245
LCS 280-439245/1-A	Lab Control Sample	Total/NA	Water	8011	439245
LCSD 280-439245/2-A	Lab Control Sample Dup	Total/NA	Water	8011	439245

Analysis Batch: 440352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117400-1	RB-S3-271118-01	Total/NA	Water	8015D DRO	439312
280-117400-2	RB-S3-271118-02	Total/NA	Water	8015D DRO	439312
MB 280-439312/1-A	Method Blank	Total/NA	Water	8015D DRO	439312
LCS 280-439312/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	439312
LCS 280-439312/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	439312

GC Semi VOA (Continued)

Analysis Batch: 440352 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-439312/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	439312
LCSD 280-439312/5-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	439312

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Client Sample ID: RB-S3-271118-01

Lab Sample ID: 280-117400-1

Date Collected: 11/27/18 08:01

Matrix: Water

Date Received: 11/28/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439604	12/03/18 13:56	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439783	12/04/18 15:42	SU	TAL DEN
Total/NA	Prep	8011			34.5 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 05:51	JLW	TAL DEN
Total/NA	Prep	3510C			990.4 mL	1 mL	439312	11/29/18 17:11	AJE	TAL DEN
Total/NA	Analysis	8015D DRO		1			440352	12/07/18 16:26	CSM	TAL DEN

Client Sample ID: RB-S3-271118-02

Lab Sample ID: 280-117400-2

Date Collected: 11/27/18 08:11

Matrix: Water

Date Received: 11/28/18 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	439604	12/03/18 12:51	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439783	12/04/18 16:06	SU	TAL DEN
Total/NA	Prep	8011			34.6 mL	35 mL	439245	11/29/18 11:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			439714	12/04/18 06:10	JLW	TAL DEN
Total/NA	Prep	3510C			1018.6 mL	1 mL	439312	11/29/18 17:11	AJE	TAL DEN
Total/NA	Analysis	8015D DRO		1			440352	12/07/18 16:46	CSM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117400-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andress	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7678	COC No: COC1-53-TA-20181127
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

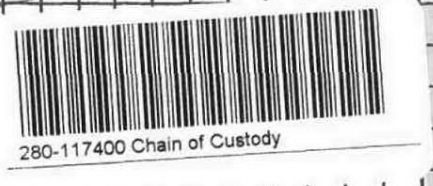
Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
RB-53-271118-01	11/27/18	0801	G	W		MN						X	X	X	X	10	
RB-53-271118-02	11/27/18	0811	G	W		MN						X	X	X	X	9	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:



Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Kevin McKenzie	Date/Time: 11/27/18 1800	Company: EA	Received by:	Date/Time: 11/28/18 0900	Company: TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6, 1.0

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117400-1

Login Number: 117400
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	False	Refer to Job Narrative for details.
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117531-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Authorized for release by:
12/20/2018 12:52:03 PM
Donna Rydberg, Senior Project Manager
(303)736-0192
donna.rydberg@testamericainc.com

Designee for

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117531-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117531-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/30/2018 at 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

Receipt Exceptions

The DI water terracores for sample ID V-S1-271118-140 were collected 11/27 at 14:35, and received on 11/30 at 09:15. Samples have exceeded the 48 hour hold time required for freezing. The client was notified and directed the laboratory to proceed with the analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples V-S1-271118-140 (280-117531-4), V-S1-291118-260 (280-117531-5) and V-S1-291118-279 (280-117531-6) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 11/27/2018 and 11/29/2018 and analyzed on 12/08/2018.

The initial calibration verification ((ICV 280-440313/20) recovery for Dichlorodifluoromethane (-23.0%D) in batch 280-440313 was outside the control limit. The failing compound is considered a poor performer and is allowed up to 30%D. Data was reported and flagged. Associated samples are V-S1-271118-140 (280-117531-4), V-S1-291118-260 (280-117531-5) and V-S1-291118-279 (280-117531-6) .

The recoveries for surrogates 1,2-Dichloroethane-d4, 4-Bromofluorobenzene, Dibromofluoromethane and Toluene-d8 failed the surrogate recovery criteria low for V-S1-291118-279 (280-117531-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Data was reported and flagged per DOD QSM.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample TB-S1-291118-01 (280-117531-7) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/13/2018.

Acetone was detected in method blank MB 280-441068/8 at a level that was less than one half the LOQ; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged “J” in accordance with the DoD QSM.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-117531-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

EDB AND DBCP

Samples V-S1-271118-140 (280-117531-4), V-S1-291118-260 (280-117531-5) and V-S1-291118-279 (280-117531-6) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/03/2018 and analyzed on 12/09/2018 and 12/10/2018.

The continuing calibration verification (CCV 280-440502/50) associated with batch 280-440502 recovered above the upper control limit for surrogate 1,2-Dibromopropane. The samples associated with this CCV were within control for this surrogate; therefore, the data have been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Sample TB-S1-291118-01 (280-117531-7) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 12/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE PETROLEUM HYDROCARBONS (GC)

Samples P-S1-271118-140 (280-117531-1), P-S1-291118-260 (280-117531-2) and P-S1-291118-279 (280-117531-3) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 11/27/2018 and 11/29/2018 and analyzed on 12/03/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/04/2018.

The continuing calibration verification (CCV) associated with batch 280-439783 recovered above the upper control limit for GRO (C6-C10) @ 38.2%D. Sample TB-S1-291118-01 (280-117531-7) associated with this CCV was non-detect for the affected analytes; therefore, the data have been reported with NCM and flags.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S1-271118-140 (280-117531-1), P-S1-291118-260 (280-117531-2) and P-S1-291118-279 (280-117531-3) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/04/2018 and analyzed on 12/07/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-439729/1-A at a level that was less than one half the LOQ; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged “J” in accordance with the DoD QSM.

The recovery for surrogate o-Terphenyl was outside the surrogate recovery criteria low in sample P-S1-291118-279 (280-117531-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-S1-271118-140 (280-117531-1), P-S1-291118-260 (280-117531-2), P-S1-291118-279 (280-117531-3), V-S1-271118-140 (280-117531-4), V-S1-291118-260 (280-117531-5) and V-S1-291118-279 (280-117531-6) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/04/2018, 12/06/2018 and 12/07/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: P-S1-271118-140 — Lab Sample ID: 280-117531-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.7	J	9.0	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	17	J	27	26	8.8	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S1-291118-260 — Lab Sample ID: 280-117531-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5.3	J	9.0	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	12	J	27	26	8.8	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: P-S1-291118-279 — Lab Sample ID: 280-117531-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.0	J Q	9.4	4.7	1.6	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-271118-140 — Lab Sample ID: 280-117531-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	6.1	J	7.0	4.4	2.2	ug/Kg	1	☼	8260B	Total/NA
Trichloroethene	0.66	J	7.0	1.1	0.32	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: V-S1-291118-260 — Lab Sample ID: 280-117531-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Hexanone	6.7	J	24	15	5.9	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	5.4	J	24	15	5.2	ug/Kg	1	☼	8260B	Total/NA
Acetone	220		24	15	6.4	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	5.3	J	6.0	3.8	1.9	ug/Kg	1	☼	8260B	Total/NA
Toluene	1.1	J	6.0	1.9	0.83	ug/Kg	1	☼	8260B	Total/NA
Trichloroethene	0.33	J	6.0	0.96	0.28	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: V-S1-291118-279 — Lab Sample ID: 280-117531-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	13	J Q	22	14	5.9	ug/Kg	1	☼	8260B	Total/NA
Benzene	9.6	Q	5.5	1.8	0.52	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	1.2	J Q	3.5	3.5	1.1	ug/Kg	1	☼	8260B	Total/NA
Toluene	20	Q	5.5	1.8	0.76	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: TB-S1-291118-01 — Lab Sample ID: 280-117531-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.1	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Methylene Chloride	0.48	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117531-1	P-S1-271118-140	Solid	11/27/18 14:35	11/30/18 09:15
280-117531-2	P-S1-291118-260	Solid	11/29/18 09:27	11/30/18 09:15
280-117531-3	P-S1-291118-279	Solid	11/29/18 10:55	11/30/18 09:15
280-117531-4	V-S1-271118-140	Solid	11/27/18 14:35	11/30/18 09:15
280-117531-5	V-S1-291118-260	Solid	11/29/18 09:27	11/30/18 09:15
280-117531-6	V-S1-291118-279	Solid	11/29/18 10:55	11/30/18 09:15
280-117531-7	TB-S1-291118-01	Water	11/29/18 14:30	11/30/18 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-S1-271118-140
Date Collected: 11/27/18 14:35
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-4
Matrix: Solid
Percent Solids: 86.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	2.2	U	7.0	2.2	0.78	ug/Kg	☼	12/08/18 17:24	1
1,1,1-Trichloroethane	2.2	U	7.0	2.2	0.72	ug/Kg	☼	12/08/18 17:24	1
1,1,2,2-Tetrachloroethane	2.2	U	7.0	2.2	0.85	ug/Kg	☼	12/08/18 17:24	1
1,1,2-Trichloroethane	4.4	U	7.0	4.4	1.2	ug/Kg	☼	12/08/18 17:24	1
1,1-Dichloroethane	1.1	U	7.0	1.1	0.29	ug/Kg	☼	12/08/18 17:24	1
1,1-Dichloroethene	2.2	U	7.0	2.2	0.82	ug/Kg	☼	12/08/18 17:24	1
1,1-Dichloropropene	2.2	U	7.0	2.2	0.75	ug/Kg	☼	12/08/18 17:24	1
1,2,3-Trichlorobenzene	2.2	U	7.0	2.2	1.0	ug/Kg	☼	12/08/18 17:24	1
1,2,3-Trichloropropane	4.4	U	7.0	4.4	1.1	ug/Kg	☼	12/08/18 17:24	1
1,2,4-Trichlorobenzene	2.2	U	7.0	2.2	1.0	ug/Kg	☼	12/08/18 17:24	1
1,2,4-Trimethylbenzene	4.4	U	7.0	4.4	0.81	ug/Kg	☼	12/08/18 17:24	1
1,2-Dibromo-3-Chloropropane	2.2	U	14	2.2	0.83	ug/Kg	☼	12/08/18 17:24	1
1,2-Dichlorobenzene	2.2	U	7.0	2.2	0.63	ug/Kg	☼	12/08/18 17:24	1
1,2-Dichloroethane	2.2	U	7.0	2.2	0.97	ug/Kg	☼	12/08/18 17:24	1
1,2-Dichloroethene, Total	2.2	U	7.0	2.2	0.54	ug/Kg	☼	12/08/18 17:24	1
1,2-Dichloropropane	2.2	U	7.0	2.2	0.76	ug/Kg	☼	12/08/18 17:24	1
1,3,5-Trimethylbenzene	2.2	U	7.0	2.2	0.79	ug/Kg	☼	12/08/18 17:24	1
1,3-Dichlorobenzene	2.2	U	7.0	2.2	0.67	ug/Kg	☼	12/08/18 17:24	1
1,3-Dichloropropane	2.2	U	7.0	2.2	0.71	ug/Kg	☼	12/08/18 17:24	1
1,4-Dichlorobenzene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	12/08/18 17:24	1
2,2-Dichloropropane	2.2	U	7.0	2.2	0.61	ug/Kg	☼	12/08/18 17:24	1
2-Butanone (MEK)	8.9	U	28	8.9	2.5	ug/Kg	☼	12/08/18 17:24	1
2-Chlorotoluene	2.2	U	7.0	2.2	0.71	ug/Kg	☼	12/08/18 17:24	1
2-Hexanone	18	U	28	18	6.8	ug/Kg	☼	12/08/18 17:24	1
4-Chlorotoluene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	12/08/18 17:24	1
4-Isopropyltoluene	2.2	U	7.0	2.2	0.68	ug/Kg	☼	12/08/18 17:24	1
4-Methyl-2-pentanone (MIBK)	18	U	28	18	6.1	ug/Kg	☼	12/08/18 17:24	1
Acetone	18	U	28	18	7.5	ug/Kg	☼	12/08/18 17:24	1
Benzene	2.2	U M	7.0	2.2	0.65	ug/Kg	☼	12/08/18 17:24	1
Bromobenzene	2.2	U	7.0	2.2	0.68	ug/Kg	☼	12/08/18 17:24	1
Bromoform	1.1	U	7.0	1.1	0.32	ug/Kg	☼	12/08/18 17:24	1
Bromomethane	2.2	U	14	2.2	0.70	ug/Kg	☼	12/08/18 17:24	1
Carbon disulfide	2.2	U M	7.0	2.2	0.58	ug/Kg	☼	12/08/18 17:24	1
Carbon tetrachloride	2.2	U	7.0	2.2	0.88	ug/Kg	☼	12/08/18 17:24	1
Chlorobenzene	2.2	U	7.0	2.2	0.75	ug/Kg	☼	12/08/18 17:24	1
Bromochloromethane	1.1	U	7.0	1.1	0.42	ug/Kg	☼	12/08/18 17:24	1
Dibromochloromethane	2.2	U	7.0	2.2	0.79	ug/Kg	☼	12/08/18 17:24	1
Chloroethane	4.4	U	14	4.4	1.2	ug/Kg	☼	12/08/18 17:24	1
Chloroform	1.1	U	14	1.1	0.40	ug/Kg	☼	12/08/18 17:24	1
Chloromethane	2.2	U	14	2.2	1.1	ug/Kg	☼	12/08/18 17:24	1
cis-1,2-Dichloroethene	2.2	U	7.0	2.2	0.78	ug/Kg	☼	12/08/18 17:24	1
cis-1,3-Dichloropropene	4.4	U	7.0	4.4	1.8	ug/Kg	☼	12/08/18 17:24	1
Dibromomethane	4.4	U	7.0	4.4	1.2	ug/Kg	☼	12/08/18 17:24	1
Bromodichloromethane	1.1	U	7.0	1.1	0.31	ug/Kg	☼	12/08/18 17:24	1
Dichlorodifluoromethane	2.2	U Q	14	2.2	0.72	ug/Kg	☼	12/08/18 17:24	1
Ethylbenzene	2.2	U	7.0	2.2	0.93	ug/Kg	☼	12/08/18 17:24	1
Ethylene Dibromide	2.2	U	7.0	2.2	0.72	ug/Kg	☼	12/08/18 17:24	1
Hexachlorobutadiene	2.2	U	7.0	2.2	0.76	ug/Kg	☼	12/08/18 17:24	1
Isopropylbenzene	2.2	U	7.0	2.2	0.82	ug/Kg	☼	12/08/18 17:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-271118-140
Date Collected: 11/27/18 14:35
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-4
Matrix: Solid
Percent Solids: 86.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methyl tert-butyl ether	1.1	U	28	1.1	0.47	ug/Kg	☼	12/08/18 17:24	1
Methylene Chloride	**6.1**	**J**	7.0	4.4	2.2	ug/Kg	☼	12/08/18 17:24	1
m-Xylene & p-Xylene	4.4	U	4.4	4.4	1.4	ug/Kg	☼	12/08/18 17:24	1
Naphthalene	2.2	U	7.0	2.2	0.88	ug/Kg	☼	12/08/18 17:24	1
n-Butylbenzene	2.2	U	7.0	2.2	0.78	ug/Kg	☼	12/08/18 17:24	1
N-Propylbenzene	2.2	U	7.0	2.2	0.81	ug/Kg	☼	12/08/18 17:24	1
o-Xylene	2.2	U	7.0	2.2	0.85	ug/Kg	☼	12/08/18 17:24	1
sec-Butylbenzene	2.2	U	7.0	2.2	1.1	ug/Kg	☼	12/08/18 17:24	1
Styrene	2.2	U	7.0	2.2	0.88	ug/Kg	☼	12/08/18 17:24	1
tert-Butylbenzene	2.2	U	7.0	2.2	0.70	ug/Kg	☼	12/08/18 17:24	1
Tetrachloroethene	2.2	U	7.0	2.2	0.82	ug/Kg	☼	12/08/18 17:24	1
Toluene	2.2	U	7.0	2.2	0.96	ug/Kg	☼	12/08/18 17:24	1
trans-1,2-Dichloroethene	1.1	U	7.0	1.1	0.54	ug/Kg	☼	12/08/18 17:24	1
trans-1,3-Dichloropropene	2.2	U	7.0	2.2	0.93	ug/Kg	☼	12/08/18 17:24	1
Trichloroethene	**0.66**	**J**	7.0	1.1	0.32	ug/Kg	☼	12/08/18 17:24	1
Trichlorofluoromethane	4.4	U	14	4.4	1.4	ug/Kg	☼	12/08/18 17:24	1
Vinyl chloride	4.4	U	7.0	4.4	1.9	ug/Kg	☼	12/08/18 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/27/18 14:35*	*12/08/18 17:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/27/18 14:35*	*12/08/18 17:24*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*11/27/18 14:35*	*12/08/18 17:24*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 119*	*11/27/18 14:35*	*12/08/18 17:24*	*1*

Client Sample ID: V-S1-291118-260
Date Collected: 11/29/18 09:27
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-5
Matrix: Solid
Percent Solids: 86.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.9	U	6.0	1.9	0.67	ug/Kg	☼	12/08/18 17:44	1
1,1,1-Trichloroethane	1.9	U	6.0	1.9	0.62	ug/Kg	☼	12/08/18 17:44	1
1,1,2,2-Tetrachloroethane	1.9	U	6.0	1.9	0.73	ug/Kg	☼	12/08/18 17:44	1
1,1,2-Trichloroethane	3.8	U	6.0	3.8	1.1	ug/Kg	☼	12/08/18 17:44	1
1,1-Dichloroethane	0.96	U	6.0	0.96	0.25	ug/Kg	☼	12/08/18 17:44	1
1,1-Dichloroethene	1.9	U	6.0	1.9	0.71	ug/Kg	☼	12/08/18 17:44	1
1,1-Dichloropropene	1.9	U	6.0	1.9	0.65	ug/Kg	☼	12/08/18 17:44	1
1,2,3-Trichlorobenzene	1.9	U	6.0	1.9	0.90	ug/Kg	☼	12/08/18 17:44	1
1,2,3-Trichloropropane	3.8	U	6.0	3.8	0.97	ug/Kg	☼	12/08/18 17:44	1
1,2,4-Trichlorobenzene	1.9	U	6.0	1.9	0.87	ug/Kg	☼	12/08/18 17:44	1
1,2,4-Trimethylbenzene	3.8	U	6.0	3.8	0.69	ug/Kg	☼	12/08/18 17:44	1
1,2-Dibromo-3-Chloropropane	1.9	U	12	1.9	0.72	ug/Kg	☼	12/08/18 17:44	1
1,2-Dichlorobenzene	1.9	U	6.0	1.9	0.54	ug/Kg	☼	12/08/18 17:44	1
1,2-Dichloroethane	1.9	U	6.0	1.9	0.84	ug/Kg	☼	12/08/18 17:44	1
1,2-Dichloroethene, Total	1.9	U	6.0	1.9	0.47	ug/Kg	☼	12/08/18 17:44	1
1,2-Dichloropropane	1.9	U	6.0	1.9	0.66	ug/Kg	☼	12/08/18 17:44	1
1,3,5-Trimethylbenzene	1.9	U	6.0	1.9	0.68	ug/Kg	☼	12/08/18 17:44	1
1,3-Dichlorobenzene	1.9	U	6.0	1.9	0.57	ug/Kg	☼	12/08/18 17:44	1
1,3-Dichloropropane	1.9	U	6.0	1.9	0.61	ug/Kg	☼	12/08/18 17:44	1
1,4-Dichlorobenzene	1.9	U	6.0	1.9	0.93	ug/Kg	☼	12/08/18 17:44	1
2,2-Dichloropropane	1.9	U	6.0	1.9	0.53	ug/Kg	☼	12/08/18 17:44	1
2-Butanone (MEK)	7.7	U	24	7.7	2.2	ug/Kg	☼	12/08/18 17:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-291118-260
Date Collected: 11/29/18 09:27
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-5
Matrix: Solid
Percent Solids: 86.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.9	U	6.0	1.9	0.61	ug/Kg	☼	12/08/18 17:44	1
2-Hexanone	**6.7**	**J**	24	15	5.9	ug/Kg	☼	12/08/18 17:44	1
4-Chlorotoluene	1.9	U	6.0	1.9	0.93	ug/Kg	☼	12/08/18 17:44	1
4-Isopropyltoluene	1.9	U	6.0	1.9	0.59	ug/Kg	☼	12/08/18 17:44	1
4-Methyl-2-pentanone (MIBK)	**5.4**	**J**	24	15	5.2	ug/Kg	☼	12/08/18 17:44	1
Acetone	**220**		24	15	6.4	ug/Kg	☼	12/08/18 17:44	1
Benzene	1.9	U	6.0	1.9	0.56	ug/Kg	☼	12/08/18 17:44	1
Bromobenzene	1.9	U	6.0	1.9	0.59	ug/Kg	☼	12/08/18 17:44	1
Bromoform	0.96	U	6.0	0.96	0.28	ug/Kg	☼	12/08/18 17:44	1
Bromomethane	1.9	U	12	1.9	0.60	ug/Kg	☼	12/08/18 17:44	1
Carbon disulfide	1.9	U	6.0	1.9	0.50	ug/Kg	☼	12/08/18 17:44	1
Carbon tetrachloride	1.9	U	6.0	1.9	0.75	ug/Kg	☼	12/08/18 17:44	1
Chlorobenzene	1.9	U	6.0	1.9	0.65	ug/Kg	☼	12/08/18 17:44	1
Bromochloromethane	0.96	U	6.0	0.96	0.36	ug/Kg	☼	12/08/18 17:44	1
Dibromochloromethane	1.9	U	6.0	1.9	0.68	ug/Kg	☼	12/08/18 17:44	1
Chloroethane	3.8	U	12	3.8	1.1	ug/Kg	☼	12/08/18 17:44	1
Chloroform	0.96	U	12	0.96	0.35	ug/Kg	☼	12/08/18 17:44	1
Chloromethane	1.9	U	12	1.9	0.92	ug/Kg	☼	12/08/18 17:44	1
cis-1,2-Dichloroethene	1.9	U	6.0	1.9	0.67	ug/Kg	☼	12/08/18 17:44	1
cis-1,3-Dichloropropene	3.8	U	6.0	3.8	1.5	ug/Kg	☼	12/08/18 17:44	1
Dibromomethane	3.8	U	6.0	3.8	1.0	ug/Kg	☼	12/08/18 17:44	1
Bromodichloromethane	0.96	U	6.0	0.96	0.26	ug/Kg	☼	12/08/18 17:44	1
Dichlorodifluoromethane	1.9	U Q	12	1.9	0.62	ug/Kg	☼	12/08/18 17:44	1
Ethylbenzene	1.9	U	6.0	1.9	0.80	ug/Kg	☼	12/08/18 17:44	1
Ethylene Dibromide	1.9	U	6.0	1.9	0.62	ug/Kg	☼	12/08/18 17:44	1
Hexachlorobutadiene	1.9	U	6.0	1.9	0.66	ug/Kg	☼	12/08/18 17:44	1
Isopropylbenzene	1.9	U	6.0	1.9	0.71	ug/Kg	☼	12/08/18 17:44	1
Methyl tert-butyl ether	0.96	U	24	0.96	0.41	ug/Kg	☼	12/08/18 17:44	1
Methylene Chloride	**5.3**	**J**	6.0	3.8	1.9	ug/Kg	☼	12/08/18 17:44	1
m-Xylene & p-Xylene	3.8	U	3.8	3.8	1.2	ug/Kg	☼	12/08/18 17:44	1
Naphthalene	1.9	U	6.0	1.9	0.75	ug/Kg	☼	12/08/18 17:44	1
n-Butylbenzene	1.9	U	6.0	1.9	0.67	ug/Kg	☼	12/08/18 17:44	1
N-Propylbenzene	1.9	U	6.0	1.9	0.69	ug/Kg	☼	12/08/18 17:44	1
o-Xylene	1.9	U	6.0	1.9	0.73	ug/Kg	☼	12/08/18 17:44	1
sec-Butylbenzene	1.9	U	6.0	1.9	0.92	ug/Kg	☼	12/08/18 17:44	1
Styrene	1.9	U	6.0	1.9	0.75	ug/Kg	☼	12/08/18 17:44	1
tert-Butylbenzene	1.9	U	6.0	1.9	0.60	ug/Kg	☼	12/08/18 17:44	1
Tetrachloroethene	1.9	U	6.0	1.9	0.71	ug/Kg	☼	12/08/18 17:44	1
Toluene	**1.1**	**J**	6.0	1.9	0.83	ug/Kg	☼	12/08/18 17:44	1
trans-1,2-Dichloroethene	0.96	U	6.0	0.96	0.47	ug/Kg	☼	12/08/18 17:44	1
trans-1,3-Dichloropropene	1.9	U	6.0	1.9	0.80	ug/Kg	☼	12/08/18 17:44	1
Trichloroethene	**0.33**	**J**	6.0	0.96	0.28	ug/Kg	☼	12/08/18 17:44	1
Trichlorofluoromethane	3.8	U	12	3.8	1.2	ug/Kg	☼	12/08/18 17:44	1
Vinyl chloride	3.8	U	6.0	3.8	1.6	ug/Kg	☼	12/08/18 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*11/29/18 09:27*	*12/08/18 17:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*11/29/18 09:27*	*12/08/18 17:44*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*11/29/18 09:27*	*12/08/18 17:44*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 119*	*11/29/18 09:27*	*12/08/18 17:44*	*1*

Client Sample ID: V-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-6
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U Q	5.5	1.8	0.62	ug/Kg	☼	12/08/18 18:05	1
1,1,1-Trichloroethane	1.8	U Q	5.5	1.8	0.57	ug/Kg	☼	12/08/18 18:05	1
1,1,2,2-Tetrachloroethane	1.8	U Q	5.5	1.8	0.67	ug/Kg	☼	12/08/18 18:05	1
1,1,2-Trichloroethane	3.5	U Q	5.5	3.5	0.97	ug/Kg	☼	12/08/18 18:05	1
1,1-Dichloroethane	0.88	U Q	5.5	0.88	0.23	ug/Kg	☼	12/08/18 18:05	1
1,1-Dichloroethene	1.8	U Q	5.5	1.8	0.65	ug/Kg	☼	12/08/18 18:05	1
1,1-Dichloropropene	1.8	U Q	5.5	1.8	0.60	ug/Kg	☼	12/08/18 18:05	1
1,2,3-Trichlorobenzene	1.8	U Q	5.5	1.8	0.83	ug/Kg	☼	12/08/18 18:05	1
1,2,3-Trichloropropane	3.5	U Q	5.5	3.5	0.89	ug/Kg	☼	12/08/18 18:05	1
1,2,4-Trichlorobenzene	1.8	U Q	5.5	1.8	0.81	ug/Kg	☼	12/08/18 18:05	1
1,2,4-Trimethylbenzene	3.5	U Q	5.5	3.5	0.64	ug/Kg	☼	12/08/18 18:05	1
1,2-Dibromo-3-Chloropropane	1.8	U Q	11	1.8	0.66	ug/Kg	☼	12/08/18 18:05	1
1,2-Dichlorobenzene	1.8	U Q	5.5	1.8	0.50	ug/Kg	☼	12/08/18 18:05	1
1,2-Dichloroethane	1.8	U Q	5.5	1.8	0.77	ug/Kg	☼	12/08/18 18:05	1
1,2-Dichloroethene, Total	1.8	U	5.5	1.8	0.43	ug/Kg	☼	12/08/18 18:05	1
1,2-Dichloropropane	1.8	U Q	5.5	1.8	0.61	ug/Kg	☼	12/08/18 18:05	1
1,3,5-Trimethylbenzene	1.8	U Q	5.5	1.8	0.63	ug/Kg	☼	12/08/18 18:05	1
1,3-Dichlorobenzene	1.8	U Q	5.5	1.8	0.53	ug/Kg	☼	12/08/18 18:05	1
1,3-Dichloropropane	1.8	U Q	5.5	1.8	0.56	ug/Kg	☼	12/08/18 18:05	1
1,4-Dichlorobenzene	1.8	U Q	5.5	1.8	0.86	ug/Kg	☼	12/08/18 18:05	1
2,2-Dichloropropane	1.8	U Q	5.5	1.8	0.49	ug/Kg	☼	12/08/18 18:05	1
2-Butanone (MEK)	7.1	U Q	22	7.1	2.0	ug/Kg	☼	12/08/18 18:05	1
2-Chlorotoluene	1.8	U Q	5.5	1.8	0.56	ug/Kg	☼	12/08/18 18:05	1
2-Hexanone	14	U Q	22	14	5.4	ug/Kg	☼	12/08/18 18:05	1
4-Chlorotoluene	1.8	U Q	5.5	1.8	0.86	ug/Kg	☼	12/08/18 18:05	1
4-Isopropyltoluene	1.8	U Q	5.5	1.8	0.54	ug/Kg	☼	12/08/18 18:05	1
4-Methyl-2-pentanone (MIBK)	14	U Q	22	14	4.8	ug/Kg	☼	12/08/18 18:05	1
Acetone	**13**	**J Q**	22	14	5.9	ug/Kg	☼	12/08/18 18:05	1
Benzene	**9.6**	**Q**	5.5	1.8	0.52	ug/Kg	☼	12/08/18 18:05	1
Bromobenzene	1.8	U Q	5.5	1.8	0.54	ug/Kg	☼	12/08/18 18:05	1
Bromoform	0.88	U Q	5.5	0.88	0.25	ug/Kg	☼	12/08/18 18:05	1
Bromomethane	1.8	U Q	11	1.8	0.55	ug/Kg	☼	12/08/18 18:05	1
Carbon disulfide	1.8	U Q	5.5	1.8	0.46	ug/Kg	☼	12/08/18 18:05	1
Carbon tetrachloride	1.8	U Q	5.5	1.8	0.70	ug/Kg	☼	12/08/18 18:05	1
Chlorobenzene	1.8	U Q	5.5	1.8	0.60	ug/Kg	☼	12/08/18 18:05	1
Bromochloromethane	0.88	U Q	5.5	0.88	0.33	ug/Kg	☼	12/08/18 18:05	1
Dibromochloromethane	1.8	U Q	5.5	1.8	0.63	ug/Kg	☼	12/08/18 18:05	1
Chloroethane	3.5	U Q	11	3.5	0.98	ug/Kg	☼	12/08/18 18:05	1
Chloroform	0.88	U Q	11	0.88	0.32	ug/Kg	☼	12/08/18 18:05	1
Chloromethane	1.8	U Q	11	1.8	0.85	ug/Kg	☼	12/08/18 18:05	1
cis-1,2-Dichloroethene	1.8	U Q	5.5	1.8	0.62	ug/Kg	☼	12/08/18 18:05	1
cis-1,3-Dichloropropene	3.5	U Q	5.5	3.5	1.4	ug/Kg	☼	12/08/18 18:05	1
Dibromomethane	3.5	U Q	5.5	3.5	0.93	ug/Kg	☼	12/08/18 18:05	1
Bromodichloromethane	0.88	U Q	5.5	0.88	0.24	ug/Kg	☼	12/08/18 18:05	1
Dichlorodifluoromethane	1.8	U Q	11	1.8	0.57	ug/Kg	☼	12/08/18 18:05	1
Ethylbenzene	1.8	U Q	5.5	1.8	0.74	ug/Kg	☼	12/08/18 18:05	1
Ethylene Dibromide	1.8	U Q	5.5	1.8	0.57	ug/Kg	☼	12/08/18 18:05	1
Hexachlorobutadiene	1.8	U Q	5.5	1.8	0.61	ug/Kg	☼	12/08/18 18:05	1
Isopropylbenzene	1.8	U Q	5.5	1.8	0.65	ug/Kg	☼	12/08/18 18:05	1
Methyl tert-butyl ether	0.88	U Q	22	0.88	0.38	ug/Kg	☼	12/08/18 18:05	1
Methylene Chloride	3.5	U Q	5.5	3.5	1.8	ug/Kg	☼	12/08/18 18:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-6
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	**1.2**	**J Q**	3.5	3.5	1.1	ug/Kg	☼	12/08/18 18:05	1
Naphthalene	1.8	U Q	5.5	1.8	0.70	ug/Kg	☼	12/08/18 18:05	1
n-Butylbenzene	1.8	U Q	5.5	1.8	0.62	ug/Kg	☼	12/08/18 18:05	1
N-Propylbenzene	1.8	U Q	5.5	1.8	0.64	ug/Kg	☼	12/08/18 18:05	1
o-Xylene	1.8	U Q	5.5	1.8	0.67	ug/Kg	☼	12/08/18 18:05	1
sec-Butylbenzene	1.8	U Q	5.5	1.8	0.85	ug/Kg	☼	12/08/18 18:05	1
Styrene	1.8	U Q	5.5	1.8	0.70	ug/Kg	☼	12/08/18 18:05	1
tert-Butylbenzene	1.8	U Q	5.5	1.8	0.55	ug/Kg	☼	12/08/18 18:05	1
Tetrachloroethene	1.8	U Q	5.5	1.8	0.65	ug/Kg	☼	12/08/18 18:05	1
Toluene	**20**	**Q**	5.5	1.8	0.76	ug/Kg	☼	12/08/18 18:05	1
trans-1,2-Dichloroethene	0.88	U Q	5.5	0.88	0.43	ug/Kg	☼	12/08/18 18:05	1
trans-1,3-Dichloropropene	1.8	U Q	5.5	1.8	0.74	ug/Kg	☼	12/08/18 18:05	1
Trichloroethene	0.88	U Q	5.5	0.88	0.25	ug/Kg	☼	12/08/18 18:05	1
Trichlorofluoromethane	3.5	U Q	11	3.5	1.1	ug/Kg	☼	12/08/18 18:05	1
Vinyl chloride	3.5	U Q	5.5	3.5	1.5	ug/Kg	☼	12/08/18 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*71*	*Q*	*85 - 116*	*11/29/18 10:55*	*12/08/18 18:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*67*	*Q*	*71 - 136*	*11/29/18 10:55*	*12/08/18 18:05*	*1*
4-Bromofluorobenzene (Surr)	*72*	*Q*	*79 - 119*	*11/29/18 10:55*	*12/08/18 18:05*	*1*
Dibromofluoromethane (Surr)	*67*	*Q*	*78 - 119*	*11/29/18 10:55*	*12/08/18 18:05*	*1*

Client Sample ID: TB-S1-291118-01
Date Collected: 11/29/18 14:30
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.1**	**J**	10	6.4	1.9	ug/L		12/13/18 12:19	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/13/18 12:19	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 12:19	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/13/18 12:19	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/13/18 12:19	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/13/18 12:19	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/13/18 12:19	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/13/18 12:19	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/13/18 12:19	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/13/18 12:19	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 12:19	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/13/18 12:19	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/13/18 12:19	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/13/18 12:19	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 12:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S1-291118-01
Date Collected: 11/29/18 14:30
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/13/18 12:19	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 12:19	1
1,2-Dichloroethane	0.40	U M	1.0	0.40	0.13	ug/L		12/13/18 12:19	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/13/18 12:19	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/13/18 12:19	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 12:19	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 12:19	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/13/18 12:19	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 12:19	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/13/18 12:19	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 12:19	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 12:19	1
Ethylbenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/13/18 12:19	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/13/18 12:19	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 12:19	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/13/18 12:19	1
Methylene Chloride	**0.48**	**J**	5.0	0.80	0.32	ug/L		12/13/18 12:19	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/13/18 12:19	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/13/18 12:19	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 12:19	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Styrene	0.40	U M	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 12:19	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 12:19	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/13/18 12:19	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 12:19	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/13/18 12:19	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/13/18 12:19	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 12:19	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/13/18 12:19	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 12:19	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 12:19	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/13/18 12:19	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 12:19	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/13/18 12:19	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/13/18 12:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*81 - 118*		*12/13/18 12:19*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*12/13/18 12:19*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 119*		*12/13/18 12:19*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S1-271118-140
Date Collected: 11/27/18 14:35
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-1
Matrix: Solid
Percent Solids: 88.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.5	U	1.7	1.5	0.45	mg/Kg	☼	12/03/18 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*	*11/27/18 14:35*	*12/03/18 21:51*	*1*

Client Sample ID: P-S1-291118-260
Date Collected: 11/29/18 09:27
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-2
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.6	1.4	0.43	mg/Kg	☼	12/03/18 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*11/29/18 09:27*	*12/03/18 22:15*	*1*

Client Sample ID: P-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-3
Matrix: Solid
Percent Solids: 81.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.6	U	1.8	1.6	0.48	mg/Kg	☼	12/03/18 22:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*100*		*77 - 123*	*11/29/18 10:55*	*12/03/18 22:39*	*1*

Client Sample ID: TB-S1-291118-01
Date Collected: 11/29/18 14:30
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U Q	25	25	10	ug/L		12/04/18 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*83*		*82 - 110*		*12/04/18 19:16*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S1-271118-140
Date Collected: 11/27/18 14:35
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-4
Matrix: Solid
Percent Solids: 86.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.044	U	0.12	0.044	0.017	ug/Kg	☼	12/10/18 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*94*		*55 - 130*	*12/03/18 10:24*	*12/10/18 18:35*	*1*

Client Sample ID: V-S1-291118-260
Date Collected: 11/29/18 09:27
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-5
Matrix: Solid
Percent Solids: 86.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.044	U	0.12	0.044	0.017	ug/Kg	☼	12/09/18 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*88*	*Q M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 18:21*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-6
Matrix: Solid
Percent Solids: 83.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.045	U	0.12	0.045	0.018	ug/Kg	☼	12/09/18 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*98*	*Q*	*55 - 130*	*12/03/18 10:24*	*12/09/18 18:40*	*1*

Client Sample ID: TB-S1-291118-01
Date Collected: 11/29/18 14:30
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		12/11/18 21:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*104*		*70 - 130*	*12/11/18 11:43*	*12/11/18 21:07*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-271118-140
Date Collected: 11/27/18 14:35
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-1
Matrix: Solid
Percent Solids: 88.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.7**	**J**	9.0	4.5	1.5	mg/Kg	☼	12/07/18 23:06	1
Motor Oil (C20-C38)	**17**	**J**	27	26	8.8	mg/Kg	☼	12/07/18 23:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*59*		*45 - 130*	*12/04/18 08:05*	*12/07/18 23:06*	*1*
n-Octacosane	*83*		*25 - 162*	*12/04/18 08:05*	*12/07/18 23:06*	*1*

Client Sample ID: P-S1-291118-260
Date Collected: 11/29/18 09:27
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-2
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5.3**	**J**	9.0	4.5	1.5	mg/Kg	☼	12/07/18 23:26	1
Motor Oil (C20-C38)	**12**	**J**	27	26	8.8	mg/Kg	☼	12/07/18 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*50*		*45 - 130*	*12/04/18 08:05*	*12/07/18 23:26*	*1*
n-Octacosane	*66*	*M*	*25 - 162*	*12/04/18 08:05*	*12/07/18 23:26*	*1*

Client Sample ID: P-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15
Lab Sample ID: 280-117531-3
Matrix: Solid
Percent Solids: 81.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.0**	**J Q**	9.4	4.7	1.6	mg/Kg	☼	12/07/18 23:46	1
Motor Oil (C20-C38)	27	U	28	27	9.2	mg/Kg	☼	12/07/18 23:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*44*	*Q*	*45 - 130*	*12/04/18 08:05*	*12/07/18 23:46*	*1*
n-Octacosane	*47*	*M*	*25 - 162*	*12/04/18 08:05*	*12/07/18 23:46*	*1*

General Chemistry

Client Sample ID: P-S1-271118-140 — **Lab Sample ID: 280-117531-1**
Date Collected: 11/27/18 14:35 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 88.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.5		0.1	0.05	0.1	%		12/07/18 12:44	1

Client Sample ID: P-S1-291118-260 — **Lab Sample ID: 280-117531-2**
Date Collected: 11/29/18 09:27 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 87.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.7		0.1	0.05	0.1	%		12/06/18 12:30	1

Client Sample ID: P-S1-291118-279 — **Lab Sample ID: 280-117531-3**
Date Collected: 11/29/18 10:55 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 81.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	19.0		0.1	0.05	0.1	%		12/06/18 12:30	1

Client Sample ID: V-S1-271118-140 — **Lab Sample ID: 280-117531-4**
Date Collected: 11/27/18 14:35 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 86.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.4		0.1	0.05	0.1	%		12/04/18 11:13	1

Client Sample ID: V-S1-291118-260 — **Lab Sample ID: 280-117531-5**
Date Collected: 11/29/18 09:27 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 86.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.6		0.1	0.05	0.1	%		12/04/18 11:13	1

Client Sample ID: V-S1-291118-279 — **Lab Sample ID: 280-117531-6**
Date Collected: 11/29/18 10:55 — **Matrix: Solid**
Date Received: 11/30/18 09:15 — **Percent Solids: 83.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.1		0.1	0.05	0.1	%		12/04/18 11:13	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117531-4	V-S1-271118-140	101	91	98	93
280-117531-5	V-S1-291118-260	101	92	97	93
280-117531-6	V-S1-291118-279	71 Q	67 Q	72 Q	67 Q
LCS 280-440485/2-A	Lab Control Sample	94	83	91	85
LCSD 280-440485/3-A	Lab Control Sample Dup	106	98	103	97
MB 280-440485/1-A	Method Blank	98	92	96	94

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117531-7	TB-S1-291118-01	97	92	100	88
LCS 280-441068/4	Lab Control Sample	99	96	99	92
LCSD 280-441068/5	Lab Control Sample Dup	96	97	99	89 M
MB 280-441068/8	Method Blank	97	93	100	90

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117531-1	P-S1-271118-140	93
280-117531-2	P-S1-291118-260	95
280-117531-3	P-S1-291118-279	100
LCS 280-439713/1-A	Lab Control Sample	91
MB 280-439713/2-A	Method Blank	89

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117531-7	TB-S1-291118-01	83
LCS 280-439783/3	Lab Control Sample	91
LCSD 280-439783/5	Lab Control Sample Dup	92
MB 280-439783/4	Method Blank	92

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117531-4	V-S1-271118-140	94
280-117531-5	V-S1-291118-260	88 Q M
280-117531-6	V-S1-291118-279	98 Q
LCS 280-439660/2-A	Lab Control Sample	94 M
LCSD 280-439660/3-A	Lab Control Sample Dup	95 M
MB 280-439660/4-A	Method Blank	91 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117531-7	TB-S1-291118-01	104
LCS 280-440756/2-A	Lab Control Sample	97
LCSD 280-440756/3-A	Lab Control Sample Dup	104
MB 280-440756/4-A	Method Blank	103

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117531-1	P-S1-271118-140	59	83
280-117531-2	P-S1-291118-260	50	66 M
280-117531-3	P-S1-291118-279	44 Q	47 M
LCS 280-439729/2-A	Lab Control Sample	73	87
LCS 280-439729/3-A	Lab Control Sample	84	88 M
MB 280-439729/1-A	Method Blank	62	87

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-440485/1-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/08/18 12:18	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		12/08/18 12:18	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/08/18 12:18	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/08/18 12:18	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/08/18 12:18	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/08/18 12:18	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/08/18 12:18	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/08/18 12:18	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/08/18 12:18	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/08/18 12:18	1
Benzene	1.6	U M	5.0	1.6	0.47	ug/Kg		12/08/18 12:18	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/08/18 12:18	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/08/18 12:18	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/08/18 12:18	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/08/18 12:18	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/08/18 12:18	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/08/18 12:18	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/08/18 12:18	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/08/18 12:18	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/08/18 12:18	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/08/18 12:18	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/08/18 12:18	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/08/18 12:18	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/08/18 12:18	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/08/18 12:18	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/08/18 12:18	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/08/18 12:18	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/08/18 12:18	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/08/18 12:18	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/08/18 12:18	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/08/18 12:18	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/08/18 12:18	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/08/18 12:18	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/08/18 12:18	1
Dichlorodifluoromethane	1.6	U Q	10	1.6	0.52	ug/Kg		12/08/18 12:18	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/08/18 12:18	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/08/18 12:18	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/08/18 12:18	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/08/18 12:18	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/08/18 12:18	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/08/18 12:18	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/08/18 12:18	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/08/18 12:18	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		12/08/18 12:18	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/08/18 12:18	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/08/18 12:18	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/08/18 12:18	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/08/18 12:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-440485/1-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440485

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/08/18 12:18	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/08/18 12:18	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/08/18 12:18	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		12/08/18 12:18	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/08/18 12:18	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/08/18 12:18	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/08/18 12:18	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		12/08/18 12:18	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/08/18 12:18	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/08/18 12:18	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/08/18 12:18	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/08/18 12:18	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/08/18 12:18	1
Trichloroethene	0.80	U M	5.0	0.80	0.23	ug/Kg		12/08/18 12:18	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/08/18 12:18	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/08/18 12:18	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/08/18 12:18	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/08/18 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*12/08/18 07:00*	*12/08/18 12:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*12/08/18 07:00*	*12/08/18 12:18*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*12/08/18 07:00*	*12/08/18 12:18*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 119*	*12/08/18 07:00*	*12/08/18 12:18*	*1*

Lab Sample ID: LCS 280-440485/2-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	43.8		ug/Kg		88	61 - 132
2-Butanone (MEK)	200	187		ug/Kg		93	51 - 148
1,2-Dichlorobenzene	50.0	51.7		ug/Kg		103	78 - 121
1,3-Dichlorobenzene	50.0	48.9		ug/Kg		98	77 - 121
4-Chlorotoluene	50.0	48.8		ug/Kg		98	72 - 124
1,4-Dichlorobenzene	50.0	49.7		ug/Kg		99	75 - 120
1,1-Dichloroethane	50.0	47.5		ug/Kg		95	76 - 125
1,2-Dichloroethane	50.0	49.4		ug/Kg		99	73 - 128
Acetone	200	191		ug/Kg		96	36 - 164
1,1-Dichloroethene	50.0	50.3		ug/Kg		101	70 - 131
Benzene	50.0	47.3		ug/Kg		95	77 - 121
Bromobenzene	50.0	52.0		ug/Kg		104	78 - 121
Bromoform	50.0	51.7		ug/Kg		103	67 - 132
Bromomethane	50.0	52.9		ug/Kg		106	53 - 143
1,2-Dichloropropane	50.0	48.3		ug/Kg		97	76 - 123
Carbon disulfide	50.0	49.6		ug/Kg		99	63 - 132
1,3-Dichloropropane	50.0	49.4		ug/Kg		99	77 - 121
Carbon tetrachloride	50.0	48.9		ug/Kg		98	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-440485/2-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	50.8		ug/Kg		102	67 - 133
Chlorobenzene	50.0	49.3		ug/Kg		99	79 - 120
1,1-Dichloropropene	50.0	49.4		ug/Kg		99	76 - 125
Bromochloromethane	50.0	50.2		ug/Kg		100	78 - 125
Dibromochloromethane	50.0	50.9		ug/Kg		102	74 - 126
Chloroethane	50.0	54.4		ug/Kg		109	59 - 139
Chloroform	50.0	49.0		ug/Kg		98	78 - 123
2-Hexanone	200	199		ug/Kg		99	53 - 145
Chloromethane	50.0	40.9		ug/Kg		82	50 - 136
cis-1,2-Dichloroethene	50.0	48.2		ug/Kg		96	77 - 123
cis-1,3-Dichloropropene	50.0	54.1		ug/Kg		108	74 - 126
4-Isopropyltoluene	50.0	49.4		ug/Kg		99	73 - 127
Dibromomethane	50.0	49.1		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	48.5		ug/Kg		97	75 - 127
4-Methyl-2-pentanone (MIBK)	200	190		ug/Kg		95	65 - 135
Dichlorodifluoromethane	50.0	32.0		ug/Kg		64	29 - 149
Ethylbenzene	50.0	49.1		ug/Kg		98	76 - 122
Ethylene Dibromide	50.0	51.2		ug/Kg		102	78 - 122
Hexachlorobutadiene	50.0	50.4		ug/Kg		101	61 - 135
Isopropylbenzene	50.0	50.4		ug/Kg		101	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.3		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	48.4		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	50.0	47.8		ug/Kg		96	70 - 124
Methylene Chloride	50.0	50.2		ug/Kg		100	70 - 128
Naphthalene	50.0	50.1		ug/Kg		100	62 - 129
1,2,3-Trichlorobenzene	50.0	51.7		ug/Kg		103	66 - 130
n-Butylbenzene	50.0	46.9		ug/Kg		94	70 - 128
1,1,1-Trichloroethane	50.0	48.0		ug/Kg		96	73 - 130
N-Propylbenzene	50.0	49.5		ug/Kg		99	73 - 125
1,1,2-Trichloroethane	50.0	49.4		ug/Kg		99	78 - 121
sec-Butylbenzene	50.0	48.5		ug/Kg		97	73 - 126
Styrene	50.0	47.8		ug/Kg		96	76 - 124
1,2,4-Trichlorobenzene	50.0	51.8		ug/Kg		104	67 - 129
tert-Butylbenzene	50.0	46.6		ug/Kg		93	73 - 125
1,2,3-Trichloropropane	50.0	49.4		ug/Kg		99	73 - 125
Tetrachloroethene	50.0	48.8		ug/Kg		98	73 - 128
1,2,4-Trimethylbenzene	50.0	49.8		ug/Kg		100	75 - 123
Toluene	50.0	46.8		ug/Kg		94	77 - 121
1,3,5-Trimethylbenzene	50.0	48.1		ug/Kg		96	73 - 124
trans-1,2-Dichloroethene	50.0	50.0		ug/Kg		100	74 - 125
trans-1,3-Dichloropropene	50.0	49.3		ug/Kg		99	71 - 130
o-Xylene	50.0	48.0		ug/Kg		96	77 - 123
Trichloroethene	50.0	47.5		ug/Kg		95	77 - 123
m-Xylene & p-Xylene	50.0	49.0		ug/Kg		98	77 - 124
Trichlorofluoromethane	50.0	55.2		ug/Kg		110	62 - 140
Vinyl chloride	50.0	47.8		ug/Kg		96	56 - 135
2-Chlorotoluene	50.0	49.8		ug/Kg		100	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-440485/2-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440485

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*85*		*78 - 119*

Lab Sample ID: LCSD 280-440485/3-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440485

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	45.9		ug/Kg		92	61 - 132	5	20
2-Butanone (MEK)			200	193		ug/Kg		96	51 - 148	3	20
1,2-Dichlorobenzene			50.0	54.9		ug/Kg		110	78 - 121	6	20
1,3-Dichlorobenzene			50.0	52.6		ug/Kg		105	77 - 121	7	20
4-Chlorotoluene			50.0	55.1		ug/Kg		110	72 - 124	12	20
1,4-Dichlorobenzene			50.0	53.2		ug/Kg		106	75 - 120	7	20
1,1-Dichloroethane			50.0	51.1		ug/Kg		102	76 - 125	7	20
1,2-Dichloroethane			50.0	50.8		ug/Kg		102	73 - 128	3	20
Acetone			200	194		ug/Kg		97	36 - 164	2	20
1,1-Dichloroethene			50.0	53.5		ug/Kg		107	70 - 131	6	20
Benzene			50.0	50.9		ug/Kg		102	77 - 121	7	20
Bromobenzene			50.0	55.4		ug/Kg		111	78 - 121	6	20
Bromoform			50.0	54.6		ug/Kg		109	67 - 132	5	20
Bromomethane			50.0	58.5		ug/Kg		117	53 - 143	10	20
1,2-Dichloropropane			50.0	51.7		ug/Kg		103	76 - 123	7	20
Carbon disulfide			50.0	53.3		ug/Kg		107	63 - 132	7	20
1,3-Dichloropropane			50.0	52.0		ug/Kg		104	77 - 121	5	20
Carbon tetrachloride			50.0	51.9		ug/Kg		104	70 - 135	6	20
2,2-Dichloropropane			50.0	53.7		ug/Kg		107	67 - 133	6	20
Chlorobenzene			50.0	52.6		ug/Kg		105	79 - 120	6	20
1,1-Dichloropropene			50.0	51.5		ug/Kg		103	76 - 125	4	20
Bromochloromethane			50.0	52.5		ug/Kg		105	78 - 125	5	20
Dibromochloromethane			50.0	54.2		ug/Kg		108	74 - 126	6	20
Chloroethane			50.0	60.5		ug/Kg		121	59 - 139	11	20
Chloroform			50.0	50.9		ug/Kg		102	78 - 123	4	20
2-Hexanone			200	210		ug/Kg		105	53 - 145	6	20
Chloromethane			50.0	46.8		ug/Kg		94	50 - 136	13	20
cis-1,2-Dichloroethene			50.0	50.6		ug/Kg		101	77 - 123	5	20
cis-1,3-Dichloropropene			50.0	57.8		ug/Kg		116	74 - 126	7	20
4-Isopropyltoluene			50.0	53.3		ug/Kg		107	73 - 127	8	20
Dibromomethane			50.0	50.6		ug/Kg		101	78 - 125	3	20
Bromodichloromethane			50.0	51.3		ug/Kg		103	75 - 127	6	20
4-Methyl-2-pentanone (MIBK)			200	199		ug/Kg		99	65 - 135	4	20
Dichlorodifluoromethane			50.0	35.4		ug/Kg		71	29 - 149	10	20
Ethylbenzene			50.0	54.4		ug/Kg		109	76 - 122	10	20
Ethylene Dibromide			50.0	54.1		ug/Kg		108	78 - 122	6	20
Hexachlorobutadiene			50.0	53.4		ug/Kg		107	61 - 135	6	20
Isopropylbenzene			50.0	54.4		ug/Kg		109	68 - 134	8	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-440485/3-A
Matrix: Solid
Analysis Batch: 440489

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440485

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	54.3		ug/Kg		109	78 - 125	6	20
Methyl tert-butyl ether			50.0	50.8		ug/Kg		102	73 - 125	5	20
1,1,2,2-Tetrachloroethane			50.0	50.1		ug/Kg		100	70 - 124	5	20
Methylene Chloride			50.0	53.1		ug/Kg		106	70 - 128	6	20
Naphthalene			50.0	53.0		ug/Kg		106	62 - 129	6	20
1,2,3-Trichlorobenzene			50.0	53.8		ug/Kg		108	66 - 130	4	20
n-Butylbenzene			50.0	51.5		ug/Kg		103	70 - 128	9	20
1,1,1-Trichloroethane			50.0	51.4		ug/Kg		103	73 - 130	7	20
N-Propylbenzene			50.0	55.5		ug/Kg		111	73 - 125	11	20
1,1,2-Trichloroethane			50.0	52.2		ug/Kg		104	78 - 121	5	20
sec-Butylbenzene			50.0	54.1		ug/Kg		108	73 - 126	11	20
Styrene			50.0	53.0		ug/Kg		106	76 - 124	10	20
1,2,4-Trichlorobenzene			50.0	55.1		ug/Kg		110	67 - 129	6	20
tert-Butylbenzene			50.0	54.3		ug/Kg		109	73 - 125	15	20
1,2,3-Trichloropropane			50.0	52.7		ug/Kg		105	73 - 125	6	20
Tetrachloroethene			50.0	52.9		ug/Kg		106	73 - 128	8	20
1,2,4-Trimethylbenzene			50.0	52.7		ug/Kg		105	75 - 123	6	20
Toluene			50.0	50.6		ug/Kg		101	77 - 121	8	20
1,3,5-Trimethylbenzene			50.0	53.9		ug/Kg		108	73 - 124	11	20
trans-1,2-Dichloroethene			50.0	53.9		ug/Kg		108	74 - 125	8	20
trans-1,3-Dichloropropene			50.0	52.8		ug/Kg		106	71 - 130	7	20
o-Xylene			50.0	52.7		ug/Kg		105	77 - 123	9	20
Trichloroethene			50.0	50.4		ug/Kg		101	77 - 123	6	20
m-Xylene & p-Xylene			50.0	54.0		ug/Kg		108	77 - 124	10	20
Trichlorofluoromethane			50.0	59.6		ug/Kg		119	62 - 140	8	20
Vinyl chloride			50.0	55.0		ug/Kg		110	56 - 135	14	20
2-Chlorotoluene			50.0	55.0		ug/Kg		110	75 - 122	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*103*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: MB 280-441068/8
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/13/18 11:10	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/13/18 11:10	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 11:10	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/13/18 11:10	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 11:10	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 11:10	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/13/18 11:10	1
Acetone	2.09	J	10	6.4	1.9	ug/L		12/13/18 11:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441068/8
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/13/18 11:10	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/13/18 11:10	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 11:10	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/13/18 11:10	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		12/13/18 11:10	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/13/18 11:10	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 11:10	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/13/18 11:10	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/13/18 11:10	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 11:10	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/13/18 11:10	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/13/18 11:10	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/13/18 11:10	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/13/18 11:10	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 11:10	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/13/18 11:10	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/13/18 11:10	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/13/18 11:10	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/13/18 11:10	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/13/18 11:10	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 11:10	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 11:10	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/13/18 11:10	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 11:10	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/13/18 11:10	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/13/18 11:10	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 11:10	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/13/18 11:10	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/13/18 11:10	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/13/18 11:10	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/13/18 11:10	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/13/18 11:10	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 11:10	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441068/8
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/13/18 11:10	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 11:10	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/13/18 11:10	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/13/18 11:10	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/13/18 11:10	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/13/18 11:10	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/13/18 11:10	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/13/18 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*12/13/18 11:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*		*12/13/18 11:10*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*12/13/18 11:10*	*1*
Dibromofluoromethane (Surr)	*90*		*80 - 119*		*12/13/18 11:10*	*1*

Lab Sample ID: LCS 280-441068/4
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	3.97	J	ug/L		79	62 - 128
2-Butanone (MEK)	20.0	20.3		ug/L		101	56 - 143
1,2-Dichlorobenzene	5.00	4.51		ug/L		90	80 - 119
1,3-Dichlorobenzene	5.00	4.40		ug/L		88	80 - 119
4-Chlorotoluene	5.00	4.47		ug/L		89	78 - 122
1,4-Dichlorobenzene	5.00	4.49		ug/L		90	79 - 118
1,1-Dichloroethane	5.00	4.65		ug/L		93	77 - 125
1,2-Dichloroethane	5.00	4.85		ug/L		97	73 - 128
Acetone	20.0	20.4		ug/L		102	39 - 160
1,1-Dichloroethene	5.00	4.77		ug/L		95	71 - 131
Benzene	5.00	4.67		ug/L		93	79 - 120
Bromobenzene	5.00	4.48		ug/L		90	80 - 120
Bromoform	5.00	3.93		ug/L		79	66 - 130
Bromomethane	5.00	5.22		ug/L		104	53 - 141
1,2-Dichloropropane	5.00	4.88		ug/L		98	78 - 122
Carbon disulfide	5.00	4.99		ug/L		100	64 - 133
1,3-Dichloropropane	5.00	4.65		ug/L		93	80 - 119
Carbon tetrachloride	5.00	4.61		ug/L		92	72 - 136
2,2-Dichloropropane	5.00	4.71		ug/L		94	60 - 139
Chlorobenzene	5.00	4.61		ug/L		92	82 - 118
1,1-Dichloropropene	5.00	4.55		ug/L		91	79 - 125
Bromochloromethane	5.00	4.32		ug/L		86	78 - 123
Dibromochloromethane	5.00	4.24		ug/L		85	74 - 126
Chloroethane	5.00	5.10		ug/L		102	60 - 138
Chloroform	5.00	4.48		ug/L		90	79 - 124
2-Hexanone	20.0	16.6		ug/L		83	57 - 139
Chloromethane	5.00	5.59		ug/L		112	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441068/4
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.44		ug/L		89	78 - 123
cis-1,3-Dichloropropene	5.00	4.51		ug/L		90	75 - 124
4-Isopropyltoluene	5.00	4.57		ug/L		91	77 - 127
Dibromomethane	5.00	4.56		ug/L		91	79 - 123
Bromodichloromethane	5.00	4.48		ug/L		90	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.4		ug/L		92	67 - 130
Dichlorodifluoromethane	5.00	4.87		ug/L		97	32 - 152
Ethylbenzene	5.00	4.53		ug/L		91	79 - 121
Ethylene Dibromide	5.00	4.51		ug/L		90	77 - 121
Hexachlorobutadiene	5.00	4.47		ug/L		89	66 - 134
Isopropylbenzene	5.00	4.60		ug/L		92	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.43		ug/L		89	78 - 124
Methyl tert-butyl ether	5.00	4.36	J	ug/L		87	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.80		ug/L		96	71 - 121
Methylene Chloride	5.00	4.83	J	ug/L		97	74 - 124
Naphthalene	5.00	4.41		ug/L		88	61 - 128
1,2,3-Trichlorobenzene	5.00	4.52		ug/L		90	69 - 129
n-Butylbenzene	5.00	4.66		ug/L		93	75 - 128
1,1,1-Trichloroethane	5.00	4.75		ug/L		95	74 - 131
N-Propylbenzene	5.00	4.49		ug/L		90	76 - 126
1,1,2-Trichloroethane	5.00	4.77		ug/L		95	80 - 119
sec-Butylbenzene	5.00	4.47		ug/L		89	77 - 126
Styrene	5.00	4.23		ug/L		85	78 - 123
1,2,4-Trichlorobenzene	5.00	4.29		ug/L		86	69 - 130
tert-Butylbenzene	5.00	4.40		ug/L		88	78 - 124
1,2,3-Trichloropropane	5.00	4.78		ug/L		96	73 - 122
Tetrachloroethene	5.00	4.57		ug/L		91	74 - 129
1,2,4-Trimethylbenzene	5.00	4.49		ug/L		90	76 - 124
Toluene	5.00	4.70		ug/L		94	80 - 121
1,3,5-Trimethylbenzene	5.00	4.53		ug/L		91	75 - 124
trans-1,2-Dichloroethene	5.00	4.75		ug/L		95	75 - 124
trans-1,3-Dichloropropene	5.00	4.28		ug/L		86	73 - 127
o-Xylene	5.00	4.52		ug/L		90	78 - 122
Trichloroethene	5.00	4.33		ug/L		87	79 - 123
m-Xylene & p-Xylene	5.00	4.71		ug/L		94	80 - 121
Trichlorofluoromethane	5.00	4.84		ug/L		97	65 - 141
Vinyl chloride	5.00	5.02		ug/L		100	58 - 137
2-Chlorotoluene	5.00	4.58		ug/L		92	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*96*		*81 - 118*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*
Dibromofluoromethane (Surr)	*92*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441068/5
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	4.63	J	ug/L		93	62 - 128	15	20
2-Butanone (MEK)	20.0	21.2		ug/L		106	56 - 143	5	20
1,2-Dichlorobenzene	5.00	5.25		ug/L		105	80 - 119	15	20
1,3-Dichlorobenzene	5.00	5.04		ug/L		101	80 - 119	14	20
4-Chlorotoluene	5.00	5.11		ug/L		102	78 - 122	13	20
1,4-Dichlorobenzene	5.00	5.16		ug/L		103	79 - 118	14	20
1,1-Dichloroethane	5.00	5.11		ug/L		102	77 - 125	9	20
1,2-Dichloroethane	5.00	5.37		ug/L		107	73 - 128	10	20
Acetone	20.0	21.4		ug/L		107	39 - 160	5	20
1,1-Dichloroethene	5.00	5.24		ug/L		105	71 - 131	9	20
Benzene	5.00	5.15		ug/L		103	79 - 120	10	20
Bromobenzene	5.00	5.04		ug/L		101	80 - 120	12	20
Bromoform	5.00	4.36		ug/L		87	66 - 130	10	20
Bromomethane	5.00	5.77		ug/L		115	53 - 141	10	20
1,2-Dichloropropane	5.00	5.50		ug/L		110	78 - 122	12	20
Carbon disulfide	5.00	5.50		ug/L		110	64 - 133	10	20
1,3-Dichloropropane	5.00	5.33		ug/L		107	80 - 119	14	20
Carbon tetrachloride	5.00	5.04		ug/L		101	72 - 136	9	20
2,2-Dichloropropane	5.00	5.40		ug/L		108	60 - 139	14	20
Chlorobenzene	5.00	5.19		ug/L		104	82 - 118	12	20
1,1-Dichloropropene	5.00	5.04		ug/L		101	79 - 125	10	20
Bromochloromethane	5.00	4.90		ug/L		98	78 - 123	13	20
Dibromochloromethane	5.00	4.70		ug/L		94	74 - 126	10	20
Chloroethane	5.00	5.52		ug/L		110	60 - 138	8	20
Chloroform	5.00	5.01		ug/L		100	79 - 124	11	20
2-Hexanone	20.0	19.2		ug/L		96	57 - 139	14	20
Chloromethane	5.00	6.09		ug/L		122	50 - 139	9	20
cis-1,2-Dichloroethene	5.00	4.89		ug/L		98	78 - 123	10	20
cis-1,3-Dichloropropene	5.00	5.14		ug/L		103	75 - 124	13	20
4-Isopropyltoluene	5.00	5.22		ug/L		104	77 - 127	13	20
Dibromomethane	5.00	5.06		ug/L		101	79 - 123	10	20
Bromodichloromethane	5.00	5.00		ug/L		100	79 - 125	11	20
4-Methyl-2-pentanone (MIBK)	20.0	21.0		ug/L		105	67 - 130	14	20
Dichlorodifluoromethane	5.00	5.35		ug/L		107	32 - 152	9	20
Ethylbenzene	5.00	5.03		ug/L		101	79 - 121	10	20
Ethylene Dibromide	5.00	5.03		ug/L		101	77 - 121	11	20
Hexachlorobutadiene	5.00	5.27		ug/L		105	66 - 134	16	20
Isopropylbenzene	5.00	5.18		ug/L		104	72 - 131	12	20
1,1,1,2-Tetrachloroethane	5.00	5.03		ug/L		101	78 - 124	13	20
Methyl tert-butyl ether	5.00	4.98	J	ug/L		100	71 - 124	13	20
1,1,2,2-Tetrachloroethane	5.00	5.49		ug/L		110	71 - 121	13	20
Methylene Chloride	5.00	5.35		ug/L		107	74 - 124	10	20
Naphthalene	5.00	5.09		ug/L		102	61 - 128	14	20
1,2,3-Trichlorobenzene	5.00	5.31		ug/L		106	69 - 129	16	20
n-Butylbenzene	5.00	5.25		ug/L		105	75 - 128	12	20
1,1,1-Trichloroethane	5.00	5.20		ug/L		104	74 - 131	9	20
N-Propylbenzene	5.00	5.10		ug/L		102	76 - 126	13	20
1,1,2-Trichloroethane	5.00	5.49		ug/L		110	80 - 119	14	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441068/5
Matrix: Water
Analysis Batch: 441068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			5.00	5.18		ug/L		104	77 - 126	15	20
Styrene			5.00	4.79		ug/L		96	78 - 123	12	20
1,2,4-Trichlorobenzene			5.00	5.18		ug/L		104	69 - 130	19	20
tert-Butylbenzene			5.00	5.06		ug/L		101	78 - 124	14	20
1,2,3-Trichloropropane			5.00	5.48		ug/L		110	73 - 122	14	20
Tetrachloroethene			5.00	4.91		ug/L		98	74 - 129	7	20
1,2,4-Trimethylbenzene			5.00	5.16		ug/L		103	76 - 124	14	20
Toluene			5.00	5.25		ug/L		105	80 - 121	11	20
1,3,5-Trimethylbenzene			5.00	5.11		ug/L		102	75 - 124	12	20
trans-1,2-Dichloroethene			5.00	5.25		ug/L		105	75 - 124	10	20
trans-1,3-Dichloropropene			5.00	5.07		ug/L		101	73 - 127	17	20
o-Xylene			5.00	5.02		ug/L		100	78 - 122	10	20
Trichloroethene			5.00	4.76		ug/L		95	79 - 123	9	20
m-Xylene & p-Xylene			5.00	5.15		ug/L		103	80 - 121	9	20
Trichlorofluoromethane			5.00	5.28		ug/L		106	65 - 141	9	20
Vinyl chloride			5.00	5.55		ug/L		111	58 - 137	10	20
2-Chlorotoluene			5.00	5.21		ug/L		104	79 - 122	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*
Dibromofluoromethane (Surr)	*89*	*M*	*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-439713/2-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439713

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/03/18 13:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*	*12/03/18 12:00*	*12/03/18 13:56*	*1*

Lab Sample ID: LCS 280-439713/1-A
Matrix: Solid
Analysis Batch: 439797

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439713

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			4.28	4.53		mg/Kg		106	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*91*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-439783/4
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/04/18 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*92*		*82 - 110*		*12/04/18 12:04*	*1*

Lab Sample ID: LCS 280-439783/3
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	73.5		ug/L		94	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*91*		*82 - 110*

Lab Sample ID: LCSD 280-439783/5
Matrix: Water
Analysis Batch: 439783

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	64.5		ug/L		82	78 - 122	13	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*92*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-439660/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439660

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 16:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*91*	*M*	*55 - 130*	*12/03/18 10:24*	*12/09/18 16:27*	*1*

Lab Sample ID: LCS 280-439660/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.746		ug/Kg		85	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-439660/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439660

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	94	M	55 - 130

Lab Sample ID: LCSD 280-439660/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439660

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.756		ug/Kg		86	70 - 130	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	95	M	55 - 130

Lab Sample ID: MB 280-440756/4-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440756

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/11/18 17:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	103		70 - 130	12/11/18 11:43	12/11/18 17:55	1

Lab Sample ID: LCS 280-440756/2-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440756

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.250	0.200		ug/L		80	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	97		70 - 130

Lab Sample ID: LCSD 280-440756/3-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440756

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.210		ug/L		84	70 - 130	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	104		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-439729/1-A
Matrix: Solid
Analysis Batch: 440352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439729

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.72	J	7.7	3.9	1.3	mg/Kg		12/07/18 17:06	1
Motor Oil (C20-C38)	23	U	23	23	7.6	mg/Kg		12/07/18 17:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*45 - 130*	*12/04/18 08:05*	*12/07/18 17:06*	*1*
n-Octacosane	*87*		*25 - 162*	*12/04/18 08:05*	*12/07/18 17:06*	*1*

Lab Sample ID: LCS 280-439729/2-A
Matrix: Solid
Analysis Batch: 440352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	121	78.9		mg/Kg		65	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*45 - 130*
n-Octacosane	*87*		*25 - 162*

Lab Sample ID: LCS 280-439729/3-A
Matrix: Solid
Analysis Batch: 440352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	330	331		mg/Kg		100	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*84*		*45 - 130*
n-Octacosane	*88*	*M*	*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-117531-4 DU
Matrix: Solid
Analysis Batch: 439805

Client Sample ID: V-S1-271118-140
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	13.4		12.7		%		6	20

Lab Sample ID: 280-117531-1 DU
Matrix: Solid
Analysis Batch: 440372

Client Sample ID: P-S1-271118-140
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	11.5		11.5		%		0	20

GC/MS VOA

Prep Batch: 440485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-4	V-S1-271118-140	Total/NA	Solid	5035	
280-117531-5	V-S1-291118-260	Total/NA	Solid	5035	
280-117531-6	V-S1-291118-279	Total/NA	Solid	5035	
MB 280-440485/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-440485/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-440485/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 440489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-4	V-S1-271118-140	Total/NA	Solid	8260B	440485
280-117531-5	V-S1-291118-260	Total/NA	Solid	8260B	440485
280-117531-6	V-S1-291118-279	Total/NA	Solid	8260B	440485
MB 280-440485/1-A	Method Blank	Total/NA	Solid	8260B	440485
LCS 280-440485/2-A	Lab Control Sample	Total/NA	Solid	8260B	440485
LCSD 280-440485/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	440485

Analysis Batch: 441068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-7	TB-S1-291118-01	Total/NA	Water	8260B	
MB 280-441068/8	Method Blank	Total/NA	Water	8260B	
LCS 280-441068/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-441068/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 439713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-1	P-S1-271118-140	Total/NA	Solid	5035	
280-117531-2	P-S1-291118-260	Total/NA	Solid	5035	
280-117531-3	P-S1-291118-279	Total/NA	Solid	5035	
MB 280-439713/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 439783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-7	TB-S1-291118-01	Total/NA	Water	8015D GRO	
MB 280-439783/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-439783/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-439783/5	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Analysis Batch: 439797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-1	P-S1-271118-140	Total/NA	Solid	8015D GRO	439713
280-117531-2	P-S1-291118-260	Total/NA	Solid	8015D GRO	439713
280-117531-3	P-S1-291118-279	Total/NA	Solid	8015D GRO	439713
MB 280-439713/2-A	Method Blank	Total/NA	Solid	8015D GRO	439713
LCS 280-439713/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	439713

GC Semi VOA

Prep Batch: 439660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-4	V-S1-271118-140	Total/NA	Solid	8011	
280-117531-5	V-S1-291118-260	Total/NA	Solid	8011	
280-117531-6	V-S1-291118-279	Total/NA	Solid	8011	
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 439729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-1	P-S1-271118-140	Total/NA	Solid	3546	
280-117531-2	P-S1-291118-260	Total/NA	Solid	3546	
280-117531-3	P-S1-291118-279	Total/NA	Solid	3546	
MB 280-439729/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-439729/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-439729/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 440352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-1	P-S1-271118-140	Total/NA	Solid	8015D DRO	439729
280-117531-2	P-S1-291118-260	Total/NA	Solid	8015D DRO	439729
280-117531-3	P-S1-291118-279	Total/NA	Solid	8015D DRO	439729
MB 280-439729/1-A	Method Blank	Total/NA	Solid	8015D DRO	439729
LCS 280-439729/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439729
LCS 280-439729/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	439729

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-5	V-S1-291118-260	Total/NA	Solid	8011	439660
280-117531-6	V-S1-291118-279	Total/NA	Solid	8011	439660
MB 280-439660/4-A	Method Blank	Total/NA	Solid	8011	439660
LCS 280-439660/2-A	Lab Control Sample	Total/NA	Solid	8011	439660
LCSD 280-439660/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	439660

Analysis Batch: 440628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-4	V-S1-271118-140	Total/NA	Solid	8011	439660

Prep Batch: 440756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-7	TB-S1-291118-01	Total/NA	Water	8011	
MB 280-440756/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-440756/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-440756/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 440803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-7	TB-S1-291118-01	Total/NA	Water	8011	440756
MB 280-440756/4-A	Method Blank	Total/NA	Water	8011	440756
LCS 280-440756/2-A	Lab Control Sample	Total/NA	Water	8011	440756
LCSD 280-440756/3-A	Lab Control Sample Dup	Total/NA	Water	8011	440756

General Chemistry

Analysis Batch: 439805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-4	V-S1-271118-140	Total/NA	Solid	Moisture	
280-117531-5	V-S1-291118-260	Total/NA	Solid	Moisture	
280-117531-6	V-S1-291118-279	Total/NA	Solid	Moisture	
280-117531-4 DU	V-S1-271118-140	Total/NA	Solid	Moisture	

Analysis Batch: 440179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-2	P-S1-291118-260	Total/NA	Solid	Moisture	
280-117531-3	P-S1-291118-279	Total/NA	Solid	Moisture	

Analysis Batch: 440372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117531-1	P-S1-271118-140	Total/NA	Solid	Moisture	
280-117531-1 DU	P-S1-271118-140	Total/NA	Solid	Moisture	

Client Sample ID: P-S1-271118-140
Lab Sample ID: 280-117531-1
Date Collected: 11/27/18 14:35
Matrix: Solid
Date Received: 11/30/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440372	12/07/18 12:44	LMD	TAL DEN

Client Sample ID: P-S1-271118-140
Lab Sample ID: 280-117531-1
Date Collected: 11/27/18 14:35
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.532 g	5 mL	439713	11/27/18 14:35	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 21:51	GPM	TAL DEN
Total/NA	Prep	3546			15.1 g	1 mL	439729	12/04/18 08:05	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			440352	12/07/18 23:06	CSM	TAL DEN

Client Sample ID: P-S1-291118-260
Lab Sample ID: 280-117531-2
Date Collected: 11/29/18 09:27
Matrix: Solid
Date Received: 11/30/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440179	12/06/18 12:30	LMD	TAL DEN

Client Sample ID: P-S1-291118-260
Lab Sample ID: 280-117531-2
Date Collected: 11/29/18 09:27
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.916 g	5 mL	439713	11/29/18 09:27	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 22:15	GPM	TAL DEN
Total/NA	Prep	3546			15.2 g	1 mL	439729	12/04/18 08:05	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			440352	12/07/18 23:26	CSM	TAL DEN

Client Sample ID: P-S1-291118-279
Lab Sample ID: 280-117531-3
Date Collected: 11/29/18 10:55
Matrix: Solid
Date Received: 11/30/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440179	12/06/18 12:30	LMD	TAL DEN

Client Sample ID: P-S1-291118-279
Lab Sample ID: 280-117531-3
Date Collected: 11/29/18 10:55
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.015 g	5 mL	439713	11/29/18 10:55	GPM	TAL DEN

Client Sample ID: P-S1-291118-279

Lab Sample ID: 280-117531-3
Date Collected: 11/29/18 10:55
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	439797	12/03/18 22:39	GPM	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	439729	12/04/18 08:05	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			440352	12/07/18 23:46	CSM	TAL DEN

Client Sample ID: V-S1-271118-140

Lab Sample ID: 280-117531-4
Date Collected: 11/27/18 14:35
Matrix: Solid
Date Received: 11/30/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439805	12/04/18 11:13	LMD	TAL DEN

Client Sample ID: V-S1-271118-140

Lab Sample ID: 280-117531-4
Date Collected: 11/27/18 14:35
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.154 g	5 mL	440485	11/27/18 14:35	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	440489	12/08/18 17:24	JLS	TAL DEN
Total/NA	Prep	8011			9.97 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440628	12/10/18 18:35	JLW	TAL DEN

Client Sample ID: V-S1-291118-260

Lab Sample ID: 280-117531-5
Date Collected: 11/29/18 09:27
Matrix: Solid
Date Received: 11/30/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439805	12/04/18 11:13	LMD	TAL DEN

Client Sample ID: V-S1-291118-260

Lab Sample ID: 280-117531-5
Date Collected: 11/29/18 09:27
Matrix: Solid
Date Received: 11/30/18 09:15
Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.835 g	5 mL	440485	11/29/18 09:27	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	440489	12/08/18 17:44	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 18:21	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Client Sample ID: V-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			439805	12/04/18 11:13	LMD	TAL DEN

Client Sample ID: V-S1-291118-279
Date Collected: 11/29/18 10:55
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-6
Matrix: Solid
Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.396 g	5 mL	440485	11/29/18 10:55	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	440489	12/08/18 18:05	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	439660	12/03/18 10:24	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 18:40	JLW	TAL DEN

Client Sample ID: TB-S1-291118-01
Date Collected: 11/29/18 14:30
Date Received: 11/30/18 09:15

Lab Sample ID: 280-117531-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	441068	12/13/18 12:19	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	439783	12/04/18 19:16	SU	TAL DEN
Total/NA	Prep	8011			34.4 mL	35 mL	440756	12/11/18 11:43	MJS	TAL DEN
Total/NA	Analysis	8011		1			440803	12/11/18 21:07	JLW	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117531-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4933 3392 7667	COC No: COC1-SI-TA-20181129
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
~~TB-SI-291118-01~~	~~11/29/18~~	~~1430~~	G	W	N	N									X	2	JRL
P-SI-271118-140	11/27/18	1435	G	S	N	N				X	X					3	
P-SI-291118-260	11/29/18	0927	G	S	N	N				X	X					3	
P-SI-291118-279	11/29/18	1055	G	S	N	N				X	X					3	
V-SI-271118-140	11/27/18	1435	G	S	N	N	X	X	X							5	
V-SI-291118-260	11/29/18	0927	G	S	N	N	X	X	X							5	
V-SI-291118-279	11/29/18	1055	G	S	N	N	X	X	X							5	
TB-SI-291118-01	11/29/18	1430	G	W	N	N						X	X		X	6	

280-117531 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longe
☐ Return To Client ☒ Disposal By Lab ☐ Archive For

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	11/29/18 1800	EA		11/30/18 0915	TAPEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.3+1.0 thermal JAL

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117531-1

Login Number: 117531
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117650-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/14/2019 3:45:24 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117650-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117650-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/4/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

Receipt Exceptions

The DI water terracores for sample ID V-S1-011218-400 were collected 12/01 at 1605, and received on 12/04 at 0915, after the 48 hour hold time required for freezing had been exceeded. The samples were frozen upon receipt. The client was notified, and the laboratory proceeded with analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S1-031218-414 (280-117650-2) and V-S1-011218-400 (280-117650-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/01/2018 and 12/03/2018 and analyzed on 12/13/2018 and 12/14/2018.

The following Q5 DoD sample was analyzed without a closing CCV in error: V-S1-011218-400 (280-117650-4). The 2nd vial for sample 117650-4 was cracked and the DI water had leaked out; therefore, reanaysis was not possible. As such, the data have been qualified and reported.

The initial calibration verification (ICV) result for batch 441097 was outside of the control limit for Dichlorodifluoromethane at -23.0%D. This compound is considered a poor performer. Sample results were non-detects, and have been reported as qualified data.

1,2,3-Trichloropropane failed the recovery criteria high for LCSD 280-441341/3-A. Associated results have been flagged "Q". Refer to the QC report for details. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported. trans-1,3-Dichloropropene exceeded the RPD limit for the LCS/LCSD. Associated results have been flagged "Q". Refer to the QC report for details. It was noted that the LCS and LCSD each recovered within control for this analyte.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-441537: Acetone (-24.0%D) and n-Butylbenzene (+21.2%D). These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. There was insufficient holding time remaining for re-analysis; therefore, the data have been qualified and reported. The associated samples contained detections for the following analyte: n-Butylbenzene.

Job ID: 280-117650-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S1-031218-01 (280-117650-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/17/2018.

Acetone was detected in method blank MB 280-441540/4 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-S1-031218-414 (280-117650-2) and V-S1-011218-400 (280-117650-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/07/2018 and analyzed on 12/09/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water
Sample TB-S1-031218-01 (280-117650-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 12/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-S1-031218-414 (280-117650-3) and P-S1-011218-400 (280-117650-5) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 12/13/2018 and analyzed on 12/14/2018.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-441160 and analytical batch 280-441189. A duplicate LCS (LCSD) was performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-S1-031218-01 (280-117650-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S1-031218-414 (280-117650-3) and P-S1-011218-400 (280-117650-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/13/2018 and analyzed on 12/17/2018.

Per the method comments, the following samples are reported from analysis of extracts that were silica gel cleaned: P-S1-031218-414 (280-117650-3), P-S1-011218-400 (280-117650-5), (LCS 280-441182/2-A), (LCS 280-441182/3-A), (MB 280-441182/1-A), (280-117650-A-3-B MS), (280-117650-A-3-D MS), (280-117650-A-3-C MSD) and (280-117650-A-3-E MSD). This is for preparation batch 280-441182 and analytical batch 280-441579.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-441182/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-117650-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

PERCENT SOLIDS

Samples V-S1-031218-414 (280-117650-2), P-S1-031218-414 (280-117650-3), V-S1-011218-400 (280-117650-4) and P-S1-011218-400 (280-117650-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/07/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Client Sample ID: TB-S1-031218-01 — Lab Sample ID: 280-117650-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	20	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S1-031218-414 — Lab Sample ID: 280-117650-2

No Detections.

Client Sample ID: P-S1-031218-414 — Lab Sample ID: 280-117650-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.4	J	8.4	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-011218-400 — Lab Sample ID: 280-117650-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	13	J	20	6.3	1.8	ug/Kg	1	☼	8260B	Total/NA
Acetone	28		20	13	5.3	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S1-011218-400 — Lab Sample ID: 280-117650-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	1.5	J	7.9	4.0	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117650-1	TB-S1-031218-01	Water	12/03/18 15:00	12/04/18 09:15
280-117650-2	V-S1-031218-414	Solid	12/03/18 11:40	12/04/18 09:15
280-117650-3	P-S1-031218-414	Solid	12/03/18 11:40	12/04/18 09:15
280-117650-4	V-S1-011218-400	Solid	12/01/18 16:05	12/04/18 09:15
280-117650-5	P-S1-011218-400	Solid	12/01/18 16:05	12/04/18 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S1-031218-01
Date Collected: 12/03/18 15:00
Date Received: 12/04/18 09:15

Lab Sample ID: 280-117650-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/17/18 14:03	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/17/18 14:03	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 14:03	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/17/18 14:03	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/17/18 14:03	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/17/18 14:03	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/17/18 14:03	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/17/18 14:03	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/17/18 14:03	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/17/18 14:03	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 14:03	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/17/18 14:03	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/17/18 14:03	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 14:03	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 14:03	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/17/18 14:03	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 14:03	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/17/18 14:03	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/17/18 14:03	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/17/18 14:03	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 14:03	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 14:03	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 14:03	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 14:03	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 14:03	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 14:03	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 14:03	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/17/18 14:03	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/17/18 14:03	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 14:03	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/17/18 14:03	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/17/18 14:03	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/17/18 14:03	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/17/18 14:03	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 14:03	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S1-031218-01
Date Collected: 12/03/18 15:00
Date Received: 12/04/18 09:15
Lab Sample ID: 280-117650-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 14:03	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 14:03	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/17/18 14:03	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 14:03	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/17/18 14:03	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/17/18 14:03	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 14:03	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/17/18 14:03	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 14:03	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 14:03	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/17/18 14:03	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 14:03	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/17/18 14:03	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*12/17/18 14:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*81 - 118*		*12/17/18 14:03*	*1*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*		*12/17/18 14:03*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*12/17/18 14:03*	*1*

Client Sample ID: V-S1-031218-414
Date Collected: 12/03/18 11:40
Date Received: 12/04/18 09:15
Lab Sample ID: 280-117650-2
Matrix: Solid
Percent Solids: 92.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1500	U Q	1800	1500	480	ug/Kg	☼	12/14/18 17:48	1
Benzene	190	U M	300	190	55	ug/Kg	☼	12/14/18 17:48	1
Bromobenzene	48	U	300	48	23	ug/Kg	☼	12/14/18 17:48	1
Bromochloromethane	190	U	300	190	57	ug/Kg	☼	12/14/18 17:48	1
Bromodichloromethane	97	U	300	97	48	ug/Kg	☼	12/14/18 17:48	1
Bromoform	190	U	300	190	190	ug/Kg	☼	12/14/18 17:48	1
Bromomethane	190	U	600	190	53	ug/Kg	☼	12/14/18 17:48	1
2-Butanone (MEK)	770	U	1200	770	360	ug/Kg	☼	12/14/18 17:48	1
n-Butylbenzene	97	U Q	300	97	39	ug/Kg	☼	12/14/18 17:48	1
sec-Butylbenzene	97	U	300	97	46	ug/Kg	☼	12/14/18 17:48	1
tert-Butylbenzene	97	U	300	97	34	ug/Kg	☼	12/14/18 17:48	1
Carbon disulfide	190	U M	300	190	77	ug/Kg	☼	12/14/18 17:48	1
Carbon tetrachloride	48	U	300	48	21	ug/Kg	☼	12/14/18 17:48	1
Chlorobenzene	97	U	300	97	36	ug/Kg	☼	12/14/18 17:48	1
Chloroethane	190	U	600	190	53	ug/Kg	☼	12/14/18 17:48	1
Chloroform	190	U	300	190	56	ug/Kg	☼	12/14/18 17:48	1
Chloromethane	190	U	600	190	60	ug/Kg	☼	12/14/18 17:48	1
4-Chlorotoluene	97	U	300	97	28	ug/Kg	☼	12/14/18 17:48	1
Dibromochloromethane	97	U	300	97	40	ug/Kg	☼	12/14/18 17:48	1
1,2-Dibromo-3-Chloropropane	390	U	600	390	100	ug/Kg	☼	12/14/18 17:48	1
Dichlorodifluoromethane	97	U	600	97	27	ug/Kg	☼	12/14/18 17:48	1
Dibromomethane	97	U	300	97	36	ug/Kg	☼	12/14/18 17:48	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-031218-414
Date Collected: 12/03/18 11:40
Date Received: 12/04/18 09:15

Lab Sample ID: 280-117650-2
Matrix: Solid
Percent Solids: 92.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	97	U	300	97	30	ug/Kg	☼	12/14/18 17:48	1
1,2-Dichlorobenzene	390	U	600	390	110	ug/Kg	☼	12/14/18 17:48	1
1,3-Dichlorobenzene	190	U	300	190	49	ug/Kg	☼	12/14/18 17:48	1
1,4-Dichlorobenzene	97	U	300	97	30	ug/Kg	☼	12/14/18 17:48	1
1,1-Dichloroethane	190	U	300	190	61	ug/Kg	☼	12/14/18 17:48	1
1,2-Dichloroethane	97	U	300	97	30	ug/Kg	☼	12/14/18 17:48	1
1,1-Dichloroethene	190	U	300	190	61	ug/Kg	☼	12/14/18 17:48	1
1,2-Dichloroethene, Total	97	U	150	97	27	ug/Kg	☼	12/14/18 17:48	1
cis-1,2-Dichloroethene	97	U	150	97	27	ug/Kg	☼	12/14/18 17:48	1
trans-1,2-Dichloroethene	190	U	300	190	54	ug/Kg	☼	12/14/18 17:48	1
1,2-Dichloropropane	190	U	300	190	56	ug/Kg	☼	12/14/18 17:48	1
1,3-Dichloropropane	97	U	300	97	34	ug/Kg	☼	12/14/18 17:48	1
2,2-Dichloropropane	97	U	300	97	33	ug/Kg	☼	12/14/18 17:48	1
1,1-Dichloropropene	190	U	300	190	58	ug/Kg	☼	12/14/18 17:48	1
cis-1,3-Dichloropropene	97	U	300	97	33	ug/Kg	☼	12/14/18 17:48	1
trans-1,3-Dichloropropene	190	U Q	300	190	50	ug/Kg	☼	12/14/18 17:48	1
Ethylbenzene	97	U	300	97	41	ug/Kg	☼	12/14/18 17:48	1
2-Hexanone	770	U	1200	770	260	ug/Kg	☼	12/14/18 17:48	1
Hexachlorobutadiene	190	U	300	190	59	ug/Kg	☼	12/14/18 17:48	1
Isopropylbenzene	97	U M	300	97	35	ug/Kg	☼	12/14/18 17:48	1
4-Isopropyltoluene	97	U	300	97	39	ug/Kg	☼	12/14/18 17:48	1
Methylene Chloride	190	U	300	190	83	ug/Kg	☼	12/14/18 17:48	1
4-Methyl-2-pentanone (MIBK)	770	U	1200	770	270	ug/Kg	☼	12/14/18 17:48	1
Methyl tert-butyl ether	190	U	300	190	60	ug/Kg	☼	12/14/18 17:48	1
Naphthalene	97	U	600	97	46	ug/Kg	☼	12/14/18 17:48	1
N-Propylbenzene	190	U	300	190	50	ug/Kg	☼	12/14/18 17:48	1
Styrene	97	U	300	97	31	ug/Kg	☼	12/14/18 17:48	1
1,1,1,2-Tetrachloroethane	97	U	300	97	25	ug/Kg	☼	12/14/18 17:48	1
1,1,2,2-Tetrachloroethane	97	U	300	97	35	ug/Kg	☼	12/14/18 17:48	1
Tetrachloroethene	97	U	300	97	33	ug/Kg	☼	12/14/18 17:48	1
Toluene	97	U	300	97	47	ug/Kg	☼	12/14/18 17:48	1
1,2,3-Trichlorobenzene	97	U	300	97	42	ug/Kg	☼	12/14/18 17:48	1
1,1,1-Trichloroethane	48	U	300	48	24	ug/Kg	☼	12/14/18 17:48	1
1,1,2-Trichloroethane	97	U	300	97	33	ug/Kg	☼	12/14/18 17:48	1
Trichloroethene	97	U	300	97	28	ug/Kg	☼	12/14/18 17:48	1
Trichlorofluoromethane	190	U	600	190	60	ug/Kg	☼	12/14/18 17:48	1
1,2,4-Trichlorobenzene	190	U	300	190	57	ug/Kg	☼	12/14/18 17:48	1
1,2,3-Trichloropropane	190	U Q	300	190	57	ug/Kg	☼	12/14/18 17:48	1
1,2,4-Trimethylbenzene	97	U	300	97	38	ug/Kg	☼	12/14/18 17:48	1
1,3,5-Trimethylbenzene	97	U	300	97	47	ug/Kg	☼	12/14/18 17:48	1
Vinyl chloride	97	U	600	97	33	ug/Kg	☼	12/14/18 17:48	1
o-Xylene	97	U	150	97	42	ug/Kg	☼	12/14/18 17:48	1
m-Xylene & p-Xylene	190	U	300	190	94	ug/Kg	☼	12/14/18 17:48	1
2-Chlorotoluene	97	U	300	97	31	ug/Kg	☼	12/14/18 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*12/03/18 11:40*	*12/14/18 17:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*	*12/03/18 11:40*	*12/14/18 17:48*	*1*
4-Bromofluorobenzene (Surr)	*114*		*79 - 119*	*12/03/18 11:40*	*12/14/18 17:48*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-031218-414
Date Collected: 12/03/18 11:40
Date Received: 12/04/18 09:15
Lab Sample ID: 280-117650-2
Matrix: Solid
Percent Solids: 92.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	88		78 - 119	12/03/18 11:40	12/14/18 17:48	1

Client Sample ID: V-S1-011218-400
Date Collected: 12/01/18 16:05
Date Received: 12/04/18 09:15
Lab Sample ID: 280-117650-4
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg	☼	12/13/18 12:04	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg	☼	12/13/18 12:04	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.60	ug/Kg	☼	12/13/18 12:04	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.87	ug/Kg	☼	12/13/18 12:04	1
1,1-Dichloroethane	0.79	U	5.0	0.79	0.21	ug/Kg	☼	12/13/18 12:04	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	12/13/18 12:04	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg	☼	12/13/18 12:04	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.74	ug/Kg	☼	12/13/18 12:04	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.80	ug/Kg	☼	12/13/18 12:04	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.72	ug/Kg	☼	12/13/18 12:04	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg	☼	12/13/18 12:04	1
1,2-Dibromo-3-Chloropropane	1.6	U	9.9	1.6	0.60	ug/Kg	☼	12/13/18 12:04	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg	☼	12/13/18 12:04	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.69	ug/Kg	☼	12/13/18 12:04	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg	☼	12/13/18 12:04	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg	☼	12/13/18 12:04	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg	☼	12/13/18 12:04	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg	☼	12/13/18 12:04	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg	☼	12/13/18 12:04	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.77	ug/Kg	☼	12/13/18 12:04	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg	☼	12/13/18 12:04	1
2-Butanone (MEK)	**13**	**J**	20	6.3	1.8	ug/Kg	☼	12/13/18 12:04	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg	☼	12/13/18 12:04	1
2-Hexanone	13	U	20	13	4.8	ug/Kg	☼	12/13/18 12:04	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.77	ug/Kg	☼	12/13/18 12:04	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg	☼	12/13/18 12:04	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.3	ug/Kg	☼	12/13/18 12:04	1
Acetone	**28**		20	13	5.3	ug/Kg	☼	12/13/18 12:04	1
Benzene	1.6	U M	5.0	1.6	0.47	ug/Kg	☼	12/13/18 12:04	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg	☼	12/13/18 12:04	1
Bromoform	0.79	U	5.0	0.79	0.23	ug/Kg	☼	12/13/18 12:04	1
Bromomethane	1.6	U	9.9	1.6	0.50	ug/Kg	☼	12/13/18 12:04	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg	☼	12/13/18 12:04	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.62	ug/Kg	☼	12/13/18 12:04	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg	☼	12/13/18 12:04	1
Bromochloromethane	0.79	U	5.0	0.79	0.30	ug/Kg	☼	12/13/18 12:04	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg	☼	12/13/18 12:04	1
Chloroethane	3.2	U	9.9	3.2	0.88	ug/Kg	☼	12/13/18 12:04	1
Chloroform	0.79	U	9.9	0.79	0.29	ug/Kg	☼	12/13/18 12:04	1
Chloromethane	1.6	U	9.9	1.6	0.76	ug/Kg	☼	12/13/18 12:04	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg	☼	12/13/18 12:04	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg	☼	12/13/18 12:04	1
Dibromomethane	3.2	U	5.0	3.2	0.83	ug/Kg	☼	12/13/18 12:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-011218-400 — **Lab Sample ID: 280-117650-4**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromodichloromethane	0.79	U	5.0	0.79	0.22	ug/Kg	☼	12/13/18 12:04	1
Dichlorodifluoromethane	1.6	U Q	9.9	1.6	0.52	ug/Kg	☼	12/13/18 12:04	1
Ethylbenzene	1.6	U	5.0	1.6	0.66	ug/Kg	☼	12/13/18 12:04	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg	☼	12/13/18 12:04	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg	☼	12/13/18 12:04	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	12/13/18 12:04	1
Methyl tert-butyl ether	0.79	U	20	0.79	0.34	ug/Kg	☼	12/13/18 12:04	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg	☼	12/13/18 12:04	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg	☼	12/13/18 12:04	1
Naphthalene	1.6	U	5.0	1.6	0.62	ug/Kg	☼	12/13/18 12:04	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg	☼	12/13/18 12:04	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg	☼	12/13/18 12:04	1
o-Xylene	1.6	U	5.0	1.6	0.60	ug/Kg	☼	12/13/18 12:04	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.76	ug/Kg	☼	12/13/18 12:04	1
Styrene	1.6	U	5.0	1.6	0.62	ug/Kg	☼	12/13/18 12:04	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg	☼	12/13/18 12:04	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	12/13/18 12:04	1
Toluene	1.6	U	5.0	1.6	0.68	ug/Kg	☼	12/13/18 12:04	1
trans-1,2-Dichloroethene	0.79	U	5.0	0.79	0.39	ug/Kg	☼	12/13/18 12:04	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.66	ug/Kg	☼	12/13/18 12:04	1
Trichloroethene	0.79	U	5.0	0.79	0.23	ug/Kg	☼	12/13/18 12:04	1
Trichlorofluoromethane	3.2	U	9.9	3.2	1.0	ug/Kg	☼	12/13/18 12:04	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg	☼	12/13/18 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*12/01/18 16:05*	*12/13/18 12:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*12/01/18 16:05*	*12/13/18 12:04*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*12/01/18 16:05*	*12/13/18 12:04*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 119*	*12/01/18 16:05*	*12/13/18 12:04*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S1-031218-01 — **Lab Sample ID: 280-117650-1**
Date Collected: 12/03/18 15:00 — **Matrix: Water**
Date Received: 12/04/18 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**20**	**J**	25	25	10	ug/L		12/13/18 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*82 - 110*		*12/13/18 14:20*	*1*

Client Sample ID: P-S1-031218-414 — **Lab Sample ID: 280-117650-3**
Date Collected: 12/03/18 11:40 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 91.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.5	U	1.6	1.5	0.43	mg/Kg	☼	12/14/18 13:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*121*		*77 - 123*	*12/13/18 14:14*	*12/14/18 13:11*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S1-011218-400 — **Lab Sample ID: 280-117650-5**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.39	mg/Kg	☼	12/14/18 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*108*		*77 - 123*	*12/13/18 14:14*	*12/14/18 12:46*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S1-031218-01 — **Lab Sample ID: 280-117650-1**
Date Collected: 12/03/18 15:00 — **Matrix: Water**
Date Received: 12/04/18 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		12/11/18 23:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*104*		*70 - 130*	*12/11/18 11:43*	*12/11/18 23:40*	*1*

Client Sample ID: V-S1-031218-414 — **Lab Sample ID: 280-117650-2**
Date Collected: 12/03/18 11:40 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 92.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.041	U	0.11	0.041	0.016	ug/Kg	☼	12/09/18 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*		*55 - 130*	*12/07/18 08:06*	*12/09/18 13:54*	*1*

Client Sample ID: V-S1-011218-400 — **Lab Sample ID: 280-117650-4**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	12/09/18 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*95*		*55 - 130*	*12/07/18 08:06*	*12/09/18 13:35*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-031218-414 — **Lab Sample ID: 280-117650-3**
Date Collected: 12/03/18 11:40 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 91.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.4**	**J**	8.4	4.2	1.4	mg/Kg	☼	12/17/18 19:05	1
Motor Oil (C20-C38)	24	U	25	24	8.2	mg/Kg	☼	12/17/18 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*83*		*45 - 130*	*12/13/18 19:41*	*12/17/18 19:05*	*1*
n-Octacosane	*97*		*25 - 162*	*12/13/18 19:41*	*12/17/18 19:05*	*1*

Client Sample ID: P-S1-011218-400 — **Lab Sample ID: 280-117650-5**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1.5**	**J**	7.9	4.0	1.3	mg/Kg	☼	12/17/18 21:26	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-S1-011218-400 — **Lab Sample ID: 280-117650-5**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	12/17/18 21:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*81*		*45 - 130*	*12/13/18 19:41*	*12/17/18 21:26*	*1*
n-Octacosane	*96*		*25 - 162*	*12/13/18 19:41*	*12/17/18 21:26*	*1*

General Chemistry

Client Sample ID: V-S1-031218-414 — **Lab Sample ID: 280-117650-2**
Date Collected: 12/03/18 11:40 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 92.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**7.7**		0.1	0.05	0.1	%		12/07/18 16:00	1

Client Sample ID: P-S1-031218-414 — **Lab Sample ID: 280-117650-3**
Date Collected: 12/03/18 11:40 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 91.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.6**		0.1	0.05	0.1	%		12/07/18 12:44	1

Client Sample ID: V-S1-011218-400 — **Lab Sample ID: 280-117650-4**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.8**		0.1	0.05	0.1	%		12/07/18 12:44	1

Client Sample ID: P-S1-011218-400 — **Lab Sample ID: 280-117650-5**
Date Collected: 12/01/18 16:05 — **Matrix: Solid**
Date Received: 12/04/18 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.6**		0.1	0.05	0.1	%		12/07/18 12:44	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117650-2	V-S1-031218-414	106	86	114	88
280-117650-4	V-S1-011218-400	104	88	100	98
LCS 280-441138/2-A	Lab Control Sample	97	82	92	91
LCS 280-441341/2-A	Lab Control Sample	101	86	105	89
LCSD 280-441138/3-A	Lab Control Sample Dup	91	80	88	87
LCSD 280-441341/3-A	Lab Control Sample Dup	106	94	118	93
MB 280-441138/1-A	Method Blank	92	80	88	88
MB 280-441341/1-A	Method Blank	106	86	103	90

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117650-1	TB-S1-031218-01	98	89	97	94
LCS 280-441540/5	Lab Control Sample	103	97	99	99
MB 280-441540/4	Method Blank	102	91	102	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117650-3	P-S1-031218-414	121
280-117650-5	P-S1-011218-400	108
LCS 280-441160/2-A	Lab Control Sample	116
LCSD 280-441160/3-A	Lab Control Sample Dup	105
MB 280-441160/4-A	Method Blank	102

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117650-1	TB-S1-031218-01	101
LCS 280-441121/3	Lab Control Sample	98
LCSD 280-441121/4	Lab Control Sample Dup	99
MB 280-441121/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117650-2	V-S1-031218-414	97
280-117650-4	V-S1-011218-400	95
LCS 280-440310/2-A	Lab Control Sample	93 M
LCSD 280-440310/3-A	Lab Control Sample Dup	93 M
MB 280-440310/4-A	Method Blank	87 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117650-1	TB-S1-031218-01	104
LCS 280-440756/2-A	Lab Control Sample	97
LCSD 280-440756/3-A	Lab Control Sample Dup	104
MB 280-440756/4-A	Method Blank	103

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117650-3	P-S1-031218-414	83	97
280-117650-3 MS	P-S1-031218-414	82	89
280-117650-3 MS	P-S1-031218-414	87	110
280-117650-3 MSD	P-S1-031218-414	82	89
280-117650-3 MSD	P-S1-031218-414	83	105
280-117650-5	P-S1-011218-400	81	96
LCS 280-441182/2-A	Lab Control Sample	89	101

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
LCS 280-441182/3-A	Lab Control Sample	96	107								
MB 280-441182/1-A	Method Blank	84	102								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441138/1-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441138

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/13/18 11:02	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg		12/13/18 11:02	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/13/18 11:02	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/13/18 11:02	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/13/18 11:02	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/13/18 11:02	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/13/18 11:02	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/13/18 11:02	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/13/18 11:02	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		12/13/18 11:02	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/13/18 11:02	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/13/18 11:02	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/13/18 11:02	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/13/18 11:02	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/13/18 11:02	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/13/18 11:02	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/13/18 11:02	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/13/18 11:02	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/13/18 11:02	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/13/18 11:02	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/13/18 11:02	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/13/18 11:02	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/13/18 11:02	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/13/18 11:02	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/13/18 11:02	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/13/18 11:02	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/13/18 11:02	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/13/18 11:02	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/13/18 11:02	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/13/18 11:02	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/13/18 11:02	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		12/13/18 11:02	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/13/18 11:02	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/13/18 11:02	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/13/18 11:02	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/13/18 11:02	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/13/18 11:02	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/13/18 11:02	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/13/18 11:02	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/13/18 11:02	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/13/18 11:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441138/1-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441138

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/13/18 11:02	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/13/18 11:02	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		12/13/18 11:02	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/13/18 11:02	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/13/18 11:02	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
1,2,4-Trimethylbenzene	3.2	U M	5.0	3.2	0.58	ug/Kg		12/13/18 11:02	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/13/18 11:02	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/13/18 11:02	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/13/18 11:02	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/13/18 11:02	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/13/18 11:02	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		12/13/18 11:02	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/13/18 11:02	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/13/18 11:02	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/13/18 11:02	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/13/18 11:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*85 - 116*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
4-Bromofluorobenzene (Surr)	*88*		*79 - 119*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 119*	*12/13/18 07:00*	*12/13/18 11:02*	*1*

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	43.5		ug/Kg		87	61 - 132
2-Butanone (MEK)	200	189		ug/Kg		94	51 - 148
1,2-Dichlorobenzene	50.0	52.5		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	50.0	51.2		ug/Kg		102	77 - 121
4-Chlorotoluene	50.0	51.6		ug/Kg		103	72 - 124
1,4-Dichlorobenzene	50.0	51.3		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.0		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	49.2		ug/Kg		98	73 - 128
Acetone	200	203		ug/Kg		102	36 - 164
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131
Benzene	50.0	48.9		ug/Kg		98	77 - 121
Bromobenzene	50.0	53.4		ug/Kg		107	78 - 121
Bromoform	50.0	52.8		ug/Kg		106	67 - 132
Bromomethane	50.0	64.7		ug/Kg		129	53 - 143
1,2-Dichloropropane	50.0	49.5		ug/Kg		99	76 - 123
Carbon disulfide	50.0	50.6		ug/Kg		101	63 - 132
1,3-Dichloropropane	50.0	48.4		ug/Kg		97	77 - 121
Carbon tetrachloride	50.0	48.7		ug/Kg		97	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	49.3		ug/Kg		99	67 - 133
Chlorobenzene	50.0	50.9		ug/Kg		102	79 - 120
1,1-Dichloropropene	50.0	50.1		ug/Kg		100	76 - 125
Bromochloromethane	50.0	54.1		ug/Kg		108	78 - 125
Dibromochloromethane	50.0	51.0		ug/Kg		102	74 - 126
Chloroethane	50.0	64.8		ug/Kg		130	59 - 139
Chloroform	50.0	49.3		ug/Kg		99	78 - 123
2-Hexanone	200	185		ug/Kg		92	53 - 145
Chloromethane	50.0	50.5		ug/Kg		101	50 - 136
cis-1,2-Dichloroethene	50.0	50.1		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	50.9		ug/Kg		102	74 - 126
4-Isopropyltoluene	50.0	50.6		ug/Kg		101	73 - 127
Dibromomethane	50.0	51.2		ug/Kg		102	78 - 125
Bromodichloromethane	50.0	49.1		ug/Kg		98	75 - 127
4-Methyl-2-pentanone (MIBK)	200	193		ug/Kg		97	65 - 135
Dichlorodifluoromethane	50.0	35.3		ug/Kg		71	29 - 149
Ethylbenzene	50.0	49.8		ug/Kg		100	76 - 122
Ethylene Dibromide	50.0	51.4		ug/Kg		103	78 - 122
Hexachlorobutadiene	50.0	52.4		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	50.4		ug/Kg		101	68 - 134
1,1,1,2-Tetrachloroethane	50.0	50.2		ug/Kg		100	78 - 125
Methyl tert-butyl ether	50.0	48.4		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	50.0	46.5		ug/Kg		93	70 - 124
Methylene Chloride	50.0	52.2		ug/Kg		104	70 - 128
Naphthalene	50.0	50.6		ug/Kg		101	62 - 129
1,2,3-Trichlorobenzene	50.0	51.3		ug/Kg		103	66 - 130
n-Butylbenzene	50.0	47.5		ug/Kg		95	70 - 128
1,1,1-Trichloroethane	50.0	47.8		ug/Kg		96	73 - 130
N-Propylbenzene	50.0	50.9		ug/Kg		102	73 - 125
1,1,2-Trichloroethane	50.0	52.7		ug/Kg		105	78 - 121
sec-Butylbenzene	50.0	51.2		ug/Kg		102	73 - 126
Styrene	50.0	50.3		ug/Kg		101	76 - 124
1,2,4-Trichlorobenzene	50.0	51.8		ug/Kg		104	67 - 129
tert-Butylbenzene	50.0	51.1		ug/Kg		102	73 - 125
1,2,3-Trichloropropane	50.0	50.2		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	49.1		ug/Kg		98	73 - 128
1,2,4-Trimethylbenzene	50.0	49.3		ug/Kg		99	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121
1,3,5-Trimethylbenzene	50.0	50.3		ug/Kg		101	73 - 124
trans-1,2-Dichloroethene	50.0	51.8		ug/Kg		104	74 - 125
trans-1,3-Dichloropropene	50.0	50.9		ug/Kg		102	71 - 130
o-Xylene	50.0	50.4		ug/Kg		101	77 - 123
Trichloroethene	50.0	49.1		ug/Kg		98	77 - 123
m-Xylene & p-Xylene	50.0	51.6		ug/Kg		103	77 - 124
Trichlorofluoromethane	50.0	56.2		ug/Kg		112	62 - 140
Vinyl chloride	50.0	58.2		ug/Kg		116	56 - 135
2-Chlorotoluene	50.0	51.5		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*
Dibromofluoromethane (Surr)	*91*		*78 - 119*

Lab Sample ID: LCSD 280-441138/3-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441138

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	45.1		ug/Kg		90	61 - 132	4	20
2-Butanone (MEK)			200	199		ug/Kg		99	51 - 148	5	20
1,2-Dichlorobenzene			50.0	51.8		ug/Kg		104	78 - 121	1	20
1,3-Dichlorobenzene			50.0	50.7		ug/Kg		101	77 - 121	1	20
4-Chlorotoluene			50.0	50.8		ug/Kg		102	72 - 124	2	20
1,4-Dichlorobenzene			50.0	51.2		ug/Kg		102	75 - 120	0	20
1,1-Dichloroethane			50.0	47.5		ug/Kg		95	76 - 125	1	20
1,2-Dichloroethane			50.0	49.7		ug/Kg		99	73 - 128	1	20
Acetone			200	219		ug/Kg		109	36 - 164	7	20
1,1-Dichloroethene			50.0	49.9		ug/Kg		100	70 - 131	3	20
Benzene			50.0	49.0		ug/Kg		98	77 - 121	0	20
Bromobenzene			50.0	53.5		ug/Kg		107	78 - 121	0	20
Bromoform			50.0	54.0		ug/Kg		108	67 - 132	2	20
Bromomethane			50.0	61.4		ug/Kg		123	53 - 143	5	20
1,2-Dichloropropane			50.0	49.4		ug/Kg		99	76 - 123	0	20
Carbon disulfide			50.0	49.0		ug/Kg		98	63 - 132	3	20
1,3-Dichloropropane			50.0	48.8		ug/Kg		98	77 - 121	1	20
Carbon tetrachloride			50.0	47.1		ug/Kg		94	70 - 135	3	20
2,2-Dichloropropane			50.0	47.5		ug/Kg		95	67 - 133	4	20
Chlorobenzene			50.0	50.1		ug/Kg		100	79 - 120	2	20
1,1-Dichloropropene			50.0	49.0		ug/Kg		98	76 - 125	2	20
Bromochloromethane			50.0	53.2		ug/Kg		106	78 - 125	2	20
Dibromochloromethane			50.0	51.5		ug/Kg		103	74 - 126	1	20
Chloroethane			50.0	60.3		ug/Kg		121	59 - 139	7	20
Chloroform			50.0	48.8		ug/Kg		98	78 - 123	1	20
2-Hexanone			200	196		ug/Kg		98	53 - 145	6	20
Chloromethane			50.0	47.2		ug/Kg		94	50 - 136	7	20
cis-1,2-Dichloroethene			50.0	49.5		ug/Kg		99	77 - 123	1	20
cis-1,3-Dichloropropene			50.0	51.4		ug/Kg		103	74 - 126	1	20
4-Isopropyltoluene			50.0	50.9		ug/Kg		102	73 - 127	0	20
Dibromomethane			50.0	52.0		ug/Kg		104	78 - 125	2	20
Bromodichloromethane			50.0	49.1		ug/Kg		98	75 - 127	0	20
4-Methyl-2-pentanone (MIBK)			200	202		ug/Kg		101	65 - 135	4	20
Dichlorodifluoromethane			50.0	34.4		ug/Kg		69	29 - 149	3	20
Ethylbenzene			50.0	49.6		ug/Kg		99	76 - 122	0	20
Ethylene Dibromide			50.0	51.2		ug/Kg		102	78 - 122	0	20
Hexachlorobutadiene			50.0	51.7		ug/Kg		103	61 - 135	1	20
Isopropylbenzene			50.0	48.8		ug/Kg		98	68 - 134	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441138/3-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441138

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	49.6		ug/Kg		99	78 - 125	1	20
Methyl tert-butyl ether	50.0	49.5		ug/Kg		99	73 - 125	2	20
1,1,2,2-Tetrachloroethane	50.0	48.2		ug/Kg		96	70 - 124	3	20
Methylene Chloride	50.0	51.3		ug/Kg		103	70 - 128	2	20
Naphthalene	50.0	51.8		ug/Kg		104	62 - 129	2	20
1,2,3-Trichlorobenzene	50.0	51.6		ug/Kg		103	66 - 130	0	20
n-Butylbenzene	50.0	46.2		ug/Kg		92	70 - 128	3	20
1,1,1-Trichloroethane	50.0	46.2		ug/Kg		92	73 - 130	3	20
N-Propylbenzene	50.0	51.6		ug/Kg		103	73 - 125	1	20
1,1,2-Trichloroethane	50.0	53.9		ug/Kg		108	78 - 121	2	20
sec-Butylbenzene	50.0	50.4		ug/Kg		101	73 - 126	2	20
Styrene	50.0	50.2		ug/Kg		100	76 - 124	0	20
1,2,4-Trichlorobenzene	50.0	51.2		ug/Kg		102	67 - 129	1	20
tert-Butylbenzene	50.0	50.9		ug/Kg		102	73 - 125	0	20
1,2,3-Trichloropropane	50.0	52.9		ug/Kg		106	73 - 125	5	20
Tetrachloroethene	50.0	48.0		ug/Kg		96	73 - 128	2	20
1,2,4-Trimethylbenzene	50.0	49.5		ug/Kg		99	75 - 123	0	20
Toluene	50.0	49.7		ug/Kg		99	77 - 121	0	20
1,3,5-Trimethylbenzene	50.0	49.7		ug/Kg		99	73 - 124	1	20
trans-1,2-Dichloroethene	50.0	50.9		ug/Kg		102	74 - 125	2	20
trans-1,3-Dichloropropene	50.0	50.9		ug/Kg		102	71 - 130	0	20
o-Xylene	50.0	49.6		ug/Kg		99	77 - 123	2	20
Trichloroethene	50.0	48.3		ug/Kg		97	77 - 123	2	20
m-Xylene & p-Xylene	50.0	48.8		ug/Kg		98	77 - 124	6	20
Trichlorofluoromethane	50.0	54.9		ug/Kg		110	62 - 140	2	20
Vinyl chloride	50.0	55.0		ug/Kg		110	56 - 135	6	20
2-Chlorotoluene	50.0	50.3		ug/Kg		101	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*
4-Bromofluorobenzene (Surr)	*88*		*79 - 119*
Dibromofluoromethane (Surr)	*87*		*78 - 119*

Lab Sample ID: MB 280-441341/1-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441341

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/14/18 16:51	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/14/18 16:51	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/14/18 16:51	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/14/18 16:51	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/14/18 16:51	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/14/18 16:51	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/14/18 16:51	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/14/18 16:51	1
Acetone	1300	U	1500	1300	400	ug/Kg		12/14/18 16:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441341/1-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441341

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/14/18 16:51	1
Benzene	160	U	250	160	45	ug/Kg		12/14/18 16:51	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/14/18 16:51	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/14/18 16:51	1
Bromoform	160	U	250	160	160	ug/Kg		12/14/18 16:51	1
Bromomethane	160	U	500	160	44	ug/Kg		12/14/18 16:51	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/14/18 16:51	1
Carbon disulfide	160	U	250	160	64	ug/Kg		12/14/18 16:51	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/14/18 16:51	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/14/18 16:51	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/14/18 16:51	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/14/18 16:51	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/14/18 16:51	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/14/18 16:51	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/14/18 16:51	1
Chloroethane	160	U	500	160	44	ug/Kg		12/14/18 16:51	1
Chloroform	160	U	250	160	46	ug/Kg		12/14/18 16:51	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/14/18 16:51	1
Chloromethane	160	U	500	160	50	ug/Kg		12/14/18 16:51	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/14/18 16:51	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/14/18 16:51	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/14/18 16:51	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/14/18 16:51	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/14/18 16:51	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/14/18 16:51	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/14/18 16:51	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/14/18 16:51	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/14/18 16:51	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/14/18 16:51	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/14/18 16:51	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/14/18 16:51	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/14/18 16:51	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/14/18 16:51	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/14/18 16:51	1
Naphthalene	80	U	500	80	38	ug/Kg		12/14/18 16:51	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/14/18 16:51	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/14/18 16:51	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/14/18 16:51	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/14/18 16:51	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/14/18 16:51	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/14/18 16:51	1
Styrene	80	U	250	80	26	ug/Kg		12/14/18 16:51	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/14/18 16:51	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/14/18 16:51	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/14/18 16:51	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/14/18 16:51	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/14/18 16:51	1
Toluene	80	U	250	80	39	ug/Kg		12/14/18 16:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441341/1-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441341

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/14/18 16:51	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/14/18 16:51	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/14/18 16:51	1
o-Xylene	80	U	130	80	35	ug/Kg		12/14/18 16:51	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/14/18 16:51	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/14/18 16:51	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/14/18 16:51	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/14/18 16:51	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/14/18 16:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*85 - 116*	*12/14/18 13:54*	*12/14/18 16:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*	*12/14/18 13:54*	*12/14/18 16:51*	*1*
4-Bromofluorobenzene (Surr)	*103*		*79 - 119*	*12/14/18 13:54*	*12/14/18 16:51*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 119*	*12/14/18 13:54*	*12/14/18 16:51*	*1*

Lab Sample ID: LCS 280-441341/2-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441341

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1860		ug/Kg		93	61 - 132
2-Butanone (MEK)	8000	6630		ug/Kg		83	51 - 148
1,2-Dichlorobenzene	2000	1940		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	2000	1920		ug/Kg		96	77 - 121
4-Chlorotoluene	2000	2010		ug/Kg		100	72 - 124
1,4-Dichlorobenzene	2000	1920		ug/Kg		96	75 - 120
1,1-Dichloroethane	2000	1620		ug/Kg		81	76 - 125
1,2-Dichloroethane	2000	1670		ug/Kg		83	73 - 128
Acetone	8000	5350		ug/Kg		67	36 - 164
1,1-Dichloroethene	2000	1570		ug/Kg		78	70 - 131
Benzene	2000	1630		ug/Kg		81	77 - 121
Bromobenzene	2000	1990		ug/Kg		100	78 - 121
Bromoform	2000	1930		ug/Kg		96	67 - 132
Bromomethane	2000	1570		ug/Kg		78	53 - 143
1,2-Dichloropropane	2000	1720		ug/Kg		86	76 - 123
Carbon disulfide	2000	1510		ug/Kg		75	63 - 132
1,3-Dichloropropane	2000	1980		ug/Kg		99	77 - 121
Carbon tetrachloride	2000	1620		ug/Kg		81	70 - 135
2,2-Dichloropropane	2000	1560		ug/Kg		78	67 - 133
Chlorobenzene	2000	1840		ug/Kg		92	79 - 120
1,1-Dichloropropene	2000	1640		ug/Kg		82	76 - 125
Bromochloromethane	2000	1700		ug/Kg		85	78 - 125
Dibromochloromethane	2000	2110		ug/Kg		105	74 - 126
Chloroethane	2000	1780		ug/Kg		89	59 - 139
Chloroform	2000	1670		ug/Kg		83	78 - 123
2-Hexanone	8000	7980		ug/Kg		100	53 - 145
Chloromethane	2000	1510		ug/Kg		75	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441341/2-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441341

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	2000	1640		ug/Kg		82	77 - 123
cis-1,3-Dichloropropene	2000	2110		ug/Kg		105	74 - 126
4-Isopropyltoluene	2000	2010		ug/Kg		101	73 - 127
Dibromomethane	2000	1710		ug/Kg		85	78 - 125
Bromodichloromethane	2000	1730		ug/Kg		87	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	6950		ug/Kg		87	65 - 135
Dichlorodifluoromethane	2000	1290		ug/Kg		65	29 - 149
Ethylbenzene	2000	1830		ug/Kg		92	76 - 122
Ethylene Dibromide	2000	2070		ug/Kg		103	78 - 122
Hexachlorobutadiene	2000	1870		ug/Kg		93	61 - 135
Isopropylbenzene	2000	2030		ug/Kg		102	68 - 134
1,1,1,2-Tetrachloroethane	2000	1940		ug/Kg		97	78 - 125
Methyl tert-butyl ether	2000	1670		ug/Kg		83	73 - 125
1,1,2,2-Tetrachloroethane	2000	2070		ug/Kg		104	70 - 124
Methylene Chloride	2000	1520		ug/Kg		76	70 - 128
Naphthalene	2000	1930		ug/Kg		96	62 - 129
1,2,3-Trichlorobenzene	2000	1810		ug/Kg		91	66 - 130
n-Butylbenzene	2000	1910		ug/Kg		96	70 - 128
1,1,1-Trichloroethane	2000	1600		ug/Kg		80	73 - 130
N-Propylbenzene	2000	1980		ug/Kg		99	73 - 125
1,1,2-Trichloroethane	2000	1760		ug/Kg		88	78 - 121
sec-Butylbenzene	2000	2030		ug/Kg		102	73 - 126
Styrene	2000	1880		ug/Kg		94	76 - 124
1,2,4-Trichlorobenzene	2000	1800		ug/Kg		90	67 - 129
tert-Butylbenzene	2000	2110		ug/Kg		105	73 - 125
1,2,3-Trichloropropane	2000	2180		ug/Kg		109	73 - 125
Tetrachloroethene	2000	1940		ug/Kg		97	73 - 128
1,2,4-Trimethylbenzene	2000	1960		ug/Kg		98	75 - 123
Toluene	2000	1640		ug/Kg		82	77 - 121
1,3,5-Trimethylbenzene	2000	2040		ug/Kg		102	73 - 124
trans-1,2-Dichloroethene	2000	1660		ug/Kg		83	74 - 125
trans-1,3-Dichloropropene	2000	1780		ug/Kg		89	71 - 130
o-Xylene	2000	1830		ug/Kg		92	77 - 123
Trichloroethene	2000	1650		ug/Kg		83	77 - 123
m-Xylene & p-Xylene	2000	1830		ug/Kg		91	77 - 124
Trichlorofluoromethane	2000	1650		ug/Kg		83	62 - 140
Vinyl chloride	2000	1660		ug/Kg		83	56 - 135
2-Chlorotoluene	2000	1950		ug/Kg		98	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*
Dibromofluoromethane (Surr)	*89*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441341/3-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441341

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	2000		ug/Kg		100	61 - 132	7	20
2-Butanone (MEK)	8000	7550		ug/Kg		94	51 - 148	13	20
1,2-Dichlorobenzene	2000	2180		ug/Kg		109	78 - 121	12	20
1,3-Dichlorobenzene	2000	2140		ug/Kg		107	77 - 121	11	20
4-Chlorotoluene	2000	2290		ug/Kg		115	72 - 124	13	20
1,4-Dichlorobenzene	2000	2180		ug/Kg		109	75 - 120	13	20
1,1-Dichloroethane	2000	1760		ug/Kg		88	76 - 125	8	20
1,2-Dichloroethane	2000	1900		ug/Kg		95	73 - 128	13	20
Acetone	8000	5740		ug/Kg		72	36 - 164	7	20
1,1-Dichloroethene	2000	1650		ug/Kg		83	70 - 131	5	20
Benzene	2000	1820		ug/Kg		91	77 - 121	11	20
Bromobenzene	2000	2380		ug/Kg		119	78 - 121	17	20
Bromoform	2000	2270		ug/Kg		114	67 - 132	16	20
Bromomethane	2000	1560		ug/Kg		78	53 - 143	1	20
1,2-Dichloropropane	2000	1940		ug/Kg		97	76 - 123	12	20
Carbon disulfide	2000	1560		ug/Kg		78	63 - 132	3	20
1,3-Dichloropropane	2000	2290		ug/Kg		115	77 - 121	14	20
Carbon tetrachloride	2000	1700		ug/Kg		85	70 - 135	5	20
2,2-Dichloropropane	2000	1630		ug/Kg		81	67 - 133	4	20
Chlorobenzene	2000	2100		ug/Kg		105	79 - 120	14	20
1,1-Dichloropropene	2000	1790		ug/Kg		90	76 - 125	9	20
Bromochloromethane	2000	1870		ug/Kg		94	78 - 125	10	20
Dibromochloromethane	2000	2430		ug/Kg		121	74 - 126	14	20
Chloroethane	2000	1920		ug/Kg		96	59 - 139	7	20
Chloroform	2000	1840		ug/Kg		92	78 - 123	10	20
2-Hexanone	8000	9580		ug/Kg		120	53 - 145	18	20
Chloromethane	2000	1530		ug/Kg		76	50 - 136	1	20
cis-1,2-Dichloroethene	2000	1800		ug/Kg		90	77 - 123	10	20
cis-1,3-Dichloropropene	2000	2500		ug/Kg		125	74 - 126	17	20
4-Isopropyltoluene	2000	2180		ug/Kg		109	73 - 127	8	20
Dibromomethane	2000	1970		ug/Kg		99	78 - 125	15	20
Bromodichloromethane	2000	1970		ug/Kg		99	75 - 127	13	20
4-Methyl-2-pentanone (MIBK)	8000	7940		ug/Kg		99	65 - 135	13	20
Dichlorodifluoromethane	2000	1340		ug/Kg		67	29 - 149	4	20
Ethylbenzene	2000	2010		ug/Kg		100	76 - 122	9	20
Ethylene Dibromide	2000	2380		ug/Kg		119	78 - 122	14	20
Hexachlorobutadiene	2000	1930		ug/Kg		97	61 - 135	3	20
Isopropylbenzene	2000	2260		ug/Kg		113	68 - 134	10	20
1,1,1,2-Tetrachloroethane	2000	2110		ug/Kg		105	78 - 125	8	20
Methyl tert-butyl ether	2000	1840		ug/Kg		92	73 - 125	10	20
1,1,2,2-Tetrachloroethane	2000	2370		ug/Kg		118	70 - 124	13	20
Methylene Chloride	2000	1620		ug/Kg		81	70 - 128	6	20
Naphthalene	2000	2050		ug/Kg		103	62 - 129	6	20
1,2,3-Trichlorobenzene	2000	1880		ug/Kg		94	66 - 130	4	20
n-Butylbenzene	2000	2080		ug/Kg		104	70 - 128	9	20
1,1,1-Trichloroethane	2000	1720		ug/Kg		86	73 - 130	7	20
N-Propylbenzene	2000	2240		ug/Kg		112	73 - 125	12	20
1,1,2-Trichloroethane	2000	2130		ug/Kg		106	78 - 121	19	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441341/3-A
Matrix: Solid
Analysis Batch: 441537

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441341

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			2000	2220		ug/Kg		111	73 - 126	9	20
Styrene			2000	2150		ug/Kg		107	76 - 124	13	20
1,2,4-Trichlorobenzene			2000	1880		ug/Kg		94	67 - 129	4	20
tert-Butylbenzene			2000	2310		ug/Kg		116	73 - 125	9	20
1,2,3-Trichloropropane			2000	2550	Q	ug/Kg		127	73 - 125	16	20
Tetrachloroethene			2000	2150		ug/Kg		108	73 - 128	10	20
1,2,4-Trimethylbenzene			2000	2140		ug/Kg		107	75 - 123	9	20
Toluene			2000	1860		ug/Kg		93	77 - 121	12	20
1,3,5-Trimethylbenzene			2000	2230		ug/Kg		111	73 - 124	9	20
trans-1,2-Dichloroethene			2000	1790		ug/Kg		90	74 - 125	8	20
trans-1,3-Dichloropropene			2000	2190	Q	ug/Kg		109	71 - 130	21	20
o-Xylene			2000	1980		ug/Kg		99	77 - 123	8	20
Trichloroethene			2000	1900		ug/Kg		95	77 - 123	14	20
m-Xylene & p-Xylene			2000	2010		ug/Kg		101	77 - 124	10	20
Trichlorofluoromethane			2000	1700		ug/Kg		85	62 - 140	3	20
Vinyl chloride			2000	1660		ug/Kg		83	56 - 135	0	20
2-Chlorotoluene			2000	2180		ug/Kg		109	75 - 122	11	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*106*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*
4-Bromofluorobenzene (Surr)	*118*		*79 - 119*
Dibromofluoromethane (Surr)	*93*		*78 - 119*

Lab Sample ID: MB 280-441540/4
Matrix: Water
Analysis Batch: 441540

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/17/18 10:56	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/17/18 10:56	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 10:56	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/17/18 10:56	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 10:56	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 10:56	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/17/18 10:56	1
Acetone	4.56	J	10	6.4	1.9	ug/L		12/17/18 10:56	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/17/18 10:56	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/17/18 10:56	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 10:56	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/17/18 10:56	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 10:56	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/17/18 10:56	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 10:56	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/17/18 10:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441540/4
Matrix: Water
Analysis Batch: 441540

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 10:56	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 10:56	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/17/18 10:56	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/17/18 10:56	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/17/18 10:56	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/17/18 10:56	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 10:56	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/17/18 10:56	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/17/18 10:56	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/17/18 10:56	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/17/18 10:56	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/17/18 10:56	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 10:56	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 10:56	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/17/18 10:56	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 10:56	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/17/18 10:56	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/17/18 10:56	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 10:56	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/17/18 10:56	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/17/18 10:56	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/17/18 10:56	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/17/18 10:56	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/17/18 10:56	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 10:56	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/17/18 10:56	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 10:56	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/17/18 10:56	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/17/18 10:56	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/17/18 10:56	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/17/18 10:56	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/17/18 10:56	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/17/18 10:56	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441540/4
Matrix: Water
Analysis Batch: 441540

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		89 - 112		12/17/18 10:56	1
1,2-Dichloroethane-d4 (Surr)	91		81 - 118		12/17/18 10:56	1
4-Bromofluorobenzene (Surr)	102		85 - 114		12/17/18 10:56	1
Dibromofluoromethane (Surr)	99		80 - 119		12/17/18 10:56	1

Lab Sample ID: LCS 280-441540/5
Matrix: Water
Analysis Batch: 441540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.71	J	ug/L		94	62 - 128
2-Butanone (MEK)	20.0	19.5		ug/L		98	56 - 143
1,2-Dichlorobenzene	5.00	5.38		ug/L		108	80 - 119
1,3-Dichlorobenzene	5.00	5.32		ug/L		106	80 - 119
4-Chlorotoluene	5.00	5.34		ug/L		107	78 - 122
1,4-Dichlorobenzene	5.00	5.25		ug/L		105	79 - 118
1,1-Dichloroethane	5.00	4.91		ug/L		98	77 - 125
1,2-Dichloroethane	5.00	5.14		ug/L		103	73 - 128
Acetone	20.0	23.2		ug/L		116	39 - 160
1,1-Dichloroethene	5.00	4.79		ug/L		96	71 - 131
Benzene	5.00	4.96		ug/L		99	79 - 120
Bromobenzene	5.00	5.10		ug/L		102	80 - 120
Bromoform	5.00	5.19		ug/L		104	66 - 130
Bromomethane	5.00	5.77		ug/L		115	53 - 141
1,2-Dichloropropane	5.00	5.28		ug/L		106	78 - 122
Carbon disulfide	5.00	4.64		ug/L		93	64 - 133
1,3-Dichloropropane	5.00	5.45		ug/L		109	80 - 119
Carbon tetrachloride	5.00	4.51		ug/L		90	72 - 136
2,2-Dichloropropane	5.00	4.55		ug/L		91	60 - 139
Chlorobenzene	5.00	5.40		ug/L		108	82 - 118
1,1-Dichloropropene	5.00	4.71		ug/L		94	79 - 125
Bromochloromethane	5.00	5.34		ug/L		107	78 - 123
Dibromochloromethane	5.00	5.24		ug/L		105	74 - 126
Chloroethane	5.00	5.22		ug/L		104	60 - 138
Chloroform	5.00	5.02		ug/L		100	79 - 124
2-Hexanone	20.0	20.3		ug/L		101	57 - 139
Chloromethane	5.00	4.13		ug/L		83	50 - 139
cis-1,2-Dichloroethene	5.00	4.99		ug/L		100	78 - 123
cis-1,3-Dichloropropene	5.00	5.57		ug/L		111	75 - 124
4-Isopropyltoluene	5.00	5.14		ug/L		103	77 - 127
Dibromomethane	5.00	5.18		ug/L		104	79 - 123
Bromodichloromethane	5.00	4.97		ug/L		99	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.6		ug/L		98	67 - 130
Dichlorodifluoromethane	5.00	2.14		ug/L		43	32 - 152
Ethylbenzene	5.00	5.27		ug/L		105	79 - 121
Ethylene Dibromide	5.00	5.40		ug/L		108	77 - 121
Hexachlorobutadiene	5.00	4.80		ug/L		96	66 - 134
Isopropylbenzene	5.00	5.04		ug/L		101	72 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441540/5
Matrix: Water
Analysis Batch: 441540

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	5.54		ug/L		111	78 - 124
Methyl tert-butyl ether	5.00	4.99	J	ug/L		100	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.06		ug/L		101	71 - 121
Methylene Chloride	5.00	5.12		ug/L		102	74 - 124
Naphthalene	5.00	4.75		ug/L		95	61 - 128
1,2,3-Trichlorobenzene	5.00	4.99		ug/L		100	69 - 129
n-Butylbenzene	5.00	5.04		ug/L		101	75 - 128
1,1,1-Trichloroethane	5.00	4.56		ug/L		91	74 - 131
N-Propylbenzene	5.00	5.07		ug/L		101	76 - 126
1,1,2-Trichloroethane	5.00	5.15		ug/L		103	80 - 119
sec-Butylbenzene	5.00	5.09		ug/L		102	77 - 126
Styrene	5.00	5.56		ug/L		111	78 - 123
1,2,4-Trichlorobenzene	5.00	4.84		ug/L		97	69 - 130
tert-Butylbenzene	5.00	5.22		ug/L		104	78 - 124
1,2,3-Trichloropropane	5.00	5.12		ug/L		102	73 - 122
Tetrachloroethene	5.00	4.96		ug/L		99	74 - 129
1,2,4-Trimethylbenzene	5.00	5.19		ug/L		104	76 - 124
Toluene	5.00	4.95		ug/L		99	80 - 121
1,3,5-Trimethylbenzene	5.00	5.16		ug/L		103	75 - 124
trans-1,2-Dichloroethene	5.00	5.03		ug/L		101	75 - 124
trans-1,3-Dichloropropene	5.00	5.10		ug/L		102	73 - 127
o-Xylene	5.00	5.52		ug/L		110	78 - 122
Trichloroethene	5.00	4.74		ug/L		95	79 - 123
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	4.41		ug/L		88	65 - 141
Vinyl chloride	5.00	4.58		ug/L		92	58 - 137
2-Chlorotoluene	5.00	5.23		ug/L		105	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*
Dibromofluoromethane (Surr)	*99*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-441121/5
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/13/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*12/13/18 13:29*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-441121/3
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	81.7		ug/L		104	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Lab Sample ID: LCSD 280-441121/4
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	74.9		ug/L		95	78 - 122	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-441160/4-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441160

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/14/18 12:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*12/13/18 14:14*	*12/14/18 12:22*	*1*

Lab Sample ID: LCS 280-441160/2-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.11		mg/Kg		93	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*116*		*77 - 123*

Lab Sample ID: LCSD 280-441160/3-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	5.50	6.49		mg/Kg		118	79 - 122	24	30

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-441160/3-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441160

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	105		77 - 123

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-440310/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440310

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 13:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	87	M	55 - 130	12/07/18 08:06	12/09/18 13:16	1

Lab Sample ID: LCS 280-440310/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.737	M	ug/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	93	M	55 - 130

Lab Sample ID: LCSD 280-440310/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440310

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.725		ug/Kg		83	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	93	M	55 - 130

Lab Sample ID: MB 280-440756/4-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440756

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/11/18 17:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	103		70 - 130	12/11/18 11:43	12/11/18 17:55	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-440756/2-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440756

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.200		ug/L		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*97*		*70 - 130*

Lab Sample ID: LCSD 280-440756/3-A
Matrix: Water
Analysis Batch: 440803

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440756

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.210		ug/L		84	70 - 130	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441182/1-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441182

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.27	J	8.0	4.0	1.4	mg/Kg		12/17/18 18:05	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/17/18 18:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*45 - 130*	*12/13/18 19:41*	*12/17/18 18:05*	*1*
n-Octacosane	*102*		*25 - 162*	*12/13/18 19:41*	*12/17/18 18:05*	*1*

Lab Sample ID: LCS 280-441182/2-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	125		mg/Kg		95	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-441182/3-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			326	329		mg/Kg		101	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	96		45 - 130
n-Octacosane	107		25 - 162

Lab Sample ID: 280-117650-3 MS
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: P-S1-031218-414
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	3.4	J	137	110		mg/Kg	☼	78	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	82		45 - 130
n-Octacosane	89		25 - 162

Lab Sample ID: 280-117650-3 MS
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: P-S1-031218-414
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	24	U	359	364		mg/Kg	☼	101	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	87		45 - 130
n-Octacosane	110		25 - 162

Lab Sample ID: 280-117650-3 MSD
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: P-S1-031218-414
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	3.4	J	133	115		mg/Kg	☼	83	38 - 132	4	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	82		45 - 130
n-Octacosane	89		25 - 162

Lab Sample ID: 280-117650-3 MSD
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: P-S1-031218-414
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	24	U	347	350		mg/Kg	☼	101	45 - 130	4	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	83		45 - 130
n-Octacosane	105		25 - 162

Method: Moisture - Percent Moisture

Lab Sample ID: 280-117650-2 DU
Matrix: Solid
Analysis Batch: 440402

Client Sample ID: V-S1-031218-414
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	7.7			7.8		%				0.5	20

GC/MS VOA

Analysis Batch: 441097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-4	V-S1-011218-400	Total/NA	Solid	8260B	441138
MB 280-441138/1-A	Method Blank	Total/NA	Solid	8260B	441138
LCS 280-441138/2-A	Lab Control Sample	Total/NA	Solid	8260B	441138
LCSD 280-441138/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441138

Prep Batch: 441138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-4	V-S1-011218-400	Total/NA	Solid	5035	
MB 280-441138/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441138/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441138/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 441341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-2	V-S1-031218-414	Total/NA	Solid	5035	
MB 280-441341/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441341/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441341/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-2	V-S1-031218-414	Total/NA	Solid	8260B	441341
MB 280-441341/1-A	Method Blank	Total/NA	Solid	8260B	441341
LCS 280-441341/2-A	Lab Control Sample	Total/NA	Solid	8260B	441341
LCSD 280-441341/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441341

Analysis Batch: 441540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-1	TB-S1-031218-01	Total/NA	Water	8260B	
MB 280-441540/4	Method Blank	Total/NA	Water	8260B	
LCS 280-441540/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 441121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-1	TB-S1-031218-01	Total/NA	Water	8015D GRO	
MB 280-441121/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-441121/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-441121/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 441160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-3	P-S1-031218-414	Total/NA	Solid	5035	
280-117650-5	P-S1-011218-400	Total/NA	Solid	5035	
MB 280-441160/4-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA (Continued)

Analysis Batch: 441189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-3	P-S1-031218-414	Total/NA	Solid	8015D GRO	441160
280-117650-5	P-S1-011218-400	Total/NA	Solid	8015D GRO	441160
MB 280-441160/4-A	Method Blank	Total/NA	Solid	8015D GRO	441160
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	441160
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	441160

GC Semi VOA

Prep Batch: 440310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-2	V-S1-031218-414	Total/NA	Solid	8011	
280-117650-4	V-S1-011218-400	Total/NA	Solid	8011	
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-2	V-S1-031218-414	Total/NA	Solid	8011	440310
280-117650-4	V-S1-011218-400	Total/NA	Solid	8011	440310
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	440310
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	440310
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	440310

Prep Batch: 440756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-1	TB-S1-031218-01	Total/NA	Water	8011	
MB 280-440756/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-440756/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-440756/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 440803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-1	TB-S1-031218-01	Total/NA	Water	8011	440756
MB 280-440756/4-A	Method Blank	Total/NA	Water	8011	440756
LCS 280-440756/2-A	Lab Control Sample	Total/NA	Water	8011	440756
LCSD 280-440756/3-A	Lab Control Sample Dup	Total/NA	Water	8011	440756

Prep Batch: 441182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-3	P-S1-031218-414	Total/NA	Solid	3546	
280-117650-5	P-S1-011218-400	Total/NA	Solid	3546	
MB 280-441182/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-117650-3 MS	P-S1-031218-414	Total/NA	Solid	3546	
280-117650-3 MS	P-S1-031218-414	Total/NA	Solid	3546	
280-117650-3 MSD	P-S1-031218-414	Total/NA	Solid	3546	
280-117650-3 MSD	P-S1-031218-414	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Analysis Batch: 441579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-3	P-S1-031218-414	Total/NA	Solid	8015D DRO	441182
280-117650-5	P-S1-011218-400	Total/NA	Solid	8015D DRO	441182
MB 280-441182/1-A	Method Blank	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182
280-117650-3 MS	P-S1-031218-414	Total/NA	Solid	8015D DRO	441182
280-117650-3 MS	P-S1-031218-414	Total/NA	Solid	8015D DRO	441182
280-117650-3 MSD	P-S1-031218-414	Total/NA	Solid	8015D DRO	441182
280-117650-3 MSD	P-S1-031218-414	Total/NA	Solid	8015D DRO	441182

General Chemistry

Analysis Batch: 440372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-3	P-S1-031218-414	Total/NA	Solid	Moisture	
280-117650-4	V-S1-011218-400	Total/NA	Solid	Moisture	
280-117650-5	P-S1-011218-400	Total/NA	Solid	Moisture	

Analysis Batch: 440402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117650-2	V-S1-031218-414	Total/NA	Solid	Moisture	
280-117650-2 DU	V-S1-031218-414	Total/NA	Solid	Moisture	

Client Sample ID: TB-S1-031218-01

Lab Sample ID: 280-117650-1

Date Collected: 12/03/18 15:00

Matrix: Water

Date Received: 12/04/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	441540	12/17/18 14:03	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	441121	12/13/18 14:20	GPM	TAL DEN
Total/NA	Prep	8011			33.8 mL	35 mL	440756	12/11/18 11:43	MJS	TAL DEN
Total/NA	Analysis	8011		1			440803	12/11/18 23:40	JLW	TAL DEN

Client Sample ID: V-S1-031218-414

Lab Sample ID: 280-117650-2

Date Collected: 12/03/18 11:40

Matrix: Solid

Date Received: 12/04/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440402	12/07/18 16:00	LMD	TAL DEN

Client Sample ID: V-S1-031218-414

Lab Sample ID: 280-117650-2

Date Collected: 12/03/18 11:40

Matrix: Solid

Date Received: 12/04/18 09:15

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.48 g	1000 mL	441341	12/03/18 11:40	JLS	TAL DEN
Total/NA	Analysis	8260B		1	20 mL	20 mL	441537	12/14/18 17:48	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 13:54	JLW	TAL DEN

Client Sample ID: P-S1-031218-414

Lab Sample ID: 280-117650-3

Date Collected: 12/03/18 11:40

Matrix: Solid

Date Received: 12/04/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440372	12/07/18 12:44	LMD	TAL DEN

Client Sample ID: P-S1-031218-414

Lab Sample ID: 280-117650-3

Date Collected: 12/03/18 11:40

Matrix: Solid

Date Received: 12/04/18 09:15

Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.436 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	.1 mL	5 mL	441189	12/14/18 13:11	GPM	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 19:05	AMB1	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Client Sample ID: V-S1-011218-400
Lab Sample ID: 280-117650-4
Date Collected: 12/01/18 16:05
Matrix: Solid
Date Received: 12/04/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440372	12/07/18 12:44	LMD	TAL DEN

Client Sample ID: V-S1-011218-400
Lab Sample ID: 280-117650-4
Date Collected: 12/01/18 16:05
Matrix: Solid
Date Received: 12/04/18 09:15
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.24 g	5 mL	441138	12/01/18 16:05	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	441097	12/13/18 12:04	JLS	TAL DEN
Total/NA	Prep	8011			9.97 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 13:35	JLW	TAL DEN

Client Sample ID: P-S1-011218-400
Lab Sample ID: 280-117650-5
Date Collected: 12/01/18 16:05
Matrix: Solid
Date Received: 12/04/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440372	12/07/18 12:44	LMD	TAL DEN

Client Sample ID: P-S1-011218-400
Lab Sample ID: 280-117650-5
Date Collected: 12/01/18 16:05
Matrix: Solid
Date Received: 12/04/18 09:15
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.52 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	.1 mL	5 mL	441189	12/14/18 12:46	GPM	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 21:26	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117650-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7656	COC No: COC1-51-TA-20181205
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO
City: Greenwood Village	TAT Requested (days): Per PO
State, Zip: CO, 80111	
Phone: 303-590-9143(Tel)	PO #: 16065
Email: pmoss@eaest.com	WO #: 62735DM02.1017
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071
Site: Kirtland BFF	SSOW#: —

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-51-031218-01	12/03/18	1500	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-51-031218-414	12/03/18	1140	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-51-031218-414	12/03/18	1140	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-51-011218-400	12/01/18	1605	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-51-011218-400	12/01/18	1605	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

280-117650 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	12/03/18 1800	EA		12/4/18 0915	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.7, +1.0, 1.5, received by SB, 12/4/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117650-1

Login Number: 117650
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	See Case Narrative
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117710-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Stephanie Rothmeyer

Authorized for release by:
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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117710-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117710-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/5/2018 at 12:08 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples V-S1-041218-461 (280-117710-2) and V-S1-041218-459 (280-117710-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/11/2018 and analyzed on 12/13/2018.

4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for V-S1-041218-461 (280-117710-2). Because of the required dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information. Associated results are flagged "Q".

Hexachlorobutadiene exceeded the RPD limit for LCSD 280-440741/3-A. Percent recoveries were within control limits. Associated results are flagged "Q".

Samples V-S1-041218-461 (280-117710-2)[10X] and V-S1-041218-459 (280-117710-4)[10X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-441194: n-Butylbenzene, Acetone. These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method. Associated results are flagged "Q".

Internal standard responses were outside of acceptance limits for the following samples: V-S1-041218-461 (280-117710-2). The samples shows evidence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample TB-S1-041218-01 (280-117710-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/18/2018.

The continuing calibration verification (CCV) associated with batch 280-441787 recovered above the upper control limit for 2-Hexanone and 1,2,3-Trichlorobenzene. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data have been reported. Associated results are flagged "Q".

Job ID: 280-117710-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Samples V-S1-041218-461 (280-117710-2) and V-S1-041218-459 (280-117710-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/07/2018 and analyzed on 12/10/2018.

1,2-Dibromopropane failed the surrogate recovery criteria low for V-S1-041218-461 (280-117710-2) and V-S1-041218-459 (280-117710-4). Because of the required dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information. Associated results are flagged "Q".

Samples V-S1-041218-461 (280-117710-2)[100X] and V-S1-041218-459 (280-117710-4)[50X] required dilution prior to analysis due to abundance of target analytes. The reporting limits have been adjusted accordingly.

Compound 1,2,3-Trichloropropane eluted outside the retention time window on the primary and secondary column for the following sample: (CCV 280-441016/30). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample TB-S1-041218-01 (280-117710-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/12/2018 and analyzed on 12/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE PETROLEUM HYDROCARBONS (GC)
Samples P-S1-041218-461 (280-117710-3) and P-S1-041218-459 (280-117710-5) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 12/13/2018 and analyzed on 12/14/2018.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S1-041218-461 (280-117710-3). Because of the required dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information. Associated results are flagged "Q".

Sample P-S1-041218-461 (280-117710-3)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)
Sample TB-S1-041218-01 (280-117710-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/13/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-S1-041218-461 (280-117710-3) and P-S1-041218-459 (280-117710-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/13/2018 and analyzed on 12/17/2018 and 12/18/2018.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-441182/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged “J”. However, because the result concentration was less than ½ the reporting limit, no corrective action was necessary.

Sample P-S1-041218-461 (280-117710-3)[2X] required dilution prior to analysis to bring the concentration of target analyte within the calibration range. The reporting limits have been adjusted accordingly.

The following samples are reported from analysis of extracts that were silica gel cleaned: P-S1-041218-461 (280-117710-3),

Job ID: 280-117710-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

P-S1-041218-459 (280-117710-5), (LCS 280-441182/2-A), (LCS 280-441182/3-A), (MB 280-441182/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S1-041218-461 (280-117710-2), P-S1-041218-461 (280-117710-3), V-S1-041218-459 (280-117710-4) and P-S1-041218-459 (280-117710-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/08/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Client Sample ID: TB-S1-041218-01 — Lab Sample ID: 280-117710-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	25		25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S1-041218-461 — Lab Sample ID: 280-117710-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
n-Butylbenzene	4600	Q D	3000	980	390	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	6700	D Q	3000	980	460	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	1100	J D Q	3000	980	410	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	2900	J D Q	3000	980	350	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	3000	D Q	3000	980	390	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	8800	D Q	6100	980	460	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	1900	J D Q	3000	2000	500	ug/Kg	10	☼	8260B	Total/NA
Toluene	1800	J D	3000	980	480	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	24000	D Q	3000	980	380	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	15000	D Q	3000	980	480	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	25000	D Q	1500	980	430	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	28000	D Q	3000	2000	950	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	110	D	11	4.2	1.7	ug/Kg	100	☼	8011	Total/NA

Client Sample ID: P-S1-041218-461 — Lab Sample ID: 280-117710-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1200	Q D	78	72	21	mg/Kg	50	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	2000	D	15	7.7	2.6	mg/Kg	2	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-041218-459 — Lab Sample ID: 280-117710-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Toluene	710	J D	3800	1200	590	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	4.9	D	6.2	2.4	0.93	ug/Kg	50	☼	8011	Total/NA

Client Sample ID: P-S1-041218-459 — Lab Sample ID: 280-117710-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	12		2.2	2.0	0.59	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	91		9.1	4.6	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117710-1	TB-S1-041218-01	Water	12/04/18 14:00	12/05/18 12:08
280-117710-2	V-S1-041218-461	Solid	12/04/18 14:27	12/05/18 12:08
280-117710-3	P-S1-041218-461	Solid	12/04/18 14:27	12/05/18 12:08
280-117710-4	V-S1-041218-459	Solid	12/04/18 14:27	12/05/18 12:08
280-117710-5	P-S1-041218-459	Solid	12/04/18 14:27	12/05/18 12:08

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S1-041218-01
Date Collected: 12/04/18 14:00
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/18/18 22:53	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/18/18 22:53	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 22:53	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/18/18 22:53	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/18/18 22:53	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/18/18 22:53	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/18/18 22:53	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/18/18 22:53	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/18/18 22:53	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/18/18 22:53	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 22:53	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/18/18 22:53	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/18/18 22:53	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 22:53	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 22:53	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/18/18 22:53	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 22:53	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/18/18 22:53	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/18/18 22:53	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/18/18 22:53	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 22:53	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 22:53	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 22:53	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 22:53	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 22:53	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 22:53	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 22:53	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
2-Hexanone	4.0	U Q	5.0	4.0	1.7	ug/L		12/18/18 22:53	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/18/18 22:53	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 22:53	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/18/18 22:53	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/18/18 22:53	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/18/18 22:53	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/18/18 22:53	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 22:53	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S1-041218-01
Date Collected: 12/04/18 14:00
Date Received: 12/05/18 12:08
Lab Sample ID: 280-117710-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 22:53	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 22:53	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/18/18 22:53	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1
1,2,3-Trichlorobenzene	0.80	U Q	1.0	0.80	0.21	ug/L		12/18/18 22:53	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/18/18 22:53	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/18/18 22:53	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 22:53	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/18/18 22:53	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 22:53	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 22:53	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/18/18 22:53	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 22:53	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/18/18 22:53	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 22:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*89 - 112*		*12/18/18 22:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/18/18 22:53*	*1*
4-Bromofluorobenzene (Surr)	*91*		*85 - 114*		*12/18/18 22:53*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*12/18/18 22:53*	*1*

Client Sample ID: V-S1-041218-461
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08
Lab Sample ID: 280-117710-2
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	16000	U Q M	18000	16000	4900	ug/Kg	☼	12/13/18 17:32	10
Benzene	2000	U	3000	2000	550	ug/Kg	☼	12/13/18 17:32	10
Bromobenzene	490	U Q	3000	490	230	ug/Kg	☼	12/13/18 17:32	10
Bromochloromethane	2000	U	3000	2000	570	ug/Kg	☼	12/13/18 17:32	10
Bromodichloromethane	980	U M	3000	980	480	ug/Kg	☼	12/13/18 17:32	10
Bromoform	2000	U Q	3000	2000	2000	ug/Kg	☼	12/13/18 17:32	10
Bromomethane	2000	U	6100	2000	540	ug/Kg	☼	12/13/18 17:32	10
2-Butanone (MEK)	7800	U	12000	7800	3600	ug/Kg	☼	12/13/18 17:32	10
n-Butylbenzene	**4600**	**Q D**	3000	980	390	ug/Kg	☼	12/13/18 17:32	10
sec-Butylbenzene	**6700**	**D Q**	3000	980	460	ug/Kg	☼	12/13/18 17:32	10
tert-Butylbenzene	980	U M Q	3000	980	340	ug/Kg	☼	12/13/18 17:32	10
Carbon disulfide	2000	U M	3000	2000	780	ug/Kg	☼	12/13/18 17:32	10
Carbon tetrachloride	490	U	3000	490	210	ug/Kg	☼	12/13/18 17:32	10
Chlorobenzene	980	U Q	3000	980	370	ug/Kg	☼	12/13/18 17:32	10
Chloroethane	2000	U	6100	2000	540	ug/Kg	☼	12/13/18 17:32	10
Chloroform	2000	U	3000	2000	560	ug/Kg	☼	12/13/18 17:32	10
Chloromethane	2000	U	6100	2000	610	ug/Kg	☼	12/13/18 17:32	10
4-Chlorotoluene	980	U M Q	3000	980	280	ug/Kg	☼	12/13/18 17:32	10
Dibromochloromethane	980	U Q	3000	980	400	ug/Kg	☼	12/13/18 17:32	10
1,2-Dibromo-3-Chloropropane	3900	U Q	6100	3900	1000	ug/Kg	☼	12/13/18 17:32	10
Dichlorodifluoromethane	980	U	6100	980	270	ug/Kg	☼	12/13/18 17:32	10
Dibromomethane	980	U	3000	980	370	ug/Kg	☼	12/13/18 17:32	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-041218-461
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-2
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	980	U M Q	3000	980	300	ug/Kg	☼	12/13/18 17:32	10
1,2-Dichlorobenzene	3900	U Q	6100	3900	1100	ug/Kg	☼	12/13/18 17:32	10
1,3-Dichlorobenzene	2000	U Q	3000	2000	500	ug/Kg	☼	12/13/18 17:32	10
1,4-Dichlorobenzene	980	U Q	3000	980	300	ug/Kg	☼	12/13/18 17:32	10
1,1-Dichloroethane	2000	U	3000	2000	620	ug/Kg	☼	12/13/18 17:32	10
1,2-Dichloroethane	980	U	3000	980	300	ug/Kg	☼	12/13/18 17:32	10
1,1-Dichloroethene	2000	U	3000	2000	620	ug/Kg	☼	12/13/18 17:32	10
1,2-Dichloroethene, Total	980	U	1500	980	270	ug/Kg	☼	12/13/18 17:32	10
cis-1,2-Dichloroethene	980	U	1500	980	270	ug/Kg	☼	12/13/18 17:32	10
trans-1,2-Dichloroethene	2000	U	3000	2000	550	ug/Kg	☼	12/13/18 17:32	10
1,2-Dichloropropane	2000	U M	3000	2000	560	ug/Kg	☼	12/13/18 17:32	10
1,3-Dichloropropane	980	U Q	3000	980	340	ug/Kg	☼	12/13/18 17:32	10
2,2-Dichloropropane	980	U	3000	980	330	ug/Kg	☼	12/13/18 17:32	10
1,1-Dichloropropene	2000	U	3000	2000	590	ug/Kg	☼	12/13/18 17:32	10
cis-1,3-Dichloropropene	980	U	3000	980	330	ug/Kg	☼	12/13/18 17:32	10
trans-1,3-Dichloropropene	2000	U	3000	2000	500	ug/Kg	☼	12/13/18 17:32	10
Ethylbenzene	**1100**	**J D Q**	3000	980	410	ug/Kg	☼	12/13/18 17:32	10
2-Hexanone	7800	U M Q	12000	7800	2600	ug/Kg	☼	12/13/18 17:32	10
Hexachlorobutadiene	2000	U Q	3000	2000	600	ug/Kg	☼	12/13/18 17:32	10
Isopropylbenzene	**2900**	**J D Q**	3000	980	350	ug/Kg	☼	12/13/18 17:32	10
4-Isopropyltoluene	**3000**	**D Q**	3000	980	390	ug/Kg	☼	12/13/18 17:32	10
Methylene Chloride	2000	U	3000	2000	840	ug/Kg	☼	12/13/18 17:32	10
4-Methyl-2-pentanone (MIBK)	7800	U M	12000	7800	2700	ug/Kg	☼	12/13/18 17:32	10
Methyl tert-butyl ether	2000	U	3000	2000	610	ug/Kg	☼	12/13/18 17:32	10
Naphthalene	**8800**	**D Q**	6100	980	460	ug/Kg	☼	12/13/18 17:32	10
N-Propylbenzene	**1900**	**J D Q**	3000	2000	500	ug/Kg	☼	12/13/18 17:32	10
Styrene	980	U M Q	3000	980	320	ug/Kg	☼	12/13/18 17:32	10
1,1,1,2-Tetrachloroethane	980	U Q	3000	980	260	ug/Kg	☼	12/13/18 17:32	10
1,1,2,2-Tetrachloroethane	980	U M Q	3000	980	350	ug/Kg	☼	12/13/18 17:32	10
Tetrachloroethene	980	U Q	3000	980	330	ug/Kg	☼	12/13/18 17:32	10
Toluene	**1800**	**J D**	3000	980	480	ug/Kg	☼	12/13/18 17:32	10
1,2,3-Trichlorobenzene	980	U M Q	3000	980	430	ug/Kg	☼	12/13/18 17:32	10
1,1,1-Trichloroethane	490	U	3000	490	240	ug/Kg	☼	12/13/18 17:32	10
1,1,2-Trichloroethane	980	U M	3000	980	330	ug/Kg	☼	12/13/18 17:32	10
Trichloroethene	980	U	3000	980	280	ug/Kg	☼	12/13/18 17:32	10
Trichlorofluoromethane	2000	U	6100	2000	610	ug/Kg	☼	12/13/18 17:32	10
1,2,4-Trichlorobenzene	2000	U Q	3000	2000	570	ug/Kg	☼	12/13/18 17:32	10
1,2,3-Trichloropropane	2000	U M Q	3000	2000	570	ug/Kg	☼	12/13/18 17:32	10
1,2,4-Trimethylbenzene	**24000**	**D Q**	3000	980	380	ug/Kg	☼	12/13/18 17:32	10
1,3,5-Trimethylbenzene	**15000**	**D Q**	3000	980	480	ug/Kg	☼	12/13/18 17:32	10
Vinyl chloride	980	U	6100	980	330	ug/Kg	☼	12/13/18 17:32	10
o-Xylene	**25000**	**D Q**	1500	980	430	ug/Kg	☼	12/13/18 17:32	10
m-Xylene & p-Xylene	**28000**	**D Q**	3000	2000	950	ug/Kg	☼	12/13/18 17:32	10
2-Chlorotoluene	980	U M Q	3000	980	320	ug/Kg	☼	12/13/18 17:32	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*224*	*Q D*	*85 - 116*	*12/11/18 10:29*	*12/13/18 17:32*	*10*
1,2-Dichloroethane-d4 (Surr)	*95*	*D*	*71 - 136*	*12/11/18 10:29*	*12/13/18 17:32*	*10*
4-Bromofluorobenzene (Surr)	*376*	*M Q D*	*79 - 119*	*12/11/18 10:29*	*12/13/18 17:32*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-041218-461
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08
Lab Sample ID: 280-117710-2
Matrix: Solid
Percent Solids: 89.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	82	D	78 - 119	12/11/18 10:29	12/13/18 17:32	10

Client Sample ID: V-S1-041218-459
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08
Lab Sample ID: 280-117710-4
Matrix: Solid
Percent Solids: 80.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	19000	U Q M	23000	19000	6000	ug/Kg	☼	12/13/18 17:51	10
Benzene	2400	U	3800	2400	680	ug/Kg	☼	12/13/18 17:51	10
Bromobenzene	600	U	3800	600	290	ug/Kg	☼	12/13/18 17:51	10
Bromochloromethane	2400	U	3800	2400	710	ug/Kg	☼	12/13/18 17:51	10
Bromodichloromethane	1200	U	3800	1200	600	ug/Kg	☼	12/13/18 17:51	10
Bromoform	2400	U	3800	2400	2400	ug/Kg	☼	12/13/18 17:51	10
Bromomethane	2400	U	7600	2400	660	ug/Kg	☼	12/13/18 17:51	10
2-Butanone (MEK)	9700	U	15000	9700	4500	ug/Kg	☼	12/13/18 17:51	10
n-Butylbenzene	1200	U Q	3800	1200	480	ug/Kg	☼	12/13/18 17:51	10
sec-Butylbenzene	1200	U	3800	1200	570	ug/Kg	☼	12/13/18 17:51	10
tert-Butylbenzene	1200	U	3800	1200	420	ug/Kg	☼	12/13/18 17:51	10
Carbon disulfide	2400	U M	3800	2400	970	ug/Kg	☼	12/13/18 17:51	10
Carbon tetrachloride	600	U	3800	600	260	ug/Kg	☼	12/13/18 17:51	10
Chlorobenzene	1200	U	3800	1200	450	ug/Kg	☼	12/13/18 17:51	10
Chloroethane	2400	U	7600	2400	660	ug/Kg	☼	12/13/18 17:51	10
Chloroform	2400	U M	3800	2400	700	ug/Kg	☼	12/13/18 17:51	10
Chloromethane	2400	U	7600	2400	760	ug/Kg	☼	12/13/18 17:51	10
4-Chlorotoluene	1200	U	3800	1200	350	ug/Kg	☼	12/13/18 17:51	10
Dibromochloromethane	1200	U	3800	1200	500	ug/Kg	☼	12/13/18 17:51	10
1,2-Dibromo-3-Chloropropane	4800	U	7600	4800	1300	ug/Kg	☼	12/13/18 17:51	10
Dichlorodifluoromethane	1200	U	7600	1200	330	ug/Kg	☼	12/13/18 17:51	10
Dibromomethane	1200	U	3800	1200	450	ug/Kg	☼	12/13/18 17:51	10
Ethylene Dibromide	1200	U	3800	1200	380	ug/Kg	☼	12/13/18 17:51	10
1,2-Dichlorobenzene	4800	U	7600	4800	1400	ug/Kg	☼	12/13/18 17:51	10
1,3-Dichlorobenzene	2400	U	3800	2400	620	ug/Kg	☼	12/13/18 17:51	10
1,4-Dichlorobenzene	1200	U	3800	1200	380	ug/Kg	☼	12/13/18 17:51	10
1,1-Dichloroethane	2400	U	3800	2400	760	ug/Kg	☼	12/13/18 17:51	10
1,2-Dichloroethane	1200	U	3800	1200	380	ug/Kg	☼	12/13/18 17:51	10
1,1-Dichloroethene	2400	U	3800	2400	760	ug/Kg	☼	12/13/18 17:51	10
1,2-Dichloroethene, Total	1200	U	1900	1200	330	ug/Kg	☼	12/13/18 17:51	10
cis-1,2-Dichloroethene	1200	U	1900	1200	330	ug/Kg	☼	12/13/18 17:51	10
trans-1,2-Dichloroethene	2400	U	3800	2400	680	ug/Kg	☼	12/13/18 17:51	10
1,2-Dichloropropane	2400	U M	3800	2400	700	ug/Kg	☼	12/13/18 17:51	10
1,3-Dichloropropane	1200	U	3800	1200	420	ug/Kg	☼	12/13/18 17:51	10
2,2-Dichloropropane	1200	U	3800	1200	410	ug/Kg	☼	12/13/18 17:51	10
1,1-Dichloropropene	2400	U	3800	2400	730	ug/Kg	☼	12/13/18 17:51	10
cis-1,3-Dichloropropene	1200	U	3800	1200	410	ug/Kg	☼	12/13/18 17:51	10
trans-1,3-Dichloropropene	2400	U	3800	2400	630	ug/Kg	☼	12/13/18 17:51	10
Ethylbenzene	1200	U	3800	1200	510	ug/Kg	☼	12/13/18 17:51	10
2-Hexanone	9700	U M	15000	9700	3300	ug/Kg	☼	12/13/18 17:51	10
Hexachlorobutadiene	2400	U Q	3800	2400	740	ug/Kg	☼	12/13/18 17:51	10
Isopropylbenzene	1200	U M	3800	1200	440	ug/Kg	☼	12/13/18 17:51	10
4-Isopropyltoluene	1200	U	3800	1200	480	ug/Kg	☼	12/13/18 17:51	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-041218-459 — **Lab Sample ID: 280-117710-4**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 80.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	2400	U	3800	2400	1000	ug/Kg	☼	12/13/18 17:51	10
4-Methyl-2-pentanone (MIBK)	9700	U M	15000	9700	3400	ug/Kg	☼	12/13/18 17:51	10
Methyl tert-butyl ether	2400	U	3800	2400	760	ug/Kg	☼	12/13/18 17:51	10
Naphthalene	1200	U	7600	1200	570	ug/Kg	☼	12/13/18 17:51	10
N-Propylbenzene	2400	U	3800	2400	620	ug/Kg	☼	12/13/18 17:51	10
Styrene	1200	U	3800	1200	390	ug/Kg	☼	12/13/18 17:51	10
1,1,1,2-Tetrachloroethane	1200	U	3800	1200	320	ug/Kg	☼	12/13/18 17:51	10
1,1,2,2-Tetrachloroethane	1200	U	3800	1200	440	ug/Kg	☼	12/13/18 17:51	10
Tetrachloroethene	1200	U	3800	1200	410	ug/Kg	☼	12/13/18 17:51	10
Toluene	**710**	**J D**	3800	1200	590	ug/Kg	☼	12/13/18 17:51	10
1,2,3-Trichlorobenzene	1200	U	3800	1200	530	ug/Kg	☼	12/13/18 17:51	10
1,1,1-Trichloroethane	600	U	3800	600	300	ug/Kg	☼	12/13/18 17:51	10
1,1,2-Trichloroethane	1200	U M	3800	1200	410	ug/Kg	☼	12/13/18 17:51	10
Trichloroethene	1200	U	3800	1200	350	ug/Kg	☼	12/13/18 17:51	10
Trichlorofluoromethane	2400	U	7600	2400	760	ug/Kg	☼	12/13/18 17:51	10
1,2,4-Trichlorobenzene	2400	U	3800	2400	710	ug/Kg	☼	12/13/18 17:51	10
1,2,3-Trichloropropane	2400	U	3800	2400	710	ug/Kg	☼	12/13/18 17:51	10
1,2,4-Trimethylbenzene	1200	U	3800	1200	470	ug/Kg	☼	12/13/18 17:51	10
1,3,5-Trimethylbenzene	1200	U	3800	1200	590	ug/Kg	☼	12/13/18 17:51	10
Vinyl chloride	1200	U	7600	1200	410	ug/Kg	☼	12/13/18 17:51	10
o-Xylene	1200	U	1900	1200	530	ug/Kg	☼	12/13/18 17:51	10
m-Xylene & p-Xylene	2400	U	3800	2400	1200	ug/Kg	☼	12/13/18 17:51	10
2-Chlorotoluene	1200	U	3800	1200	390	ug/Kg	☼	12/13/18 17:51	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*	*D*	*85 - 116*	*12/11/18 10:29*	*12/13/18 17:51*	*10*
1,2-Dichloroethane-d4 (Surr)	*95*	*D*	*71 - 136*	*12/11/18 10:29*	*12/13/18 17:51*	*10*
4-Bromofluorobenzene (Surr)	*113*	*D*	*79 - 119*	*12/11/18 10:29*	*12/13/18 17:51*	*10*
Dibromofluoromethane (Surr)	*96*	*D*	*78 - 119*	*12/11/18 10:29*	*12/13/18 17:51*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S1-041218-01 — **Lab Sample ID: 280-117710-1**
Date Collected: 12/04/18 14:00 — **Matrix: Water**
Date Received: 12/05/18 12:08

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**25**		25	25	10	ug/L		12/13/18 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*105*		*82 - 110*		*12/13/18 15:09*	*1*

Client Sample ID: P-S1-041218-461 — **Lab Sample ID: 280-117710-3**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 92.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1200**	**Q D**	78	72	21	mg/Kg	☼	12/14/18 18:43	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*1095*	*Q*	*77 - 123*	*12/13/18 14:14*	*12/14/18 18:43*	*50*

Client Sample ID: P-S1-041218-459
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-5
Matrix: Solid
Percent Solids: 81.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	12		2.2	2.0	0.59	mg/Kg	☼	12/14/18 19:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*116*		*77 - 123*	*12/13/18 14:14*	*12/14/18 19:07*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S1-041218-01
Date Collected: 12/04/18 14:00
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		12/13/18 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*110*		*70 - 130*	*12/12/18 12:04*	*12/13/18 01:16*	*1*

Client Sample ID: V-S1-041218-461
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-2
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	110	D	11	4.2	1.7	ug/Kg	☼	12/10/18 17:37	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*	*12/07/18 08:06*	*12/10/18 17:37*	*100*

Client Sample ID: V-S1-041218-459
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-4
Matrix: Solid
Percent Solids: 80.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	4.9	D	6.2	2.4	0.93	ug/Kg	☼	12/10/18 17:56	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*	*12/07/18 08:06*	*12/10/18 17:56*	*50*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-041218-461
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-3
Matrix: Solid
Percent Solids: 92.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2000	D	15	7.7	2.6	mg/Kg	☼	12/18/18 14:39	2
Motor Oil (C20-C38)	45	U D	46	45	15	mg/Kg	☼	12/18/18 14:39	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*93*	*D*	*45 - 130*	*12/13/18 19:41*	*12/18/18 14:39*	*2*
n-Octacosane	*108*	*D*	*25 - 162*	*12/13/18 19:41*	*12/18/18 14:39*	*2*

Client Sample ID: P-S1-041218-459
Date Collected: 12/04/18 14:27
Date Received: 12/05/18 12:08

Lab Sample ID: 280-117710-5
Matrix: Solid
Percent Solids: 81.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	91		9.1	4.6	1.5	mg/Kg	☼	12/17/18 22:06	1
Motor Oil (C20-C38)	27	U	27	27	8.9	mg/Kg	☼	12/17/18 22:06	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	74		45 - 130	12/13/18 19:41	12/17/18 22:06	1
n-Octacosane	81		25 - 162	12/13/18 19:41	12/17/18 22:06	1

General Chemistry

Client Sample ID: V-S1-041218-461 — **Lab Sample ID: 280-117710-2**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.2		0.1	0.05	0.1	%		12/08/18 16:18	1

Client Sample ID: P-S1-041218-461 — **Lab Sample ID: 280-117710-3**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 92.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.0		0.1	0.05	0.1	%		12/08/18 16:18	1

Client Sample ID: V-S1-041218-459 — **Lab Sample ID: 280-117710-4**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 80.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	19.2		0.1	0.05	0.1	%		12/08/18 16:18	1

Client Sample ID: P-S1-041218-459 — **Lab Sample ID: 280-117710-5**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 81.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	18.1		0.1	0.05	0.1	%		12/08/18 16:18	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117710-2	V-S1-041218-461	224 Q D	95 D	376 M Q D	82 D
280-117710-4	V-S1-041218-459	101 D	95 D	113 D	96 D
LCS 280-440741/2-A	Lab Control Sample	98	93	98	95
LCSD 280-440741/3-A	Lab Control Sample Dup	94	90	93	95
MB 280-440741/1-A	Method Blank	100	94	102	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117710-1	TB-S1-041218-01	91	101	91	96
LCS 280-441787/4	Lab Control Sample	93	104	100	99
MB 280-441787/8	Method Blank	94	104	96	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117710-3	P-S1-041218-461	1095 Q
280-117710-5	P-S1-041218-459	116
LCS 280-441160/2-A	Lab Control Sample	116
LCSD 280-441160/3-A	Lab Control Sample Dup	105
MB 280-441160/4-A	Method Blank	102

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117710-1	TB-S1-041218-01	105

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
LCS 280-441121/3	Lab Control Sample	98
LCSD 280-441121/4	Lab Control Sample Dup	99
MB 280-441121/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117710-2	V-S1-041218-461	0 Q M D
280-117710-4	V-S1-041218-459	0 Q M D
LCS 280-440310/2-A	Lab Control Sample	93 M
LCSD 280-440310/3-A	Lab Control Sample Dup	93 M
MB 280-440310/4-A	Method Blank	87 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117710-1	TB-S1-041218-01	110
LCS 280-440972/2-A	Lab Control Sample	104 M
LCSD 280-440972/3-A	Lab Control Sample Dup	111
MB 280-440972/4-A	Method Blank	107

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117710-3	P-S1-041218-461	93 D	108 D
280-117710-5	P-S1-041218-459	74	81
LCS 280-441182/2-A	Lab Control Sample	89	101
LCS 280-441182/3-A	Lab Control Sample	96	107
MB 280-441182/1-A	Method Blank	84	102

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-440741/1-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440741

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U M	1500	1300	400	ug/Kg		12/12/18 11:54	1
Benzene	160	U	250	160	45	ug/Kg		12/12/18 11:54	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/12/18 11:54	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/12/18 11:54	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/12/18 11:54	1
Bromoform	160	U	250	160	160	ug/Kg		12/12/18 11:54	1
Bromomethane	160	U	500	160	44	ug/Kg		12/12/18 11:54	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/12/18 11:54	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/12/18 11:54	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/12/18 11:54	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/12/18 11:54	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/12/18 11:54	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/12/18 11:54	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/12/18 11:54	1
Chloroethane	160	U	500	160	44	ug/Kg		12/12/18 11:54	1
Chloroform	160	U	250	160	46	ug/Kg		12/12/18 11:54	1
Chloromethane	160	U	500	160	50	ug/Kg		12/12/18 11:54	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/12/18 11:54	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/12/18 11:54	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/12/18 11:54	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/12/18 11:54	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/12/18 11:54	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/12/18 11:54	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/12/18 11:54	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/12/18 11:54	1
1,4-Dichlorobenzene	80	U M	250	80	25	ug/Kg		12/12/18 11:54	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/12/18 11:54	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/12/18 11:54	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/12/18 11:54	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/12/18 11:54	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/12/18 11:54	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/12/18 11:54	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/12/18 11:54	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/12/18 11:54	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/12/18 11:54	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/12/18 11:54	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/12/18 11:54	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/12/18 11:54	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/12/18 11:54	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/12/18 11:54	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/12/18 11:54	1
Isopropylbenzene	80	U M	250	80	29	ug/Kg		12/12/18 11:54	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/12/18 11:54	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/12/18 11:54	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/12/18 11:54	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/12/18 11:54	1
Naphthalene	80	U	500	80	38	ug/Kg		12/12/18 11:54	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/12/18 11:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-440741/1-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440741

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/12/18 11:54	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/12/18 11:54	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/12/18 11:54	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/12/18 11:54	1
Toluene	80	U M	250	80	39	ug/Kg		12/12/18 11:54	1
1,2,3-Trichlorobenzene	80	U M	250	80	35	ug/Kg		12/12/18 11:54	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/12/18 11:54	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/12/18 11:54	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/12/18 11:54	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/12/18 11:54	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/12/18 11:54	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/12/18 11:54	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/12/18 11:54	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/12/18 11:54	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/12/18 11:54	1
o-Xylene	80	U	130	80	35	ug/Kg		12/12/18 11:54	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/12/18 11:54	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/12/18 11:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*12/11/18 10:29*	*12/12/18 11:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 136*	*12/11/18 10:29*	*12/12/18 11:54*	*1*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*	*12/11/18 10:29*	*12/12/18 11:54*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*12/11/18 10:29*	*12/12/18 11:54*	*1*

Lab Sample ID: LCS 280-440741/2-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	5880		ug/Kg		74	36 - 164
Benzene	2000	1820		ug/Kg		91	77 - 121
Bromobenzene	2000	1890		ug/Kg		95	78 - 121
Bromochloromethane	2000	1810		ug/Kg		91	78 - 125
Bromodichloromethane	2000	1880		ug/Kg		94	75 - 127
Bromoform	2000	1880		ug/Kg		94	67 - 132
Bromomethane	2000	1880		ug/Kg		94	53 - 143
2-Butanone (MEK)	8000	7240		ug/Kg		90	51 - 148
n-Butylbenzene	2000	2030		ug/Kg		102	70 - 128
sec-Butylbenzene	2000	2040		ug/Kg		102	73 - 126
tert-Butylbenzene	2000	1970		ug/Kg		99	73 - 125
Carbon disulfide	2000	1760		ug/Kg		88	63 - 132
Carbon tetrachloride	2000	1900		ug/Kg		95	70 - 135
Chlorobenzene	2000	1830		ug/Kg		91	79 - 120
Chloroethane	2000	1800		ug/Kg		90	59 - 139
Chloroform	2000	1830		ug/Kg		92	78 - 123
Chloromethane	2000	1760		ug/Kg		88	50 - 136
4-Chlorotoluene	2000	1940		ug/Kg		97	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-440741/2-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	1910		ug/Kg		96	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1780		ug/Kg		89	61 - 132
Dichlorodifluoromethane	2000	1390		ug/Kg		70	29 - 149
Dibromomethane	2000	1780		ug/Kg		89	78 - 125
Ethylene Dibromide	2000	1860		ug/Kg		93	78 - 122
1,2-Dichlorobenzene	2000	1850		ug/Kg		93	78 - 121
1,3-Dichlorobenzene	2000	1860		ug/Kg		93	77 - 121
1,4-Dichlorobenzene	2000	1840		ug/Kg		92	75 - 120
1,1-Dichloroethane	2000	1830		ug/Kg		91	76 - 125
1,2-Dichloroethane	2000	1770		ug/Kg		89	73 - 128
1,1-Dichloroethene	2000	1820		ug/Kg		91	70 - 131
cis-1,2-Dichloroethene	2000	1840		ug/Kg		92	77 - 123
trans-1,2-Dichloroethene	2000	1870		ug/Kg		94	74 - 125
1,2-Dichloropropane	2000	1880		ug/Kg		94	76 - 123
1,3-Dichloropropane	2000	1780		ug/Kg		89	77 - 121
2,2-Dichloropropane	2000	1850		ug/Kg		92	67 - 133
1,1-Dichloropropene	2000	1860		ug/Kg		93	76 - 125
cis-1,3-Dichloropropene	2000	1910		ug/Kg		95	74 - 126
trans-1,3-Dichloropropene	2000	1900		ug/Kg		95	71 - 130
Ethylbenzene	2000	1850		ug/Kg		92	76 - 122
2-Hexanone	8000	7140		ug/Kg		89	53 - 145
Hexachlorobutadiene	2000	2000		ug/Kg		100	61 - 135
Isopropylbenzene	2000	1960		ug/Kg		98	68 - 134
4-Isopropyltoluene	2000	2050		ug/Kg		102	73 - 127
Methylene Chloride	2000	1710		ug/Kg		86	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	7450		ug/Kg		93	65 - 135
Methyl tert-butyl ether	2000	1750		ug/Kg		87	73 - 125
Naphthalene	2000	1750		ug/Kg		87	62 - 129
N-Propylbenzene	2000	1980		ug/Kg		99	73 - 125
Styrene	2000	1900		ug/Kg		95	76 - 124
1,1,1,2-Tetrachloroethane	2000	1860		ug/Kg		93	78 - 125
1,1,2,2-Tetrachloroethane	2000	1840		ug/Kg		92	70 - 124
Tetrachloroethene	2000	1900		ug/Kg		95	73 - 128
Toluene	2000	1880		ug/Kg		94	77 - 121
1,2,3-Trichlorobenzene	2000	1780		ug/Kg		89	66 - 130
1,1,1-Trichloroethane	2000	1890		ug/Kg		94	73 - 130
1,1,2-Trichloroethane	2000	1890		ug/Kg		95	78 - 121
Trichloroethene	2000	1820		ug/Kg		91	77 - 123
Trichlorofluoromethane	2000	1960		ug/Kg		98	62 - 140
1,2,4-Trichlorobenzene	2000	1760		ug/Kg		88	67 - 129
1,2,3-Trichloropropane	2000	1950		ug/Kg		98	73 - 125
1,2,4-Trimethylbenzene	2000	1930		ug/Kg		96	75 - 123
1,3,5-Trimethylbenzene	2000	1970		ug/Kg		99	73 - 124
Vinyl chloride	2000	1830		ug/Kg		92	56 - 135
o-Xylene	2000	1880		ug/Kg		94	77 - 123
m-Xylene & p-Xylene	2000	1850		ug/Kg		93	77 - 124
2-Chlorotoluene	2000	1890		ug/Kg		95	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-440741/2-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440741

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: LCSD 280-440741/3-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440741

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	6100		ug/Kg		76	36 - 164	4	20
Benzene	2000	1750		ug/Kg		88	77 - 121	4	20
Bromobenzene	2000	1790		ug/Kg		90	78 - 121	5	20
Bromochloromethane	2000	1830		ug/Kg		92	78 - 125	1	20
Bromodichloromethane	2000	1840		ug/Kg		92	75 - 127	2	20
Bromoform	2000	1860		ug/Kg		93	67 - 132	1	20
Bromomethane	2000	1800		ug/Kg		90	53 - 143	4	20
2-Butanone (MEK)	8000	7140		ug/Kg		89	51 - 148	1	20
n-Butylbenzene	2000	1690		ug/Kg		85	70 - 128	18	20
sec-Butylbenzene	2000	1770		ug/Kg		88	73 - 126	14	20
tert-Butylbenzene	2000	1770		ug/Kg		89	73 - 125	11	20
Carbon disulfide	2000	1660		ug/Kg		83	63 - 132	6	20
Carbon tetrachloride	2000	1820		ug/Kg		91	70 - 135	4	20
Chlorobenzene	2000	1760		ug/Kg		88	79 - 120	4	20
Chloroethane	2000	1910		ug/Kg		95	59 - 139	6	20
Chloroform	2000	1800		ug/Kg		90	78 - 123	2	20
Chloromethane	2000	1640		ug/Kg		82	50 - 136	7	20
4-Chlorotoluene	2000	1760		ug/Kg		88	72 - 124	10	20
Dibromochloromethane	2000	1910		ug/Kg		96	74 - 126	0	20
1,2-Dibromo-3-Chloropropane	2000	1720		ug/Kg		86	61 - 132	3	20
Dichlorodifluoromethane	2000	1260		ug/Kg		63	29 - 149	10	20
Dibromomethane	2000	1780		ug/Kg		89	78 - 125	0	20
Ethylene Dibromide	2000	1830		ug/Kg		92	78 - 122	1	20
1,2-Dichlorobenzene	2000	1730		ug/Kg		87	78 - 121	7	20
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121	9	20
1,4-Dichlorobenzene	2000	1710		ug/Kg		86	75 - 120	7	20
1,1-Dichloroethane	2000	1800		ug/Kg		90	76 - 125	2	20
1,2-Dichloroethane	2000	1760		ug/Kg		88	73 - 128	1	20
1,1-Dichloroethene	2000	1750		ug/Kg		87	70 - 131	4	20
cis-1,2-Dichloroethene	2000	1780		ug/Kg		89	77 - 123	3	20
trans-1,2-Dichloroethene	2000	1810		ug/Kg		91	74 - 125	3	20
1,2-Dichloropropane	2000	1840		ug/Kg		92	76 - 123	2	20
1,3-Dichloropropane	2000	1760		ug/Kg		88	77 - 121	1	20
2,2-Dichloropropane	2000	1780		ug/Kg		89	67 - 133	4	20
1,1-Dichloropropene	2000	1770		ug/Kg		89	76 - 125	5	20
cis-1,3-Dichloropropene	2000	1890		ug/Kg		95	74 - 126	1	20
trans-1,3-Dichloropropene	2000	1830		ug/Kg		92	71 - 130	3	20
Ethylbenzene	2000	1720		ug/Kg		86	76 - 122	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-440741/3-A
Matrix: Solid
Analysis Batch: 441024

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440741

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	7010		ug/Kg		88	53 - 145	2	20
Hexachlorobutadiene	2000	1610	Q	ug/Kg		80	61 - 135	22	20
Isopropylbenzene	2000	1780		ug/Kg		89	68 - 134	10	20
4-Isopropyltoluene	2000	1740		ug/Kg		87	73 - 127	16	20
Methylene Chloride	2000	1710		ug/Kg		85	70 - 128	0	20
4-Methyl-2-pentanone (MIBK)	8000	7210		ug/Kg		90	65 - 135	3	20
Methyl tert-butyl ether	2000	1740		ug/Kg		87	73 - 125	1	20
Naphthalene	2000	1690		ug/Kg		85	62 - 129	3	20
N-Propylbenzene	2000	1750		ug/Kg		88	73 - 125	12	20
Styrene	2000	1800		ug/Kg		90	76 - 124	5	20
1,1,1,2-Tetrachloroethane	2000	1830		ug/Kg		91	78 - 125	2	20
1,1,2,2-Tetrachloroethane	2000	1830		ug/Kg		92	70 - 124	0	20
Tetrachloroethene	2000	1760		ug/Kg		88	73 - 128	7	20
Toluene	2000	1780		ug/Kg		89	77 - 121	5	20
1,2,3-Trichlorobenzene	2000	1680		ug/Kg		84	66 - 130	6	20
1,1,1-Trichloroethane	2000	1800		ug/Kg		90	73 - 130	5	20
1,1,2-Trichloroethane	2000	1880		ug/Kg		94	78 - 121	1	20
Trichloroethene	2000	1750		ug/Kg		87	77 - 123	4	20
Trichlorofluoromethane	2000	1800		ug/Kg		90	62 - 140	8	20
1,2,4-Trichlorobenzene	2000	1650		ug/Kg		82	67 - 129	7	20
1,2,3-Trichloropropane	2000	1830		ug/Kg		92	73 - 125	6	20
1,2,4-Trimethylbenzene	2000	1720		ug/Kg		86	75 - 123	11	20
1,3,5-Trimethylbenzene	2000	1780		ug/Kg		89	73 - 124	10	20
Vinyl chloride	2000	1710		ug/Kg		86	56 - 135	7	20
o-Xylene	2000	1750		ug/Kg		87	77 - 123	7	20
m-Xylene & p-Xylene	2000	1740		ug/Kg		87	77 - 124	6	20
2-Chlorotoluene	2000	1730		ug/Kg		86	75 - 122	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-441787/8
Matrix: Water
Analysis Batch: 441787

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/18/18 19:05	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/18/18 19:05	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 19:05	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/18/18 19:05	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/18/18 19:05	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/18/18 19:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441787/8
Matrix: Water
Analysis Batch: 441787

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/18/18 19:05	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/18/18 19:05	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/18/18 19:05	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/18/18 19:05	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 19:05	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/18/18 19:05	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/18/18 19:05	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 19:05	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 19:05	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/18/18 19:05	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 19:05	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/18/18 19:05	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/18/18 19:05	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/18/18 19:05	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 19:05	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 19:05	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 19:05	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 19:05	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/18/18 19:05	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 19:05	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 19:05	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/18/18 19:05	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/18/18 19:05	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 19:05	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/18/18 19:05	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/18/18 19:05	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/18/18 19:05	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/18/18 19:05	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/18/18 19:05	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 19:05	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 19:05	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/18/18 19:05	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 19:05	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/18/18 19:05	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441787/8
Matrix: Water
Analysis Batch: 441787

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/18/18 19:05	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/18/18 19:05	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/18/18 19:05	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/18/18 19:05	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/18/18 19:05	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/18/18 19:05	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/18/18 19:05	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/18/18 19:05	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/18/18 19:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*89 - 112*		*12/18/18 19:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*12/18/18 19:05*	*1*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*		*12/18/18 19:05*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 119*		*12/18/18 19:05*	*1*

Lab Sample ID: LCS 280-441787/4
Matrix: Water
Analysis Batch: 441787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	19.6		ug/L		98	39 - 160
Benzene	5.00	5.12		ug/L		102	79 - 120
Bromobenzene	5.00	5.35		ug/L		107	80 - 120
Bromochloromethane	5.00	5.21		ug/L		104	78 - 123
Bromodichloromethane	5.00	5.26		ug/L		105	79 - 125
Bromoform	5.00	4.17		ug/L		83	66 - 130
Bromomethane	5.00	5.56		ug/L		111	53 - 141
2-Butanone (MEK)	20.0	18.5		ug/L		92	56 - 143
n-Butylbenzene	5.00	4.90		ug/L		98	75 - 128
sec-Butylbenzene	5.00	4.68		ug/L		94	77 - 126
tert-Butylbenzene	5.00	4.85		ug/L		97	78 - 124
Carbon disulfide	5.00	4.68		ug/L		94	64 - 133
Carbon tetrachloride	5.00	4.59		ug/L		92	72 - 136
Chlorobenzene	5.00	5.16		ug/L		103	82 - 118
Chloroethane	5.00	5.34		ug/L		107	60 - 138
Chloroform	5.00	5.43		ug/L		109	79 - 124
Chloromethane	5.00	4.97		ug/L		99	50 - 139
4-Chlorotoluene	5.00	5.06		ug/L		101	78 - 122
Dibromochloromethane	5.00	4.62		ug/L		92	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.64	J	ug/L		93	62 - 128
Dichlorodifluoromethane	5.00	3.61		ug/L		72	32 - 152
Dibromomethane	5.00	5.20		ug/L		104	79 - 123
Ethylene Dibromide	5.00	5.09		ug/L		102	77 - 121
1,2-Dichlorobenzene	5.00	5.23		ug/L		105	80 - 119
1,3-Dichlorobenzene	5.00	5.23		ug/L		105	80 - 119
1,4-Dichlorobenzene	5.00	5.18		ug/L		104	79 - 118
1,1-Dichloroethane	5.00	5.16		ug/L		103	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441787/4
Matrix: Water
Analysis Batch: 441787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.62		ug/L		112	73 - 128
1,1-Dichloroethene	5.00	4.67		ug/L		93	71 - 131
cis-1,2-Dichloroethene	5.00	5.15		ug/L		103	78 - 123
trans-1,2-Dichloroethene	5.00	5.15		ug/L		103	75 - 124
1,2-Dichloropropane	5.00	5.36		ug/L		107	78 - 122
1,3-Dichloropropane	5.00	5.32		ug/L		106	80 - 119
2,2-Dichloropropane	5.00	5.27		ug/L		105	60 - 139
1,1-Dichloropropene	5.00	4.68		ug/L		94	79 - 125
cis-1,3-Dichloropropene	5.00	5.04		ug/L		101	75 - 124
trans-1,3-Dichloropropene	5.00	5.00		ug/L		100	73 - 127
Ethylbenzene	5.00	4.96		ug/L		99	79 - 121
2-Hexanone	20.0	21.0		ug/L		105	57 - 139
Hexachlorobutadiene	5.00	5.08		ug/L		102	66 - 134
Isopropylbenzene	5.00	5.05		ug/L		101	72 - 131
4-Isopropyltoluene	5.00	4.94		ug/L		99	77 - 127
Methylene Chloride	5.00	4.85	J	ug/L		97	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	20.6		ug/L		103	67 - 130
Methyl tert-butyl ether	5.00	5.24		ug/L		105	71 - 124
Naphthalene	5.00	5.11		ug/L		102	61 - 128
N-Propylbenzene	5.00	4.91		ug/L		98	76 - 126
Styrene	5.00	4.87		ug/L		97	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.35		ug/L		107	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.39		ug/L		108	71 - 121
Tetrachloroethene	5.00	4.50		ug/L		90	74 - 129
Toluene	5.00	5.19		ug/L		104	80 - 121
1,2,3-Trichlorobenzene	5.00	5.89		ug/L		118	69 - 129
1,1,1-Trichloroethane	5.00	4.95		ug/L		99	74 - 131
1,1,2-Trichloroethane	5.00	5.29		ug/L		106	80 - 119
Trichloroethene	5.00	4.79		ug/L		96	79 - 123
Trichlorofluoromethane	5.00	4.18		ug/L		84	65 - 141
1,2,4-Trichlorobenzene	5.00	5.80		ug/L		116	69 - 130
1,2,3-Trichloropropane	5.00	5.50		ug/L		110	73 - 122
1,2,4-Trimethylbenzene	5.00	5.16		ug/L		103	76 - 124
1,3,5-Trimethylbenzene	5.00	5.13		ug/L		103	75 - 124
Vinyl chloride	5.00	4.63		ug/L		93	58 - 137
o-Xylene	5.00	5.29		ug/L		106	78 - 122
m-Xylene & p-Xylene	5.00	4.98		ug/L		100	80 - 121
2-Chlorotoluene	5.00	5.13		ug/L		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*
Dibromofluoromethane (Surr)	*99*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-441121/5
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/13/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*12/13/18 13:29*	*1*

Lab Sample ID: LCS 280-441121/3
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	81.7		ug/L		104	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Lab Sample ID: LCSD 280-441121/4
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	74.9		ug/L		95	78 - 122	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-441160/4-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441160

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/14/18 12:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*12/13/18 14:14*	*12/14/18 12:22*	*1*

Lab Sample ID: LCS 280-441160/2-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.11		mg/Kg		93	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*116*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-441160/3-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441160

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	6.49		mg/Kg		118	79 - 122	24	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*105*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-440310/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440310

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 13:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*87*	*M*	*55 - 130*	*12/07/18 08:06*	*12/09/18 13:16*	*1*

Lab Sample ID: LCS 280-440310/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440310

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.875	0.737	M	ug/Kg		84	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*93*	*M*	*55 - 130*

Lab Sample ID: LCSD 280-440310/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440310

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.725		ug/Kg		83	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*93*	*M*	*55 - 130*

Lab Sample ID: MB 280-440972/4-A
Matrix: Water
Analysis Batch: 441016

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440972

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/12/18 18:34	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-440972/4-A
Matrix: Water
Analysis Batch: 441016

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440972

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	107		70 - 130	12/12/18 12:04	12/12/18 18:34	1

Lab Sample ID: LCS 280-440972/2-A
Matrix: Water
Analysis Batch: 441016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440972

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.263	M	ug/L		105	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	104	M	70 - 130

Lab Sample ID: LCSD 280-440972/3-A
Matrix: Water
Analysis Batch: 441016

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440972

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.252		ug/L		101	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	111		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441182/1-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441182

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.27	J	8.0	4.0	1.4	mg/Kg		12/17/18 18:05	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/17/18 18:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	84		45 - 130	12/13/18 19:41	12/17/18 18:05	1
n-Octacosane	102		25 - 162	12/13/18 19:41	12/17/18 18:05	1

Lab Sample ID: LCS 280-441182/2-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	125		mg/Kg		95	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	89		45 - 130
n-Octacosane	101		25 - 162

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Lab Sample ID: LCS 280-441182/3-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			326	329		mg/Kg		101	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*96*		*45 - 130*
n-Octacosane	*107*		*25 - 162*

GC/MS VOA

Prep Batch: 440741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-2	V-S1-041218-461	Total/NA	Solid	5035	
280-117710-4	V-S1-041218-459	Total/NA	Solid	5035	
MB 280-440741/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-440741/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-440741/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-440741/1-A	Method Blank	Total/NA	Solid	8260B	440741
LCS 280-440741/2-A	Lab Control Sample	Total/NA	Solid	8260B	440741
LCSD 280-440741/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	440741

Analysis Batch: 441194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-2	V-S1-041218-461	Total/NA	Solid	8260B	440741
280-117710-4	V-S1-041218-459	Total/NA	Solid	8260B	440741

Analysis Batch: 441787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-1	TB-S1-041218-01	Total/NA	Water	8260B	
MB 280-441787/8	Method Blank	Total/NA	Water	8260B	
LCS 280-441787/4	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 441121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-1	TB-S1-041218-01	Total/NA	Water	8015D GRO	
MB 280-441121/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-441121/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-441121/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 441160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-3	P-S1-041218-461	Total/NA	Solid	5035	
280-117710-5	P-S1-041218-459	Total/NA	Solid	5035	
MB 280-441160/4-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-3	P-S1-041218-461	Total/NA	Solid	8015D GRO	441160
280-117710-5	P-S1-041218-459	Total/NA	Solid	8015D GRO	441160
MB 280-441160/4-A	Method Blank	Total/NA	Solid	8015D GRO	441160
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	441160
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	441160

GC Semi VOA

Prep Batch: 440310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-2	V-S1-041218-461	Total/NA	Solid	8011	
280-117710-4	V-S1-041218-459	Total/NA	Solid	8011	
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	440310
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	440310
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	440310

Analysis Batch: 440628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-2	V-S1-041218-461	Total/NA	Solid	8011	440310
280-117710-4	V-S1-041218-459	Total/NA	Solid	8011	440310

Prep Batch: 440972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-1	TB-S1-041218-01	Total/NA	Water	8011	
MB 280-440972/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-440972/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-440972/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 441016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-1	TB-S1-041218-01	Total/NA	Water	8011	440972
MB 280-440972/4-A	Method Blank	Total/NA	Water	8011	440972
LCS 280-440972/2-A	Lab Control Sample	Total/NA	Water	8011	440972
LCSD 280-440972/3-A	Lab Control Sample Dup	Total/NA	Water	8011	440972

Prep Batch: 441182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-3	P-S1-041218-461	Total/NA	Solid	3546	
280-117710-5	P-S1-041218-459	Total/NA	Solid	3546	
MB 280-441182/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 441579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-5	P-S1-041218-459	Total/NA	Solid	8015D DRO	441182
MB 280-441182/1-A	Method Blank	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182

Analysis Batch: 441736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-3	P-S1-041218-461	Total/NA	Solid	8015D DRO	441182

General Chemistry

Analysis Batch: 440494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117710-2	V-S1-041218-461	Total/NA	Solid	Moisture	
280-117710-3	P-S1-041218-461	Total/NA	Solid	Moisture	
280-117710-4	V-S1-041218-459	Total/NA	Solid	Moisture	
280-117710-5	P-S1-041218-459	Total/NA	Solid	Moisture	

Client Sample ID: TB-S1-041218-01

Lab Sample ID: 280-117710-1

Date Collected: 12/04/18 14:00

Matrix: Water

Date Received: 12/05/18 12:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	441787	12/18/18 22:53	FCN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	441121	12/13/18 15:09	GPM	TAL DEN
Total/NA	Prep	8011			34.4 mL	35 mL	440972	12/12/18 12:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			441016	12/13/18 01:16	JLW	TAL DEN

Client Sample ID: V-S1-041218-461

Lab Sample ID: 280-117710-2

Date Collected: 12/04/18 14:27

Matrix: Solid

Date Received: 12/05/18 12:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440494	12/08/18 16:18	LMD	TAL DEN

Client Sample ID: V-S1-041218-461

Lab Sample ID: 280-117710-2

Date Collected: 12/04/18 14:27

Matrix: Solid

Date Received: 12/05/18 12:08

Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.567 g	1000 mL	440741	12/11/18 10:29	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	441194	12/13/18 17:32	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		100			440628	12/10/18 17:37	JLW	TAL DEN

Client Sample ID: P-S1-041218-461

Lab Sample ID: 280-117710-3

Date Collected: 12/04/18 14:27

Matrix: Solid

Date Received: 12/05/18 12:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440494	12/08/18 16:18	LMD	TAL DEN

Client Sample ID: P-S1-041218-461

Lab Sample ID: 280-117710-3

Date Collected: 12/04/18 14:27

Matrix: Solid

Date Received: 12/05/18 12:08

Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.459 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		50	.1 mL	5 mL	441189	12/14/18 18:43	GPM	TAL DEN
Total/NA	Prep	3546			16.9 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		2			441736	12/18/18 14:39	AMB1	TAL DEN

Client Sample ID: V-S1-041218-459 — **Lab Sample ID: 280-117710-4**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440494	12/08/18 16:18	LMD	TAL DEN

Client Sample ID: V-S1-041218-459 — **Lab Sample ID: 280-117710-4**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 80.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.097 g	1000 mL	440741	12/11/18 10:29	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	441194	12/13/18 17:51	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		50			440628	12/10/18 17:56	JLW	TAL DEN

Client Sample ID: P-S1-041218-459 — **Lab Sample ID: 280-117710-5**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440494	12/08/18 16:18	LMD	TAL DEN

Client Sample ID: P-S1-041218-459 — **Lab Sample ID: 280-117710-5**
Date Collected: 12/04/18 14:27 — **Matrix: Solid**
Date Received: 12/05/18 12:08 — **Percent Solids: 81.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.819 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	.1 mL	5 mL	441189	12/14/18 19:07	GPM	TAL DEN
Total/NA	Prep	3546			16.1 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 22:06	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117710-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7645	COC No: COC1-51-TA-20181204
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-51-041218-01	12/04/18	1400	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-51-041218-~~461~~ 461	12/04/18	1427	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-51-041218-~~461~~ 461	12/04/18	1427	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-51-041218-459	12/04/18	1427	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-51-041218-459	12/04/18	1427	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

280-117710 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	12/04/18 1800	EA		12/5/18 0900	JADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, 1.0, IR5 vfrmd by SG, 12/5/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117710-1

Login Number: 117710
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117794-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/14/2019 3:50:01 PM

Darlene Bandy, Project Manager I
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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117794-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117794-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/6/2018 1:03 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

Receipt Exceptions

Client provided a revised chain of custody (COC) indicating to not perform the MS/MSDs listed on the original COC. Both COCs are included in this report.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S1-051218-510 (280-117794-2) and V-S1-051258-510 (280-117794-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/05/2018 and analyzed on 12/13/2018.

The initial calibration verification (ICV) result for batch 441097 was outside of the control limit for Dichlorodifluoromethane (-23.0%D). This compound is considered a "Poor Performer". Sample results were non-detects, and have been reported as qualified data.

The following Q5 DoD samples were analyzed without a closing CCV in error: V-S1-051218-510 (280-117794-2) and V-S1-051258-510 (280-117794-4). Holding time had long expired when this was realized; therefore, the data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S1-051218-02 (280-117794-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/20/2018.

The following sample in analytical batch 280-441961 was analyzed outside of analytical holding time due to an excessive number of samples expiring by midnight: TB-S1-051218-02 (280-117794-1). The trip blank sample had a collection date of 12/5/2018 and was analyzed on 12/20/2018.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Job ID: 280-117794-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples V-S1-051218-510 (280-117794-2) and V-S1-051258-510 (280-117794-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/07/2018 and analyzed on 12/09/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S1-051218-02 (280-117794-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/17/2018 and analyzed on 12/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S1-051218-510 (280-117794-3) and P-S1-051258-510 (280-117794-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/13/2018 and analyzed on 12/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S1-051218-02 (280-117794-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/13/2018. .

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-441160 and analytical batch 280-441189. A duplicate LCS (LCSD) was performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S1-051218-510 (280-117794-3) and P-S1-051258-510 (280-117794-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/13/2018 and analyzed on 12/17/2018.

Per the method comments, the following samples are reported from analysis of extracts that were silica gel cleaned: P-S1-051218-510 (280-117794-3), P-S1-051258-510 (280-117794-5), (LCS 280-441182/2-A), (LCS 280-441182/3-A), (MB 280-441182/1-A), (280-117650-A-3-A), (280-117650-A-3-B MS), (280-117650-A-3-D MS), (280-117650-A-3-C MSD) and (280-117650-A-3-E MSD). This is for preparation batch 280-441182 and analytical batch 280-441579.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-441182/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". This is considered acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S1-051218-510 (280-117794-2), P-S1-051218-510 (280-117794-3), V-S1-051258-510 (280-117794-4) and P-S1-051258-510 (280-117794-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Client Sample ID: TB-S1-051218-02 — Lab Sample ID: 280-117794-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	47		25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S1-051218-510 — Lab Sample ID: 280-117794-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.2	J	5.4	1.7	0.51	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	1.9	J	3.5	3.5	1.1	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	0.81	J	5.4	1.7	0.66	ug/Kg	1	☼	8260B	Total/NA
Toluene	4.2	J	5.4	1.7	0.75	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S1-051218-510 — Lab Sample ID: 280-117794-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.6	J	8.3	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-051258-510 — Lab Sample ID: 280-117794-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.63	J	4.7	1.5	0.44	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.5	J	4.7	3.0	1.5	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	1.1	J	3.0	3.0	0.98	ug/Kg	1	☼	8260B	Total/NA
Toluene	2.2	J	4.7	1.5	0.65	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S1-051258-510 — Lab Sample ID: 280-117794-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.1	J	8.3	4.2	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117794-1	TB-S1-051218-02	Water	12/05/18 18:00	12/06/18 13:03
280-117794-2	V-S1-051218-510	Solid	12/05/18 15:12	12/06/18 13:03
280-117794-3	P-S1-051218-510	Solid	12/05/18 15:12	12/06/18 13:03
280-117794-4	V-S1-051258-510	Solid	12/05/18 15:12	12/06/18 13:03
280-117794-5	P-S1-051258-510	Solid	12/05/18 15:12	12/06/18 13:03

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S1-051218-02
Date Collected: 12/05/18 18:00
Date Received: 12/06/18 13:03

Lab Sample ID: 280-117794-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H	10	6.4	1.9	ug/L		12/20/18 01:16	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Bromobenzene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		12/20/18 01:16	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 01:16	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		12/20/18 01:16	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		12/20/18 01:16	1
n-Butylbenzene	0.80	U H	1.0	0.80	0.32	ug/L		12/20/18 01:16	1
sec-Butylbenzene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
tert-Butylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		12/20/18 01:16	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		12/20/18 01:16	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		12/20/18 01:16	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		12/20/18 01:16	1
4-Chlorotoluene	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 01:16	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
1,2-Dibromo-3-Chloropropane	1.6	U H	5.0	1.6	0.47	ug/L		12/20/18 01:16	1
Dichlorodifluoromethane	0.80	U H	2.0	0.80	0.31	ug/L		12/20/18 01:16	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		12/20/18 01:16	1
1,2-Dichlorobenzene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 01:16	1
1,3-Dichlorobenzene	0.40	U H	1.0	0.40	0.13	ug/L		12/20/18 01:16	1
1,4-Dichlorobenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		12/20/18 01:16	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		12/20/18 01:16	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		12/20/18 01:16	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		12/20/18 01:16	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 01:16	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 01:16	1
1,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		12/20/18 01:16	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		12/20/18 01:16	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		12/20/18 01:16	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 01:16	1
cis-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 01:16	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		12/20/18 01:16	1
Hexachlorobutadiene	0.80	U H	1.0	0.80	0.36	ug/L		12/20/18 01:16	1
Isopropylbenzene	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 01:16	1
4-Isopropyltoluene	0.40	U H	1.0	0.40	0.20	ug/L		12/20/18 01:16	1
Methylene Chloride	0.80	U H	5.0	0.80	0.32	ug/L		12/20/18 01:16	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		12/20/18 01:16	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		12/20/18 01:16	1
Naphthalene	0.80	U H	1.0	0.80	0.22	ug/L		12/20/18 01:16	1
N-Propylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S1-051218-02
Date Collected: 12/05/18 18:00
Date Received: 12/06/18 13:03

Lab Sample ID: 280-117794-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 01:16	1
1,1,2,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 01:16	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		12/20/18 01:16	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1
1,2,3-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 01:16	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
1,1,2-Trichloroethane	0.80	U H	1.0	0.80	0.27	ug/L		12/20/18 01:16	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		12/20/18 01:16	1
1,2,4-Trichlorobenzene	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 01:16	1
1,2,3-Trichloropropane	0.80	U H	3.0	0.80	0.33	ug/L		12/20/18 01:16	1
1,2,4-Trimethylbenzene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 01:16	1
1,3,5-Trimethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 01:16	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		12/20/18 01:16	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 01:16	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		12/20/18 01:16	1
2-Chlorotoluene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*12/20/18 01:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*12/20/18 01:16*	*1*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*		*12/20/18 01:16*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/20/18 01:16*	*1*

Client Sample ID: V-S1-051218-510
Date Collected: 12/05/18 15:12
Date Received: 12/06/18 13:03

Lab Sample ID: 280-117794-2
Matrix: Solid
Percent Solids: 88.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.4	1.7	0.61	ug/Kg	☼	12/13/18 13:25	1
1,1,1-Trichloroethane	1.7	U	5.4	1.7	0.56	ug/Kg	☼	12/13/18 13:25	1
1,1,2,2-Tetrachloroethane	1.7	U	5.4	1.7	0.66	ug/Kg	☼	12/13/18 13:25	1
1,1,2-Trichloroethane	3.5	U	5.4	3.5	0.96	ug/Kg	☼	12/13/18 13:25	1
1,1-Dichloroethane	0.87	U	5.4	0.87	0.23	ug/Kg	☼	12/13/18 13:25	1
1,1-Dichloroethene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	12/13/18 13:25	1
1,1-Dichloropropene	1.7	U	5.4	1.7	0.59	ug/Kg	☼	12/13/18 13:25	1
1,2,3-Trichlorobenzene	1.7	U	5.4	1.7	0.81	ug/Kg	☼	12/13/18 13:25	1
1,2,3-Trichloropropane	3.5	U	5.4	3.5	0.88	ug/Kg	☼	12/13/18 13:25	1
1,2,4-Trichlorobenzene	1.7	U	5.4	1.7	0.79	ug/Kg	☼	12/13/18 13:25	1
1,2,4-Trimethylbenzene	3.5	U	5.4	3.5	0.63	ug/Kg	☼	12/13/18 13:25	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.65	ug/Kg	☼	12/13/18 13:25	1
1,2-Dichlorobenzene	1.7	U	5.4	1.7	0.49	ug/Kg	☼	12/13/18 13:25	1
1,2-Dichloroethane	1.7	U	5.4	1.7	0.76	ug/Kg	☼	12/13/18 13:25	1
1,2-Dichloroethene, Total	1.7	U	5.4	1.7	0.42	ug/Kg	☼	12/13/18 13:25	1
1,2-Dichloropropane	1.7	U	5.4	1.7	0.60	ug/Kg	☼	12/13/18 13:25	1
1,3,5-Trimethylbenzene	1.7	U	5.4	1.7	0.62	ug/Kg	☼	12/13/18 13:25	1
1,3-Dichlorobenzene	1.7	U	5.4	1.7	0.52	ug/Kg	☼	12/13/18 13:25	1
1,3-Dichloropropane	1.7	U	5.4	1.7	0.55	ug/Kg	☼	12/13/18 13:25	1
1,4-Dichlorobenzene	1.7	U	5.4	1.7	0.85	ug/Kg	☼	12/13/18 13:25	1
2,2-Dichloropropane	1.7	U	5.4	1.7	0.48	ug/Kg	☼	12/13/18 13:25	1
2-Butanone (MEK)	6.9	U	22	6.9	2.0	ug/Kg	☼	12/13/18 13:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-510
Date Collected: 12/05/18 15:12
Date Received: 12/06/18 13:03

Lab Sample ID: 280-117794-2
Matrix: Solid
Percent Solids: 88.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.7	U	5.4	1.7	0.55	ug/Kg	☼	12/13/18 13:25	1
2-Hexanone	14	U	22	14	5.3	ug/Kg	☼	12/13/18 13:25	1
4-Chlorotoluene	1.7	U	5.4	1.7	0.85	ug/Kg	☼	12/13/18 13:25	1
4-Isopropyltoluene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	12/13/18 13:25	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.7	ug/Kg	☼	12/13/18 13:25	1
Acetone	14	U	22	14	5.8	ug/Kg	☼	12/13/18 13:25	1
Benzene	**1.2**	**J**	5.4	1.7	0.51	ug/Kg	☼	12/13/18 13:25	1
Bromobenzene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	12/13/18 13:25	1
Bromoform	0.87	U	5.4	0.87	0.25	ug/Kg	☼	12/13/18 13:25	1
Bromomethane	1.7	U	11	1.7	0.54	ug/Kg	☼	12/13/18 13:25	1
Carbon disulfide	1.7	U	5.4	1.7	0.46	ug/Kg	☼	12/13/18 13:25	1
Carbon tetrachloride	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/13/18 13:25	1
Chlorobenzene	1.7	U	5.4	1.7	0.59	ug/Kg	☼	12/13/18 13:25	1
Bromochloromethane	0.87	U	5.4	0.87	0.33	ug/Kg	☼	12/13/18 13:25	1
Dibromochloromethane	1.7	U	5.4	1.7	0.62	ug/Kg	☼	12/13/18 13:25	1
Chloroethane	3.5	U	11	3.5	0.97	ug/Kg	☼	12/13/18 13:25	1
Chloroform	0.87	U	11	0.87	0.31	ug/Kg	☼	12/13/18 13:25	1
Chloromethane	1.7	U	11	1.7	0.84	ug/Kg	☼	12/13/18 13:25	1
cis-1,2-Dichloroethene	1.7	U	5.4	1.7	0.61	ug/Kg	☼	12/13/18 13:25	1
cis-1,3-Dichloropropene	3.5	U	5.4	3.5	1.4	ug/Kg	☼	12/13/18 13:25	1
Dibromomethane	3.5	U	5.4	3.5	0.91	ug/Kg	☼	12/13/18 13:25	1
Bromodichloromethane	0.87	U	5.4	0.87	0.24	ug/Kg	☼	12/13/18 13:25	1
Dichlorodifluoromethane	1.7	U Q	11	1.7	0.56	ug/Kg	☼	12/13/18 13:25	1
Ethylbenzene	1.7	U	5.4	1.7	0.73	ug/Kg	☼	12/13/18 13:25	1
Ethylene Dibromide	1.7	U	5.4	1.7	0.56	ug/Kg	☼	12/13/18 13:25	1
Hexachlorobutadiene	1.7	U	5.4	1.7	0.60	ug/Kg	☼	12/13/18 13:25	1
Isopropylbenzene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	12/13/18 13:25	1
Methyl tert-butyl ether	0.87	U	22	0.87	0.37	ug/Kg	☼	12/13/18 13:25	1
Methylene Chloride	3.5	U	5.4	3.5	1.7	ug/Kg	☼	12/13/18 13:25	1
m-Xylene & p-Xylene	**1.9**	**J**	3.5	3.5	1.1	ug/Kg	☼	12/13/18 13:25	1
Naphthalene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/13/18 13:25	1
n-Butylbenzene	1.7	U	5.4	1.7	0.61	ug/Kg	☼	12/13/18 13:25	1
N-Propylbenzene	1.7	U	5.4	1.7	0.63	ug/Kg	☼	12/13/18 13:25	1
o-Xylene	**0.81**	**J**	5.4	1.7	0.66	ug/Kg	☼	12/13/18 13:25	1
sec-Butylbenzene	1.7	U	5.4	1.7	0.84	ug/Kg	☼	12/13/18 13:25	1
Styrene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/13/18 13:25	1
tert-Butylbenzene	1.7	U	5.4	1.7	0.54	ug/Kg	☼	12/13/18 13:25	1
Tetrachloroethene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	12/13/18 13:25	1
Toluene	**4.2**	**J**	5.4	1.7	0.75	ug/Kg	☼	12/13/18 13:25	1
trans-1,2-Dichloroethene	0.87	U	5.4	0.87	0.42	ug/Kg	☼	12/13/18 13:25	1
trans-1,3-Dichloropropene	1.7	U	5.4	1.7	0.73	ug/Kg	☼	12/13/18 13:25	1
Trichloroethene	0.87	U	5.4	0.87	0.25	ug/Kg	☼	12/13/18 13:25	1
Trichlorofluoromethane	3.5	U	11	3.5	1.1	ug/Kg	☼	12/13/18 13:25	1
Vinyl chloride	3.5	U	5.4	3.5	1.5	ug/Kg	☼	12/13/18 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*85 - 116*	*12/05/18 15:12*	*12/13/18 13:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*76*		*71 - 136*	*12/05/18 15:12*	*12/13/18 13:25*	*1*
4-Bromofluorobenzene (Surr)	*83*		*79 - 119*	*12/05/18 15:12*	*12/13/18 13:25*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-510
Date Collected: 12/05/18 15:12
Date Received: 12/06/18 13:03
Lab Sample ID: 280-117794-2
Matrix: Solid
Percent Solids: 88.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	82		78 - 119	12/05/18 15:12	12/13/18 13:25	1

Client Sample ID: V-S1-051258-510
Date Collected: 12/05/18 15:12
Date Received: 12/06/18 13:03
Lab Sample ID: 280-117794-4
Matrix: Solid
Percent Solids: 90.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.5	U	4.7	1.5	0.53	ug/Kg	☼	12/13/18 13:45	1
1,1,1-Trichloroethane	1.5	U	4.7	1.5	0.49	ug/Kg	☼	12/13/18 13:45	1
1,1,2,2-Tetrachloroethane	1.5	U	4.7	1.5	0.57	ug/Kg	☼	12/13/18 13:45	1
1,1,2-Trichloroethane	3.0	U	4.7	3.0	0.83	ug/Kg	☼	12/13/18 13:45	1
1,1-Dichloroethane	0.75	U	4.7	0.75	0.20	ug/Kg	☼	12/13/18 13:45	1
1,1-Dichloroethene	1.5	U	4.7	1.5	0.55	ug/Kg	☼	12/13/18 13:45	1
1,1-Dichloropropene	1.5	U	4.7	1.5	0.51	ug/Kg	☼	12/13/18 13:45	1
1,2,3-Trichlorobenzene	1.5	U	4.7	1.5	0.70	ug/Kg	☼	12/13/18 13:45	1
1,2,3-Trichloropropane	3.0	U	4.7	3.0	0.76	ug/Kg	☼	12/13/18 13:45	1
1,2,4-Trichlorobenzene	1.5	U	4.7	1.5	0.69	ug/Kg	☼	12/13/18 13:45	1
1,2,4-Trimethylbenzene	3.0	U	4.7	3.0	0.54	ug/Kg	☼	12/13/18 13:45	1
1,2-Dibromo-3-Chloropropane	1.5	U	9.4	1.5	0.56	ug/Kg	☼	12/13/18 13:45	1
1,2-Dichlorobenzene	1.5	U	4.7	1.5	0.42	ug/Kg	☼	12/13/18 13:45	1
1,2-Dichloroethane	1.5	U	4.7	1.5	0.66	ug/Kg	☼	12/13/18 13:45	1
1,2-Dichloroethene, Total	1.5	U	4.7	1.5	0.37	ug/Kg	☼	12/13/18 13:45	1
1,2-Dichloropropane	1.5	U	4.7	1.5	0.52	ug/Kg	☼	12/13/18 13:45	1
1,3,5-Trimethylbenzene	1.5	U	4.7	1.5	0.54	ug/Kg	☼	12/13/18 13:45	1
1,3-Dichlorobenzene	1.5	U	4.7	1.5	0.45	ug/Kg	☼	12/13/18 13:45	1
1,3-Dichloropropane	1.5	U	4.7	1.5	0.48	ug/Kg	☼	12/13/18 13:45	1
1,4-Dichlorobenzene	1.5	U	4.7	1.5	0.73	ug/Kg	☼	12/13/18 13:45	1
2,2-Dichloropropane	1.5	U	4.7	1.5	0.41	ug/Kg	☼	12/13/18 13:45	1
2-Butanone (MEK)	6.0	U	19	6.0	1.7	ug/Kg	☼	12/13/18 13:45	1
2-Chlorotoluene	1.5	U	4.7	1.5	0.48	ug/Kg	☼	12/13/18 13:45	1
2-Hexanone	12	U	19	12	4.6	ug/Kg	☼	12/13/18 13:45	1
4-Chlorotoluene	1.5	U	4.7	1.5	0.73	ug/Kg	☼	12/13/18 13:45	1
4-Isopropyltoluene	1.5	U	4.7	1.5	0.46	ug/Kg	☼	12/13/18 13:45	1
4-Methyl-2-pentanone (MIBK)	12	U	19	12	4.1	ug/Kg	☼	12/13/18 13:45	1
Acetone	12	U	19	12	5.1	ug/Kg	☼	12/13/18 13:45	1
Benzene	**0.63**	**J**	4.7	1.5	0.44	ug/Kg	☼	12/13/18 13:45	1
Bromobenzene	1.5	U	4.7	1.5	0.46	ug/Kg	☼	12/13/18 13:45	1
Bromoform	0.75	U	4.7	0.75	0.22	ug/Kg	☼	12/13/18 13:45	1
Bromomethane	1.5	U	9.4	1.5	0.47	ug/Kg	☼	12/13/18 13:45	1
Carbon disulfide	1.5	U	4.7	1.5	0.39	ug/Kg	☼	12/13/18 13:45	1
Carbon tetrachloride	1.5	U	4.7	1.5	0.59	ug/Kg	☼	12/13/18 13:45	1
Chlorobenzene	1.5	U	4.7	1.5	0.51	ug/Kg	☼	12/13/18 13:45	1
Bromochloromethane	0.75	U	4.7	0.75	0.28	ug/Kg	☼	12/13/18 13:45	1
Dibromochloromethane	1.5	U	4.7	1.5	0.54	ug/Kg	☼	12/13/18 13:45	1
Chloroethane	3.0	U	9.4	3.0	0.84	ug/Kg	☼	12/13/18 13:45	1
Chloroform	0.75	U	9.4	0.75	0.27	ug/Kg	☼	12/13/18 13:45	1
Chloromethane	1.5	U	9.4	1.5	0.72	ug/Kg	☼	12/13/18 13:45	1
cis-1,2-Dichloroethene	1.5	U	4.7	1.5	0.53	ug/Kg	☼	12/13/18 13:45	1
cis-1,3-Dichloropropene	3.0	U	4.7	3.0	1.2	ug/Kg	☼	12/13/18 13:45	1
Dibromomethane	3.0	U	4.7	3.0	0.79	ug/Kg	☼	12/13/18 13:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051258-510 — **Lab Sample ID: 280-117794-4**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 90.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromodichloromethane	0.75	U	4.7	0.75	0.21	ug/Kg	☼	12/13/18 13:45	1
Dichlorodifluoromethane	1.5	U Q	9.4	1.5	0.49	ug/Kg	☼	12/13/18 13:45	1
Ethylbenzene	1.5	U	4.7	1.5	0.63	ug/Kg	☼	12/13/18 13:45	1
Ethylene Dibromide	1.5	U	4.7	1.5	0.49	ug/Kg	☼	12/13/18 13:45	1
Hexachlorobutadiene	1.5	U	4.7	1.5	0.52	ug/Kg	☼	12/13/18 13:45	1
Isopropylbenzene	1.5	U	4.7	1.5	0.55	ug/Kg	☼	12/13/18 13:45	1
Methyl tert-butyl ether	0.75	U	19	0.75	0.32	ug/Kg	☼	12/13/18 13:45	1
Methylene Chloride	**2.5**	**J**	4.7	3.0	1.5	ug/Kg	☼	12/13/18 13:45	1
m-Xylene & p-Xylene	**1.1**	**J**	3.0	3.0	0.98	ug/Kg	☼	12/13/18 13:45	1
Naphthalene	1.5	U	4.7	1.5	0.59	ug/Kg	☼	12/13/18 13:45	1
n-Butylbenzene	1.5	U	4.7	1.5	0.53	ug/Kg	☼	12/13/18 13:45	1
N-Propylbenzene	1.5	U	4.7	1.5	0.54	ug/Kg	☼	12/13/18 13:45	1
o-Xylene	1.5	U	4.7	1.5	0.57	ug/Kg	☼	12/13/18 13:45	1
sec-Butylbenzene	1.5	U	4.7	1.5	0.72	ug/Kg	☼	12/13/18 13:45	1
Styrene	1.5	U	4.7	1.5	0.59	ug/Kg	☼	12/13/18 13:45	1
tert-Butylbenzene	1.5	U	4.7	1.5	0.47	ug/Kg	☼	12/13/18 13:45	1
Tetrachloroethene	1.5	U	4.7	1.5	0.55	ug/Kg	☼	12/13/18 13:45	1
Toluene	**2.2**	**J**	4.7	1.5	0.65	ug/Kg	☼	12/13/18 13:45	1
trans-1,2-Dichloroethene	0.75	U	4.7	0.75	0.37	ug/Kg	☼	12/13/18 13:45	1
trans-1,3-Dichloropropene	1.5	U	4.7	1.5	0.63	ug/Kg	☼	12/13/18 13:45	1
Trichloroethene	0.75	U	4.7	0.75	0.22	ug/Kg	☼	12/13/18 13:45	1
Trichlorofluoromethane	3.0	U	9.4	3.0	0.98	ug/Kg	☼	12/13/18 13:45	1
Vinyl chloride	3.0	U	4.7	3.0	1.3	ug/Kg	☼	12/13/18 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*85 - 116*	*12/05/18 15:12*	*12/13/18 13:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 136*	*12/05/18 15:12*	*12/13/18 13:45*	*1*
4-Bromofluorobenzene (Surr)	*83*		*79 - 119*	*12/05/18 15:12*	*12/13/18 13:45*	*1*
Dibromofluoromethane (Surr)	*81*		*78 - 119*	*12/05/18 15:12*	*12/13/18 13:45*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S1-051218-02 — **Lab Sample ID: 280-117794-1**
Date Collected: 12/05/18 18:00 — **Matrix: Water**
Date Received: 12/06/18 13:03

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**47**		25	25	10	ug/L		12/13/18 17:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*82 - 110*		*12/13/18 17:09*	*1*

Client Sample ID: P-S1-051218-510 — **Lab Sample ID: 280-117794-3**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 89.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.35	mg/Kg	☼	12/14/18 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*113*		*77 - 123*	*12/13/18 14:14*	*12/14/18 19:32*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S1-051258-510 — **Lab Sample ID: 280-117794-5**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.6	U	1.8	1.6	0.48	mg/Kg	☼	12/14/18 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*120*		*77 - 123*	*12/13/18 14:14*	*12/14/18 19:56*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S1-051218-02 — **Lab Sample ID: 280-117794-1**
Date Collected: 12/05/18 18:00 — **Matrix: Water**
Date Received: 12/06/18 13:03

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/19/18 09:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*100*		*70 - 130*	*12/17/18 15:22*	*12/19/18 09:57*	*1*

Client Sample ID: V-S1-051218-510 — **Lab Sample ID: 280-117794-2**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	12/09/18 14:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*79*		*55 - 130*	*12/07/18 08:06*	*12/09/18 14:52*	*1*

Client Sample ID: V-S1-051258-510 — **Lab Sample ID: 280-117794-4**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 90.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U	0.11	0.042	0.017	ug/Kg	☼	12/09/18 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*89*		*55 - 130*	*12/07/18 08:06*	*12/09/18 15:11*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-051218-510 — **Lab Sample ID: 280-117794-3**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 89.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.6**	**J**	8.3	4.1	1.4	mg/Kg	☼	12/17/18 22:26	1
Motor Oil (C20-C38)	24	U	25	24	8.1	mg/Kg	☼	12/17/18 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*78*		*45 - 130*	*12/13/18 19:41*	*12/17/18 22:26*	*1*
n-Octacosane	*90*		*25 - 162*	*12/13/18 19:41*	*12/17/18 22:26*	*1*

Client Sample ID: P-S1-051258-510 — **Lab Sample ID: 280-117794-5**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.1**	**J**	8.3	4.2	1.4	mg/Kg	☼	12/17/18 22:46	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-S1-051258-510 — **Lab Sample ID: 280-117794-5**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	24	U	25	24	8.2	mg/Kg	☼	12/17/18 22:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*12/13/18 19:41*	*12/17/18 22:46*	*1*
n-Octacosane	*86*		*25 - 162*	*12/13/18 19:41*	*12/17/18 22:46*	*1*

General Chemistry

Client Sample ID: V-S1-051218-510 — **Lab Sample ID: 280-117794-2**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.2**		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: P-S1-051218-510 — **Lab Sample ID: 280-117794-3**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 89.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**10.9**		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: V-S1-051258-510 — **Lab Sample ID: 280-117794-4**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 90.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.3**		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: P-S1-051258-510 — **Lab Sample ID: 280-117794-5**
Date Collected: 12/05/18 15:12 — **Matrix: Solid**
Date Received: 12/06/18 13:03 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.2**		0.1	0.05	0.1	%		12/11/18 16:21	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117794-2	V-S1-051218-510	86	76	83	82
280-117794-4	V-S1-051258-510	86	75	83	81
LCS 280-441138/2-A	Lab Control Sample	97	82	92	91
LCSD 280-441138/3-A	Lab Control Sample Dup	91	80	88	87
MB 280-441138/1-A	Method Blank	92	80	88	88

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117794-1	TB-S1-051218-02	99	107	104	98
LCS 280-441961/5	Lab Control Sample	90	99	95	87
MB 280-441961/4	Method Blank	103	104	101	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117794-3	P-S1-051218-510	113
280-117794-5	P-S1-051258-510	120
LCS 280-441160/2-A	Lab Control Sample	116
LCSD 280-441160/3-A	Lab Control Sample Dup	105
MB 280-441160/4-A	Method Blank	102

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-117794-1	TB-S1-051218-02	100

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) TFT1 (82-110)
LCS 280-441121/3	Lab Control Sample	98
LCSD 280-441121/4	Lab Control Sample Dup	99
MB 280-441121/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) 12DBP1 (55-130)
280-117794-2	V-S1-051218-510	79
280-117794-4	V-S1-051258-510	89
LCS 280-440310/2-A	Lab Control Sample	93 M
LCSD 280-440310/3-A	Lab Control Sample Dup	93 M
MB 280-440310/4-A	Method Blank	87 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) 12DBP1 (70-130)
280-117794-1	TB-S1-051218-02	100
LCS 280-441610/2-A	Lab Control Sample	92
LCSD 280-441610/3-A	Lab Control Sample Dup	89
MB 280-441610/4-A	Method Blank	94

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits) OTPH1 (45-130)	OTCN1 (25-162)
280-117794-3	P-S1-051218-510	78	90
280-117794-5	P-S1-051258-510	75	86
LCS 280-441182/2-A	Lab Control Sample	89	101
LCS 280-441182/3-A	Lab Control Sample	96	107
MB 280-441182/1-A	Method Blank	84	102

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441138/1-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441138

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/13/18 11:02	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg		12/13/18 11:02	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/13/18 11:02	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/13/18 11:02	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/13/18 11:02	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/13/18 11:02	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/13/18 11:02	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/13/18 11:02	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/13/18 11:02	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		12/13/18 11:02	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/13/18 11:02	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/13/18 11:02	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/13/18 11:02	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/13/18 11:02	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/13/18 11:02	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/13/18 11:02	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/13/18 11:02	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/13/18 11:02	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/13/18 11:02	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/13/18 11:02	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/13/18 11:02	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/13/18 11:02	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/13/18 11:02	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/13/18 11:02	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/13/18 11:02	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/13/18 11:02	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/13/18 11:02	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/13/18 11:02	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/13/18 11:02	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/13/18 11:02	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/13/18 11:02	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		12/13/18 11:02	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/13/18 11:02	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/13/18 11:02	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/13/18 11:02	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/13/18 11:02	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/13/18 11:02	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/13/18 11:02	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/13/18 11:02	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/13/18 11:02	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/13/18 11:02	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/13/18 11:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441138/1-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441138

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/13/18 11:02	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/13/18 11:02	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/13/18 11:02	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		12/13/18 11:02	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/13/18 11:02	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/13/18 11:02	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/13/18 11:02	1
1,2,4-Trimethylbenzene	3.2	U M	5.0	3.2	0.58	ug/Kg		12/13/18 11:02	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/13/18 11:02	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/13/18 11:02	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/13/18 11:02	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/13/18 11:02	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/13/18 11:02	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		12/13/18 11:02	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/13/18 11:02	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/13/18 11:02	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/13/18 11:02	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/13/18 11:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*85 - 116*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
4-Bromofluorobenzene (Surr)	*88*		*79 - 119*	*12/13/18 07:00*	*12/13/18 11:02*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 119*	*12/13/18 07:00*	*12/13/18 11:02*	*1*

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	43.5		ug/Kg		87	61 - 132
2-Butanone (MEK)	200	189		ug/Kg		94	51 - 148
1,2-Dichlorobenzene	50.0	52.5		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	50.0	51.2		ug/Kg		102	77 - 121
4-Chlorotoluene	50.0	51.6		ug/Kg		103	72 - 124
1,4-Dichlorobenzene	50.0	51.3		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.0		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	49.2		ug/Kg		98	73 - 128
Acetone	200	203		ug/Kg		102	36 - 164
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131
Benzene	50.0	48.9		ug/Kg		98	77 - 121
Bromobenzene	50.0	53.4		ug/Kg		107	78 - 121
Bromoform	50.0	52.8		ug/Kg		106	67 - 132
Bromomethane	50.0	64.7		ug/Kg		129	53 - 143
1,2-Dichloropropane	50.0	49.5		ug/Kg		99	76 - 123
Carbon disulfide	50.0	50.6		ug/Kg		101	63 - 132
1,3-Dichloropropane	50.0	48.4		ug/Kg		97	77 - 121
Carbon tetrachloride	50.0	48.7		ug/Kg		97	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	49.3		ug/Kg		99	67 - 133
Chlorobenzene	50.0	50.9		ug/Kg		102	79 - 120
1,1-Dichloropropene	50.0	50.1		ug/Kg		100	76 - 125
Bromochloromethane	50.0	54.1		ug/Kg		108	78 - 125
Dibromochloromethane	50.0	51.0		ug/Kg		102	74 - 126
Chloroethane	50.0	64.8		ug/Kg		130	59 - 139
Chloroform	50.0	49.3		ug/Kg		99	78 - 123
2-Hexanone	200	185		ug/Kg		92	53 - 145
Chloromethane	50.0	50.5		ug/Kg		101	50 - 136
cis-1,2-Dichloroethene	50.0	50.1		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	50.9		ug/Kg		102	74 - 126
4-Isopropyltoluene	50.0	50.6		ug/Kg		101	73 - 127
Dibromomethane	50.0	51.2		ug/Kg		102	78 - 125
Bromodichloromethane	50.0	49.1		ug/Kg		98	75 - 127
4-Methyl-2-pentanone (MIBK)	200	193		ug/Kg		97	65 - 135
Dichlorodifluoromethane	50.0	35.3		ug/Kg		71	29 - 149
Ethylbenzene	50.0	49.8		ug/Kg		100	76 - 122
Ethylene Dibromide	50.0	51.4		ug/Kg		103	78 - 122
Hexachlorobutadiene	50.0	52.4		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	50.4		ug/Kg		101	68 - 134
1,1,1,2-Tetrachloroethane	50.0	50.2		ug/Kg		100	78 - 125
Methyl tert-butyl ether	50.0	48.4		ug/Kg		97	73 - 125
1,1,2,2-Tetrachloroethane	50.0	46.5		ug/Kg		93	70 - 124
Methylene Chloride	50.0	52.2		ug/Kg		104	70 - 128
Naphthalene	50.0	50.6		ug/Kg		101	62 - 129
1,2,3-Trichlorobenzene	50.0	51.3		ug/Kg		103	66 - 130
n-Butylbenzene	50.0	47.5		ug/Kg		95	70 - 128
1,1,1-Trichloroethane	50.0	47.8		ug/Kg		96	73 - 130
N-Propylbenzene	50.0	50.9		ug/Kg		102	73 - 125
1,1,2-Trichloroethane	50.0	52.7		ug/Kg		105	78 - 121
sec-Butylbenzene	50.0	51.2		ug/Kg		102	73 - 126
Styrene	50.0	50.3		ug/Kg		101	76 - 124
1,2,4-Trichlorobenzene	50.0	51.8		ug/Kg		104	67 - 129
tert-Butylbenzene	50.0	51.1		ug/Kg		102	73 - 125
1,2,3-Trichloropropane	50.0	50.2		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	49.1		ug/Kg		98	73 - 128
1,2,4-Trimethylbenzene	50.0	49.3		ug/Kg		99	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121
1,3,5-Trimethylbenzene	50.0	50.3		ug/Kg		101	73 - 124
trans-1,2-Dichloroethene	50.0	51.8		ug/Kg		104	74 - 125
trans-1,3-Dichloropropene	50.0	50.9		ug/Kg		102	71 - 130
o-Xylene	50.0	50.4		ug/Kg		101	77 - 123
Trichloroethene	50.0	49.1		ug/Kg		98	77 - 123
m-Xylene & p-Xylene	50.0	51.6		ug/Kg		103	77 - 124
Trichlorofluoromethane	50.0	56.2		ug/Kg		112	62 - 140
Vinyl chloride	50.0	58.2		ug/Kg		116	56 - 135
2-Chlorotoluene	50.0	51.5		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441138/2-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*
Dibromofluoromethane (Surr)	*91*		*78 - 119*

Lab Sample ID: LCSD 280-441138/3-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441138

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	45.1		ug/Kg		90	61 - 132	4	20
2-Butanone (MEK)			200	199		ug/Kg		99	51 - 148	5	20
1,2-Dichlorobenzene			50.0	51.8		ug/Kg		104	78 - 121	1	20
1,3-Dichlorobenzene			50.0	50.7		ug/Kg		101	77 - 121	1	20
4-Chlorotoluene			50.0	50.8		ug/Kg		102	72 - 124	2	20
1,4-Dichlorobenzene			50.0	51.2		ug/Kg		102	75 - 120	0	20
1,1-Dichloroethane			50.0	47.5		ug/Kg		95	76 - 125	1	20
1,2-Dichloroethane			50.0	49.7		ug/Kg		99	73 - 128	1	20
Acetone			200	219		ug/Kg		109	36 - 164	7	20
1,1-Dichloroethene			50.0	49.9		ug/Kg		100	70 - 131	3	20
Benzene			50.0	49.0		ug/Kg		98	77 - 121	0	20
Bromobenzene			50.0	53.5		ug/Kg		107	78 - 121	0	20
Bromoform			50.0	54.0		ug/Kg		108	67 - 132	2	20
Bromomethane			50.0	61.4		ug/Kg		123	53 - 143	5	20
1,2-Dichloropropane			50.0	49.4		ug/Kg		99	76 - 123	0	20
Carbon disulfide			50.0	49.0		ug/Kg		98	63 - 132	3	20
1,3-Dichloropropane			50.0	48.8		ug/Kg		98	77 - 121	1	20
Carbon tetrachloride			50.0	47.1		ug/Kg		94	70 - 135	3	20
2,2-Dichloropropane			50.0	47.5		ug/Kg		95	67 - 133	4	20
Chlorobenzene			50.0	50.1		ug/Kg		100	79 - 120	2	20
1,1-Dichloropropene			50.0	49.0		ug/Kg		98	76 - 125	2	20
Bromochloromethane			50.0	53.2		ug/Kg		106	78 - 125	2	20
Dibromochloromethane			50.0	51.5		ug/Kg		103	74 - 126	1	20
Chloroethane			50.0	60.3		ug/Kg		121	59 - 139	7	20
Chloroform			50.0	48.8		ug/Kg		98	78 - 123	1	20
2-Hexanone			200	196		ug/Kg		98	53 - 145	6	20
Chloromethane			50.0	47.2		ug/Kg		94	50 - 136	7	20
cis-1,2-Dichloroethene			50.0	49.5		ug/Kg		99	77 - 123	1	20
cis-1,3-Dichloropropene			50.0	51.4		ug/Kg		103	74 - 126	1	20
4-Isopropyltoluene			50.0	50.9		ug/Kg		102	73 - 127	0	20
Dibromomethane			50.0	52.0		ug/Kg		104	78 - 125	2	20
Bromodichloromethane			50.0	49.1		ug/Kg		98	75 - 127	0	20
4-Methyl-2-pentanone (MIBK)			200	202		ug/Kg		101	65 - 135	4	20
Dichlorodifluoromethane			50.0	34.4		ug/Kg		69	29 - 149	3	20
Ethylbenzene			50.0	49.6		ug/Kg		99	76 - 122	0	20
Ethylene Dibromide			50.0	51.2		ug/Kg		102	78 - 122	0	20
Hexachlorobutadiene			50.0	51.7		ug/Kg		103	61 - 135	1	20
Isopropylbenzene			50.0	48.8		ug/Kg		98	68 - 134	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441138/3-A
Matrix: Solid
Analysis Batch: 441097

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441138

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	49.6		ug/Kg		99	78 - 125	1	20
Methyl tert-butyl ether			50.0	49.5		ug/Kg		99	73 - 125	2	20
1,1,2,2-Tetrachloroethane			50.0	48.2		ug/Kg		96	70 - 124	3	20
Methylene Chloride			50.0	51.3		ug/Kg		103	70 - 128	2	20
Naphthalene			50.0	51.8		ug/Kg		104	62 - 129	2	20
1,2,3-Trichlorobenzene			50.0	51.6		ug/Kg		103	66 - 130	0	20
n-Butylbenzene			50.0	46.2		ug/Kg		92	70 - 128	3	20
1,1,1-Trichloroethane			50.0	46.2		ug/Kg		92	73 - 130	3	20
N-Propylbenzene			50.0	51.6		ug/Kg		103	73 - 125	1	20
1,1,2-Trichloroethane			50.0	53.9		ug/Kg		108	78 - 121	2	20
sec-Butylbenzene			50.0	50.4		ug/Kg		101	73 - 126	2	20
Styrene			50.0	50.2		ug/Kg		100	76 - 124	0	20
1,2,4-Trichlorobenzene			50.0	51.2		ug/Kg		102	67 - 129	1	20
tert-Butylbenzene			50.0	50.9		ug/Kg		102	73 - 125	0	20
1,2,3-Trichloropropane			50.0	52.9		ug/Kg		106	73 - 125	5	20
Tetrachloroethene			50.0	48.0		ug/Kg		96	73 - 128	2	20
1,2,4-Trimethylbenzene			50.0	49.5		ug/Kg		99	75 - 123	0	20
Toluene			50.0	49.7		ug/Kg		99	77 - 121	0	20
1,3,5-Trimethylbenzene			50.0	49.7		ug/Kg		99	73 - 124	1	20
trans-1,2-Dichloroethene			50.0	50.9		ug/Kg		102	74 - 125	2	20
trans-1,3-Dichloropropene			50.0	50.9		ug/Kg		102	71 - 130	0	20
o-Xylene			50.0	49.6		ug/Kg		99	77 - 123	2	20
Trichloroethene			50.0	48.3		ug/Kg		97	77 - 123	2	20
m-Xylene & p-Xylene			50.0	48.8		ug/Kg		98	77 - 124	6	20
Trichlorofluoromethane			50.0	54.9		ug/Kg		110	62 - 140	2	20
Vinyl chloride			50.0	55.0		ug/Kg		110	56 - 135	6	20
2-Chlorotoluene			50.0	50.3		ug/Kg		101	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*
4-Bromofluorobenzene (Surr)	*88*		*79 - 119*
Dibromofluoromethane (Surr)	*87*		*78 - 119*

Lab Sample ID: MB 280-441961/4
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/19/18 23:24	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/19/18 23:24	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/19/18 23:24	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/19/18 23:24	1
Acetone	6.4	U	10	6.4	1.9	ug/L		12/19/18 23:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441961/4
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/19/18 23:24	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/19/18 23:24	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/19/18 23:24	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/19/18 23:24	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/19/18 23:24	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/19/18 23:24	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/19/18 23:24	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/19/18 23:24	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/19/18 23:24	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/19/18 23:24	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/19/18 23:24	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/19/18 23:24	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/19/18 23:24	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/19/18 23:24	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/19/18 23:24	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/19/18 23:24	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/19/18 23:24	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/19/18 23:24	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/19/18 23:24	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441961/4
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/19/18 23:24	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/19/18 23:24	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/19/18 23:24	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*89 - 112*		*12/19/18 23:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*12/19/18 23:24*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/19/18 23:24*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/19/18 23:24*	*1*

Lab Sample ID: LCS 280-441961/5
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.05	J	ug/L		81	62 - 128
2-Butanone (MEK)	20.0	16.4		ug/L		82	56 - 143
1,2-Dichlorobenzene	5.00	4.20		ug/L		84	80 - 119
1,3-Dichlorobenzene	5.00	4.32		ug/L		86	80 - 119
4-Chlorotoluene	5.00	4.65		ug/L		93	78 - 122
1,4-Dichlorobenzene	5.00	4.27		ug/L		85	79 - 118
1,1-Dichloroethane	5.00	4.77		ug/L		95	77 - 125
1,2-Dichloroethane	5.00	5.20		ug/L		104	73 - 128
Acetone	20.0	17.7		ug/L		89	39 - 160
1,1-Dichloroethene	5.00	4.25		ug/L		85	71 - 131
Benzene	5.00	4.59		ug/L		92	79 - 120
Bromobenzene	5.00	4.43		ug/L		89	80 - 120
Bromoform	5.00	4.22		ug/L		84	66 - 130
Bromomethane	5.00	3.84		ug/L		77	53 - 141
1,2-Dichloropropane	5.00	4.91		ug/L		98	78 - 122
Carbon disulfide	5.00	4.20		ug/L		84	64 - 133
1,3-Dichloropropane	5.00	4.88		ug/L		98	80 - 119
Carbon tetrachloride	5.00	4.74		ug/L		95	72 - 136
2,2-Dichloropropane	5.00	4.73		ug/L		95	60 - 139
Chlorobenzene	5.00	4.48		ug/L		90	82 - 118
1,1-Dichloropropene	5.00	4.95		ug/L		99	79 - 125
Bromochloromethane	5.00	4.27		ug/L		85	78 - 123
Dibromochloromethane	5.00	4.63		ug/L		93	74 - 126
Chloroethane	5.00	4.21		ug/L		84	60 - 138
Chloroform	5.00	4.86		ug/L		97	79 - 124
2-Hexanone	20.0	18.7		ug/L		94	57 - 139
Chloromethane	5.00	4.51		ug/L		90	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441961/5
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.41		ug/L		88	78 - 123
cis-1,3-Dichloropropene	5.00	5.30		ug/L		106	75 - 124
4-Isopropyltoluene	5.00	4.73		ug/L		95	77 - 127
Dibromomethane	5.00	4.54		ug/L		91	79 - 123
Bromodichloromethane	5.00	4.89		ug/L		98	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.3		ug/L		91	67 - 130
Dichlorodifluoromethane	5.00	4.04		ug/L		81	32 - 152
Ethylbenzene	5.00	4.29		ug/L		86	79 - 121
Ethylene Dibromide	5.00	4.62		ug/L		92	77 - 121
Hexachlorobutadiene	5.00	4.20		ug/L		84	66 - 134
Isopropylbenzene	5.00	4.96		ug/L		99	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.54		ug/L		91	78 - 124
Methyl tert-butyl ether	5.00	4.66	J	ug/L		93	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.78		ug/L		96	71 - 121
Methylene Chloride	5.00	4.31	J	ug/L		86	74 - 124
Naphthalene	5.00	3.68		ug/L		74	61 - 128
1,2,3-Trichlorobenzene	5.00	3.95		ug/L		79	69 - 129
n-Butylbenzene	5.00	4.70		ug/L		94	75 - 128
1,1,1-Trichloroethane	5.00	4.77		ug/L		95	74 - 131
N-Propylbenzene	5.00	4.65		ug/L		93	76 - 126
1,1,2-Trichloroethane	5.00	4.50		ug/L		90	80 - 119
sec-Butylbenzene	5.00	4.69		ug/L		94	77 - 126
Styrene	5.00	4.22		ug/L		84	78 - 123
1,2,4-Trichlorobenzene	5.00	3.86		ug/L		77	69 - 130
tert-Butylbenzene	5.00	5.01		ug/L		100	78 - 124
1,2,3-Trichloropropane	5.00	5.16		ug/L		103	73 - 122
Tetrachloroethene	5.00	4.26		ug/L		85	74 - 129
1,2,4-Trimethylbenzene	5.00	4.74		ug/L		95	76 - 124
Toluene	5.00	4.59		ug/L		92	80 - 121
1,3,5-Trimethylbenzene	5.00	4.85		ug/L		97	75 - 124
trans-1,2-Dichloroethene	5.00	4.45		ug/L		89	75 - 124
trans-1,3-Dichloropropene	5.00	5.03		ug/L		101	73 - 127
o-Xylene	5.00	4.23		ug/L		85	78 - 122
Trichloroethene	5.00	4.62		ug/L		92	79 - 123
m-Xylene & p-Xylene	5.00	4.35		ug/L		87	80 - 121
Trichlorofluoromethane	5.00	4.25		ug/L		85	65 - 141
Vinyl chloride	5.00	4.58		ug/L		92	58 - 137
2-Chlorotoluene	5.00	4.52		ug/L		90	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*
Dibromofluoromethane (Surr)	*87*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-441121/5
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/13/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*12/13/18 13:29*	*1*

Lab Sample ID: LCS 280-441121/3
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	81.7		ug/L		104	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Lab Sample ID: LCSD 280-441121/4
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	74.9		ug/L		95	78 - 122	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-441160/4-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441160

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/14/18 12:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*12/13/18 14:14*	*12/14/18 12:22*	*1*

Lab Sample ID: LCS 280-441160/2-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.11		mg/Kg		93	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*116*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-441160/3-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441160

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			5.50	6.49		mg/Kg		118	79 - 122	24	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*105*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-440310/4-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440310

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		12/09/18 13:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*87*	*M*	*55 - 130*	*12/07/18 08:06*	*12/09/18 13:16*	*1*

Lab Sample ID: LCS 280-440310/2-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440310

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.875	0.737	M	ug/Kg		84	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*93*	*M*	*55 - 130*

Lab Sample ID: LCSD 280-440310/3-A
Matrix: Solid
Analysis Batch: 440502

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 440310

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.725		ug/Kg		83	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*93*	*M*	*55 - 130*

Lab Sample ID: MB 280-441610/4-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441610

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/17/18 19:01	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-441610/4-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441610

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	94		70 - 130	12/17/18 15:22	12/17/18 19:01	1

Lab Sample ID: LCS 280-441610/2-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441610

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.197		ug/L		79	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	92		70 - 130

Lab Sample ID: LCSD 280-441610/3-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441610

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.201		ug/L		80	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	89		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441182/1-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441182

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.27	J	8.0	4.0	1.4	mg/Kg		12/17/18 18:05	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/17/18 18:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	84		45 - 130	12/13/18 19:41	12/17/18 18:05	1
n-Octacosane	102		25 - 162	12/13/18 19:41	12/17/18 18:05	1

Lab Sample ID: LCS 280-441182/2-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	125		mg/Kg		95	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	89		45 - 130
n-Octacosane	101		25 - 162

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Lab Sample ID: LCS 280-441182/3-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			326	329		mg/Kg		101	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*96*		*45 - 130*
n-Octacosane	*107*		*25 - 162*

GC/MS VOA

Analysis Batch: 441097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-2	V-S1-051218-510	Total/NA	Solid	8260B	441138
280-117794-4	V-S1-051258-510	Total/NA	Solid	8260B	441138
MB 280-441138/1-A	Method Blank	Total/NA	Solid	8260B	441138
LCS 280-441138/2-A	Lab Control Sample	Total/NA	Solid	8260B	441138
LCSD 280-441138/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441138

Prep Batch: 441138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-2	V-S1-051218-510	Total/NA	Solid	5035	
280-117794-4	V-S1-051258-510	Total/NA	Solid	5035	
MB 280-441138/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441138/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441138/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-1	TB-S1-051218-02	Total/NA	Water	8260B	
MB 280-441961/4	Method Blank	Total/NA	Water	8260B	
LCS 280-441961/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 441121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-1	TB-S1-051218-02	Total/NA	Water	8015D GRO	
MB 280-441121/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-441121/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-441121/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 441160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-3	P-S1-051218-510	Total/NA	Solid	5035	
280-117794-5	P-S1-051258-510	Total/NA	Solid	5035	
MB 280-441160/4-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-3	P-S1-051218-510	Total/NA	Solid	8015D GRO	441160
280-117794-5	P-S1-051258-510	Total/NA	Solid	8015D GRO	441160
MB 280-441160/4-A	Method Blank	Total/NA	Solid	8015D GRO	441160
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	441160
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	441160

GC Semi VOA

Prep Batch: 440310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-2	V-S1-051218-510	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 440310 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-4	V-S1-051258-510	Total/NA	Solid	8011	
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 440502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-2	V-S1-051218-510	Total/NA	Solid	8011	440310
280-117794-4	V-S1-051258-510	Total/NA	Solid	8011	440310
MB 280-440310/4-A	Method Blank	Total/NA	Solid	8011	440310
LCS 280-440310/2-A	Lab Control Sample	Total/NA	Solid	8011	440310
LCSD 280-440310/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	440310

Prep Batch: 441182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-3	P-S1-051218-510	Total/NA	Solid	3546	
280-117794-5	P-S1-051258-510	Total/NA	Solid	3546	
MB 280-441182/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 441579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-3	P-S1-051218-510	Total/NA	Solid	8015D DRO	441182
280-117794-5	P-S1-051258-510	Total/NA	Solid	8015D DRO	441182
MB 280-441182/1-A	Method Blank	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182

Prep Batch: 441610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-1	TB-S1-051218-02	Total/NA	Water	8011	
MB 280-441610/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-441610/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-441610/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 441613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-441610/4-A	Method Blank	Total/NA	Water	8011	441610
LCS 280-441610/2-A	Lab Control Sample	Total/NA	Water	8011	441610
LCSD 280-441610/3-A	Lab Control Sample Dup	Total/NA	Water	8011	441610

Analysis Batch: 441831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-1	TB-S1-051218-02	Total/NA	Water	8011	441610

General Chemistry

Analysis Batch: 440818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117794-2	V-S1-051218-510	Total/NA	Solid	Moisture	
280-117794-3	P-S1-051218-510	Total/NA	Solid	Moisture	
280-117794-4	V-S1-051258-510	Total/NA	Solid	Moisture	
280-117794-5	P-S1-051258-510	Total/NA	Solid	Moisture	

Client Sample ID: TB-S1-051218-02

Lab Sample ID: 280-117794-1

Date Collected: 12/05/18 18:00

Matrix: Water

Date Received: 12/06/18 13:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	441961	12/20/18 01:16	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	441121	12/13/18 17:09	GPM	TAL DEN
Total/NA	Prep	8011			34.9 mL	35 mL	441610	12/17/18 15:22	MJS	TAL DEN
Total/NA	Analysis	8011		1			441831	12/19/18 09:57	JLW	TAL DEN

Client Sample ID: V-S1-051218-510

Lab Sample ID: 280-117794-2

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: V-S1-051218-510

Lab Sample ID: 280-117794-2

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Percent Solids: 88.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.185 g	5 mL	441138	12/05/18 15:12	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	441097	12/13/18 13:25	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 14:52	JLW	TAL DEN

Client Sample ID: P-S1-051218-510

Lab Sample ID: 280-117794-3

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: P-S1-051218-510

Lab Sample ID: 280-117794-3

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.921 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	.1 mL	5 mL	441189	12/14/18 19:32	GPM	TAL DEN
Total/NA	Prep	3546			16.3 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 22:26	AMB1	TAL DEN

Client Sample ID: V-S1-051258-510

Lab Sample ID: 280-117794-4

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: V-S1-051258-510

Lab Sample ID: 280-117794-4

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.871 g	5 mL	441138	12/05/18 15:12	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	441097	12/13/18 13:45	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	440310	12/07/18 08:06	SU	TAL DEN
Total/NA	Analysis	8011		1			440502	12/09/18 15:11	JLW	TAL DEN

Client Sample ID: P-S1-051258-510

Lab Sample ID: 280-117794-5

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: P-S1-051258-510

Lab Sample ID: 280-117794-5

Date Collected: 12/05/18 15:12

Matrix: Solid

Date Received: 12/06/18 13:03

Percent Solids: 88.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.216 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	.1 mL	5 mL	441189	12/14/18 19:56	GPM	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 22:46	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117794-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7623	COC No: COC2-51-TA-20181205
Client Contact: Pamela Moss	Phone: (573)430-8008	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#:	

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-51-051218-02	12/05/18	1800	G	W	N	N						X	X		X		
V-51-051218-510	12/05/18	1512	G	S	N	Y	X	X	X							5	MS/MSD
P-51-051218-510	12/05/18	1512	G	S	N	Y				X	X					3	MS/MSD
V-51-051258-510	12/05/18	1512	G	S	N	N	X	X	X							5	Dup
P-51-051258-510	12/05/18	1512	G	S	N	N				X	X					3	Dup

280-117794 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Joshua Livingston	12/05/18 1900	EA		12/6/18 0845	TAEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: -0.3 +1.0 IR #5 transfer by JO

Ver: 08/04/2016

1. Do Not run MS/MSDs. PMoss 12/6/18

Copy

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7023	COC No: COC2-51-TA-20181205
Client Contact: Pamela Moss	Phone: (573)430-8008	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	Analysis Requested
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	U/F	N	N	N	F	A	R	N	A		
TB-51-051218-02	12/05/18	1800	G	W	N	N						X	X		X		
V-51-051218-510	12/05/18	1512	G	S	Y	Y	X	X	X							5	MS/MSD
P-51-051218-510	12/05/18	1512	G	S	Y	Y				X	X					3	MS/MSD PMoss
V-51-051258-510	12/05/18	1512	G	S	N	N	X	X	X							5	Dup 12-6-18
P-51-051258-510	12/05/18	1512	G	S	N	N				X	X					3	Dup

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Joshua Livingston	Date/Time: 12/05/18 1900	Company: EA	Received by: / Date/Time: / Company:
Relinquished by:	Date/Time:	Company	Received by: / Date/Time: / Company:
Relinquished by:	Date/Time:	Company	Received by: / Date/Time: / Company:

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

1/14/2019

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117794-1

Login Number: 117794
List Number: 1
Creator: Infiesto, David B

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-117883-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/15/2019 12:42:11 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-117883-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-117883-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/7/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

Receipt Exceptions

The DI water terracores for sample ID V-S1-051218-475 were collected 12/05 at 0855, and received on 12/07 at 0910. Samples have exceeded the 48 hour hold time required for freezing. The samples were frozen upon receipt, and per prior project history, the lab proceeded with analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S1-051218-475 (280-117883-2), V-S1-051218-480 (280-117883-4) and V-S1-051218-489 (280-117883-6) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/05/2018 and analyzed on 12/19/2018.

Samples V-S1-051218-475 (280-117883-2)[10X], V-S1-051218-480 (280-117883-4)[10X] and V-S1-051218-489 (280-117883-6)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly. Due to the required dilution, the surrogates were diluted to the point that recovery calculations do not provide useful information.

4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for LCSD 280-441584/3-A: 4-Bromofluorobenzene (Surr) 120%D (limits 79-119%D) and Toluene-d8 (Surr) 117%D (limits 85-116%D). Associated results have been flagged "Q". Refer to the QC report for details. The associated samples were all diluted to the point that the surrogate recoveries could not be reliably calculated. The CCV, LCS and MB surrogates were all in control. The LCS and LCSD each recovered within control limits; therefore, the data have been qualified and reported.

Bromomethane, Chloromethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride exceeded the RPD limit for LCSD 280-441584/9-A. All associated results have been flagged "Q". Refer to the QC report for details. It is noted that the LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S1-051218-01 (280-117883-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The

Job ID: 280-117883-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

samples were analyzed on 12/20/2018.

Method(s) 8260B: The following samples in analytical batch 280-441961 were analyzed outside of analytical holding time due to an excessive number of samples expiring by midnight: TB-S1-051218-01 (280-117883-1).

1,2-Dichloroethane-d4 (Surr) and 4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria high for TB-S1-051218-01 (280-117883-1). Refer to the QC report for details. This sample did not contain any target analytes; therefore, re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S1-051218-475 (280-117883-2), V-S1-051218-480 (280-117883-4) and V-S1-051218-489 (280-117883-6) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/19/2018 and analyzed on 01/10/2019.

Samples V-S1-051218-475 (280-117883-2)[10X], V-S1-051218-480 (280-117883-4)[50X] and V-S1-051218-489 (280-117883-6)[100X] required dilution prior to analysis due to the nature of the sample matrix. Elevated reporting limits (RLs) are provided. Due to the required dilution, the surrogates were diluted to the point that recovery calculations do not provide useful information; surrogate recoveries cannot be reliably calculated in the MS/MSD either.

Ethylene Dibromide failed the recovery criteria high for the MS/MSD of sample V-S1-051218-489 (280-117883-6) in batch 280-443835. The MS for EDB was outside calibration range and has been flagged "J1". The parent sample was within calibration range; therefore, the data have been qualified and reported. In addition, the presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount; therefore, the MS/MSD could not be evaluated for accuracy and precision for this analyte and control limits are not applicable. Refer to the QC report for details. The acceptable LCS data indicate that the analytical system was operating within control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S1-051218-01 (280-117883-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/17/2018 and analyzed on 12/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S1-051218-475 (280-117883-3), P-S1-051218-480 (280-117883-5) and P-S1-051218-489 (280-117883-7) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/13/2018 and analyzed on 12/14/2018.

Samples P-S1-051218-475 (280-117883-3)[50X], P-S1-051218-480 (280-117883-5)[200X] and P-S1-051218-489 (280-117883-7)[200X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S1-051218-475 (280-117883-3), P-S1-051218-480 (280-117883-5), and P-S1-051218-489 (280-117883-7). Refer to the QC report for details. Due to the required dilutions, the surrogates were diluted to the point that recovery calculations do not provide useful information.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-441160 and analytical batch 280-441189. A duplicate LCS (LCSD) was performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S1-051218-01 (280-117883-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/13/2018.

Job ID: 280-117883-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S1-051218-475 (280-117883-3), P-S1-051218-480 (280-117883-5) and P-S1-051218-489 (280-117883-7) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/13/2018 and analyzed on 12/17/2018 and 12/18/2018.

Per the method comments, the following samples are reported from analysis of extracts that were silica gel cleaned: P-S1-051218-475 (280-117883-3), P-S1-051218-480 (280-117883-5), P-S1-051218-489 (280-117883-7), (LCS 280-441182/2-A), (LCS 280-441182/3-A), (MB 280-441182/1-A), (280-117650-A-3-A), (280-117650-A-3-B MS), (280-117650-A-3-D MS), (280-117650-A-3-C MSD) and (280-117650-A-3-E MSD).

Sample P-S1-051218-489 (280-117883-7)[4X] required dilution prior to analysis in order to bring the concentration of target analyte Diesel Range Organics [C10-C28] within the calibration range. The reporting limits have been adjusted accordingly.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-441182/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S1-051218-475 (280-117883-2), P-S1-051218-475 (280-117883-3), V-S1-051218-480 (280-117883-4), P-S1-051218-480 (280-117883-5), V-S1-051218-489 (280-117883-6) and P-S1-051218-489 (280-117883-7) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/11/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S1-051218-01 — Lab Sample ID: 280-117883-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	17	J	25	25	10	ug/L	1		8015D GRO	Total/NA

Client Sample ID: V-S1-051218-475 — Lab Sample ID: 280-117883-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
n-Butylbenzene	3000	D Q	2800	890	360	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	3700	D Q	2800	890	420	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	1200	J D Q	2800	890	380	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	1500	J D Q	2800	890	320	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	1700	J D Q	2800	890	360	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	4700	J D Q	5600	890	420	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	1800	J D Q	2800	1800	460	ug/Kg	10	☼	8260B	Total/NA
Toluene	2200	J D	2800	890	440	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	14000	D Q	2800	890	350	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	7300	D Q	2800	890	440	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	10000	D Q	1400	890	390	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	17000	D Q	2800	1800	870	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	8.6	D	1.1	0.44	0.17	ug/Kg	10	☼	8011	Total/NA

Client Sample ID: P-S1-051218-475 — Lab Sample ID: 280-117883-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1300	Q D	66	61	18	mg/Kg	50	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	630		8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	11	J	24	23	7.8	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-051218-480 — Lab Sample ID: 280-117883-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2200	J D	2600	1700	470	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	2900	D Q	2600	830	330	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	4500	D Q	2600	830	390	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	6100	D Q	2600	830	350	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	3400	D Q	2600	830	300	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	1300	J D Q	2600	830	330	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	3400	J D Q	5200	830	390	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	5200	D Q	2600	1700	430	ug/Kg	10	☼	8260B	Total/NA
Toluene	18000	D	2600	830	410	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	17000	D Q	2600	830	320	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	7700	D Q	2600	830	410	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	16000	D Q	1300	830	360	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	47000	D Q	2600	1700	810	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	56	D	5.6	2.1	0.84	ug/Kg	50	☼	8011	Total/NA

Client Sample ID: P-S1-051218-480 — Lab Sample ID: 280-117883-5

This Detection Summary does not include radiochemical test results.

Client Sample ID: P-S1-051218-480 (Continued) — Lab Sample ID: 280-117883-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2700	Q D	260	240	71	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	670		8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	13	J	25	24	8.0	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S1-051218-489 — Lab Sample ID: 280-117883-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	40000	D Q	16000	14000	4400	ug/Kg	10	☼	8260B	Total/NA
Benzene	17000	D Q	2700	1800	490	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	5200	D Q	2700	880	350	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	7300	D Q	2700	880	420	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	26000	D Q	2700	880	370	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	6000	D Q	2700	880	320	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	2900	D Q	2700	880	350	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	7500	D Q	5500	880	420	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	11000	D Q	2700	1800	450	ug/Kg	10	☼	8260B	Total/NA
Toluene	110000	D Q	2700	880	430	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	33000	D Q	2700	880	340	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	14000	D Q	2700	880	430	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	26000	D Q	1400	880	380	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	77000	D Q	2700	1800	850	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	130	J1 D M	11	4.2	1.7	ug/Kg	100	☼	8011	Total/NA

Client Sample ID: P-S1-051218-489 — Lab Sample ID: 280-117883-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	3600	Q D	300	280	82	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3300	D	33	17	5.7	mg/Kg	4	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-117883-1	TB-S1-051218-01	Water	12/05/18 18:00	12/07/18 09:10
280-117883-2	V-S1-051218-475	Solid	12/05/18 08:55	12/07/18 09:10
280-117883-3	P-S1-051218-475	Solid	12/05/18 08:55	12/07/18 09:10
280-117883-4	V-S1-051218-480	Solid	12/05/18 10:35	12/07/18 09:10
280-117883-5	P-S1-051218-480	Solid	12/05/18 10:35	12/07/18 09:10
280-117883-6	V-S1-051218-489	Solid	12/05/18 12:25	12/07/18 09:10
280-117883-7	P-S1-051218-489	Solid	12/05/18 12:25	12/07/18 09:10

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S1-051218-01
Date Collected: 12/05/18 18:00
Date Received: 12/07/18 09:10

Lab Sample ID: 280-117883-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H	10	6.4	1.9	ug/L		12/20/18 03:25	1
Benzene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Bromobenzene	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		12/20/18 03:25	1
Bromodichloromethane	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
Bromoform	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 03:25	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		12/20/18 03:25	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		12/20/18 03:25	1
n-Butylbenzene	0.80	U H Q	1.0	0.80	0.32	ug/L		12/20/18 03:25	1
sec-Butylbenzene	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
tert-Butylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		12/20/18 03:25	1
Carbon tetrachloride	0.40	U H Q	2.0	0.40	0.19	ug/L		12/20/18 03:25	1
Chlorobenzene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		12/20/18 03:25	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		12/20/18 03:25	1
4-Chlorotoluene	0.80	U H Q	1.0	0.80	0.21	ug/L		12/20/18 03:25	1
Dibromochloromethane	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
1,2-Dibromo-3-Chloropropane	1.6	U H Q	5.0	1.6	0.47	ug/L		12/20/18 03:25	1
Dichlorodifluoromethane	0.80	U H	2.0	0.80	0.31	ug/L		12/20/18 03:25	1
Dibromomethane	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
Ethylene Dibromide	0.40	U H	1.0	0.40	0.18	ug/L		12/20/18 03:25	1
1,2-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.15	ug/L		12/20/18 03:25	1
1,3-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.13	ug/L		12/20/18 03:25	1
1,4-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		12/20/18 03:25	1
1,2-Dichloroethane	0.40	U H Q	1.0	0.40	0.13	ug/L		12/20/18 03:25	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		12/20/18 03:25	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		12/20/18 03:25	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 03:25	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		12/20/18 03:25	1
1,2-Dichloropropane	0.40	U H Q	1.0	0.40	0.18	ug/L		12/20/18 03:25	1
1,3-Dichloropropane	0.80	U H	1.0	0.80	0.22	ug/L		12/20/18 03:25	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		12/20/18 03:25	1
1,1-Dichloropropene	0.40	U H Q	1.0	0.40	0.19	ug/L		12/20/18 03:25	1
cis-1,3-Dichloropropene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
trans-1,3-Dichloropropene	0.40	U H Q	1.0	0.40	0.19	ug/L		12/20/18 03:25	1
Ethylbenzene	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
2-Hexanone	4.0	U H	5.0	4.0	1.7	ug/L		12/20/18 03:25	1
Hexachlorobutadiene	0.80	U H Q	1.0	0.80	0.36	ug/L		12/20/18 03:25	1
Isopropylbenzene	0.40	U H Q	1.0	0.40	0.19	ug/L		12/20/18 03:25	1
4-Isopropyltoluene	0.40	U H Q	1.0	0.40	0.20	ug/L		12/20/18 03:25	1
Methylene Chloride	0.80	U H	5.0	0.80	0.32	ug/L		12/20/18 03:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U H Q	5.0	3.2	0.98	ug/L		12/20/18 03:25	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		12/20/18 03:25	1
Naphthalene	0.80	U H Q	1.0	0.80	0.22	ug/L		12/20/18 03:25	1
N-Propylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Styrene	0.40	U H	1.0	0.40	0.17	ug/L		12/20/18 03:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S1-051218-01
Date Collected: 12/05/18 18:00
Date Received: 12/07/18 09:10
Lab Sample ID: 280-117883-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H	1.0	0.80	0.21	ug/L		12/20/18 03:25	1
1,1,2,2-Tetrachloroethane	0.80	U H Q	1.0	0.80	0.21	ug/L		12/20/18 03:25	1
Tetrachloroethene	0.40	U H	1.0	0.40	0.20	ug/L		12/20/18 03:25	1
Toluene	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1
1,2,3-Trichlorobenzene	0.80	U H Q	1.0	0.80	0.21	ug/L		12/20/18 03:25	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
1,1,2-Trichloroethane	0.80	U H Q	1.0	0.80	0.27	ug/L		12/20/18 03:25	1
Trichloroethene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		12/20/18 03:25	1
1,2,4-Trichlorobenzene	0.80	U H Q	1.0	0.80	0.21	ug/L		12/20/18 03:25	1
1,2,3-Trichloropropane	0.80	U H Q	3.0	0.80	0.33	ug/L		12/20/18 03:25	1
1,2,4-Trimethylbenzene	0.40	U H Q	1.0	0.40	0.15	ug/L		12/20/18 03:25	1
1,3,5-Trimethylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		12/20/18 03:25	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		12/20/18 03:25	1
o-Xylene	0.40	U H	1.0	0.40	0.19	ug/L		12/20/18 03:25	1
m-Xylene & p-Xylene	0.80	U H	2.0	0.80	0.34	ug/L		12/20/18 03:25	1
2-Chlorotoluene	0.40	U H Q	1.0	0.40	0.17	ug/L		12/20/18 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*89 - 112*		*12/20/18 03:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*125*	*Q*	*81 - 118*		*12/20/18 03:25*	*1*
4-Bromofluorobenzene (Surr)	*120*	*Q*	*85 - 114*		*12/20/18 03:25*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 119*		*12/20/18 03:25*	*1*

Client Sample ID: V-S1-051218-475
Date Collected: 12/05/18 08:55
Date Received: 12/07/18 09:10
Lab Sample ID: 280-117883-2
Matrix: Solid
Percent Solids: 87.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	14000	U	17000	14000	4500	ug/Kg	☼	12/19/18 17:58	10
Benzene	1800	U	2800	1800	500	ug/Kg	☼	12/19/18 17:58	10
Bromobenzene	450	U Q	2800	450	210	ug/Kg	☼	12/19/18 17:58	10
Bromochloromethane	1800	U	2800	1800	530	ug/Kg	☼	12/19/18 17:58	10
Bromodichloromethane	890	U M	2800	890	440	ug/Kg	☼	12/19/18 17:58	10
Bromoform	1800	U Q	2800	1800	1800	ug/Kg	☼	12/19/18 17:58	10
Bromomethane	1800	U Q	5600	1800	490	ug/Kg	☼	12/19/18 17:58	10
2-Butanone (MEK)	7200	U	11000	7200	3300	ug/Kg	☼	12/19/18 17:58	10
n-Butylbenzene	**3000**	**D Q**	2800	890	360	ug/Kg	☼	12/19/18 17:58	10
sec-Butylbenzene	**3700**	**D Q**	2800	890	420	ug/Kg	☼	12/19/18 17:58	10
tert-Butylbenzene	890	U M Q	2800	890	310	ug/Kg	☼	12/19/18 17:58	10
Carbon disulfide	1800	U M	2800	1800	720	ug/Kg	☼	12/19/18 17:58	10
Carbon tetrachloride	450	U	2800	450	190	ug/Kg	☼	12/19/18 17:58	10
Chlorobenzene	890	U Q	2800	890	340	ug/Kg	☼	12/19/18 17:58	10
Chloroethane	1800	U	5600	1800	490	ug/Kg	☼	12/19/18 17:58	10
Chloroform	1800	U	2800	1800	510	ug/Kg	☼	12/19/18 17:58	10
Chloromethane	1800	U Q	5600	1800	560	ug/Kg	☼	12/19/18 17:58	10
4-Chlorotoluene	890	U M Q	2800	890	260	ug/Kg	☼	12/19/18 17:58	10
Dibromochloromethane	890	U Q	2800	890	370	ug/Kg	☼	12/19/18 17:58	10
1,2-Dibromo-3-Chloropropane	3600	U Q	5600	3600	960	ug/Kg	☼	12/19/18 17:58	10
Dichlorodifluoromethane	890	U Q	5600	890	250	ug/Kg	☼	12/19/18 17:58	10
Dibromomethane	890	U	2800	890	340	ug/Kg	☼	12/19/18 17:58	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-475 — **Lab Sample ID: 280-117883-2**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 87.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	890	U Q	2800	890	280	ug/Kg	☼	12/19/18 17:58	10
1,2-Dichlorobenzene	3600	U M Q	5600	3600	1000	ug/Kg	☼	12/19/18 17:58	10
1,3-Dichlorobenzene	1800	U Q	2800	1800	460	ug/Kg	☼	12/19/18 17:58	10
1,4-Dichlorobenzene	890	U M Q	2800	890	280	ug/Kg	☼	12/19/18 17:58	10
1,1-Dichloroethane	1800	U	2800	1800	560	ug/Kg	☼	12/19/18 17:58	10
1,2-Dichloroethane	890	U	2800	890	280	ug/Kg	☼	12/19/18 17:58	10
1,1-Dichloroethene	1800	U	2800	1800	560	ug/Kg	☼	12/19/18 17:58	10
1,2-Dichloroethene, Total	890	U	1400	890	250	ug/Kg	☼	12/19/18 17:58	10
cis-1,2-Dichloroethene	890	U	1400	890	250	ug/Kg	☼	12/19/18 17:58	10
trans-1,2-Dichloroethene	1800	U	2800	1800	500	ug/Kg	☼	12/19/18 17:58	10
1,2-Dichloropropane	1800	U M	2800	1800	520	ug/Kg	☼	12/19/18 17:58	10
1,3-Dichloropropane	890	U Q	2800	890	310	ug/Kg	☼	12/19/18 17:58	10
2,2-Dichloropropane	890	U	2800	890	300	ug/Kg	☼	12/19/18 17:58	10
1,1-Dichloropropene	1800	U	2800	1800	540	ug/Kg	☼	12/19/18 17:58	10
cis-1,3-Dichloropropene	890	U	2800	890	300	ug/Kg	☼	12/19/18 17:58	10
trans-1,3-Dichloropropene	1800	U M	2800	1800	460	ug/Kg	☼	12/19/18 17:58	10
Ethylbenzene	**1200**	**J D Q**	2800	890	380	ug/Kg	☼	12/19/18 17:58	10
2-Hexanone	7200	U M Q	11000	7200	2400	ug/Kg	☼	12/19/18 17:58	10
Hexachlorobutadiene	1800	U Q	2800	1800	550	ug/Kg	☼	12/19/18 17:58	10
Isopropylbenzene	**1500**	**J D Q**	2800	890	320	ug/Kg	☼	12/19/18 17:58	10
4-Isopropyltoluene	**1700**	**J D Q**	2800	890	360	ug/Kg	☼	12/19/18 17:58	10
Methylene Chloride	1800	U	2800	1800	770	ug/Kg	☼	12/19/18 17:58	10
4-Methyl-2-pentanone (MIBK)	7200	U M	11000	7200	2500	ug/Kg	☼	12/19/18 17:58	10
Methyl tert-butyl ether	1800	U	2800	1800	560	ug/Kg	☼	12/19/18 17:58	10
Naphthalene	**4700**	**J D Q**	5600	890	420	ug/Kg	☼	12/19/18 17:58	10
N-Propylbenzene	**1800**	**J D Q**	2800	1800	460	ug/Kg	☼	12/19/18 17:58	10
Styrene	890	U M Q	2800	890	290	ug/Kg	☼	12/19/18 17:58	10
1,1,1,2-Tetrachloroethane	890	U Q	2800	890	230	ug/Kg	☼	12/19/18 17:58	10
1,1,2,2-Tetrachloroethane	890	U M Q	2800	890	320	ug/Kg	☼	12/19/18 17:58	10
Tetrachloroethene	890	U Q	2800	890	300	ug/Kg	☼	12/19/18 17:58	10
Toluene	**2200**	**J D**	2800	890	440	ug/Kg	☼	12/19/18 17:58	10
1,2,3-Trichlorobenzene	890	U Q	2800	890	390	ug/Kg	☼	12/19/18 17:58	10
1,1,1-Trichloroethane	450	U	2800	450	220	ug/Kg	☼	12/19/18 17:58	10
1,1,2-Trichloroethane	890	U M	2800	890	300	ug/Kg	☼	12/19/18 17:58	10
Trichloroethene	890	U	2800	890	260	ug/Kg	☼	12/19/18 17:58	10
Trichlorofluoromethane	1800	U Q	5600	1800	560	ug/Kg	☼	12/19/18 17:58	10
1,2,4-Trichlorobenzene	1800	U Q	2800	1800	520	ug/Kg	☼	12/19/18 17:58	10
1,2,3-Trichloropropane	1800	U M Q	2800	1800	530	ug/Kg	☼	12/19/18 17:58	10
1,2,4-Trimethylbenzene	**14000**	**D Q**	2800	890	350	ug/Kg	☼	12/19/18 17:58	10
1,3,5-Trimethylbenzene	**7300**	**D Q**	2800	890	440	ug/Kg	☼	12/19/18 17:58	10
Vinyl chloride	890	U Q	5600	890	300	ug/Kg	☼	12/19/18 17:58	10
o-Xylene	**10000**	**D Q**	1400	890	390	ug/Kg	☼	12/19/18 17:58	10
m-Xylene & p-Xylene	**17000**	**D Q**	2800	1800	870	ug/Kg	☼	12/19/18 17:58	10
2-Chlorotoluene	890	U Q	2800	890	290	ug/Kg	☼	12/19/18 17:58	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*161*	*D Q*	*85 - 116*	*12/05/18 08:55*	*12/19/18 17:58*	*10*
1,2-Dichloroethane-d4 (Surr)	*101*	*D*	*71 - 136*	*12/05/18 08:55*	*12/19/18 17:58*	*10*
4-Bromofluorobenzene (Surr)	*152*	*D Q*	*79 - 119*	*12/05/18 08:55*	*12/19/18 17:58*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-475
Date Collected: 12/05/18 08:55
Date Received: 12/07/18 09:10

Lab Sample ID: 280-117883-2
Matrix: Solid
Percent Solids: 87.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	93	D	78 - 119	12/05/18 08:55	12/19/18 17:58	10

Client Sample ID: V-S1-051218-480
Date Collected: 12/05/18 10:35
Date Received: 12/07/18 09:10

Lab Sample ID: 280-117883-4
Matrix: Solid
Percent Solids: 89.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	13000	U M	16000	13000	4200	ug/Kg	☼	12/19/18 18:16	10
Benzene	**2200**	**J D**	2600	1700	470	ug/Kg	☼	12/19/18 18:16	10
Bromobenzene	420	U Q	2600	420	200	ug/Kg	☼	12/19/18 18:16	10
Bromochloromethane	1700	U	2600	1700	490	ug/Kg	☼	12/19/18 18:16	10
Bromodichloromethane	830	U M	2600	830	410	ug/Kg	☼	12/19/18 18:16	10
Bromoform	1700	U Q	2600	1700	1700	ug/Kg	☼	12/19/18 18:16	10
Bromomethane	1700	U Q	5200	1700	460	ug/Kg	☼	12/19/18 18:16	10
2-Butanone (MEK)	6700	U	10000	6700	3100	ug/Kg	☼	12/19/18 18:16	10
n-Butylbenzene	**2900**	**D Q**	2600	830	330	ug/Kg	☼	12/19/18 18:16	10
sec-Butylbenzene	**4500**	**D Q**	2600	830	390	ug/Kg	☼	12/19/18 18:16	10
tert-Butylbenzene	830	U Q	2600	830	290	ug/Kg	☼	12/19/18 18:16	10
Carbon disulfide	1700	U M	2600	1700	670	ug/Kg	☼	12/19/18 18:16	10
Carbon tetrachloride	420	U	2600	420	180	ug/Kg	☼	12/19/18 18:16	10
Chlorobenzene	830	U Q	2600	830	310	ug/Kg	☼	12/19/18 18:16	10
Chloroethane	1700	U	5200	1700	460	ug/Kg	☼	12/19/18 18:16	10
Chloroform	1700	U	2600	1700	480	ug/Kg	☼	12/19/18 18:16	10
Chloromethane	1700	U Q	5200	1700	520	ug/Kg	☼	12/19/18 18:16	10
4-Chlorotoluene	830	U M Q	2600	830	240	ug/Kg	☼	12/19/18 18:16	10
Dibromochloromethane	830	U Q	2600	830	340	ug/Kg	☼	12/19/18 18:16	10
1,2-Dibromo-3-Chloropropane	3300	U Q	5200	3300	890	ug/Kg	☼	12/19/18 18:16	10
Dichlorodifluoromethane	830	U Q	5200	830	230	ug/Kg	☼	12/19/18 18:16	10
Dibromomethane	830	U	2600	830	310	ug/Kg	☼	12/19/18 18:16	10
Ethylene Dibromide	830	U M Q	2600	830	260	ug/Kg	☼	12/19/18 18:16	10
1,2-Dichlorobenzene	3300	U Q	5200	3300	970	ug/Kg	☼	12/19/18 18:16	10
1,3-Dichlorobenzene	1700	U Q	2600	1700	420	ug/Kg	☼	12/19/18 18:16	10
1,4-Dichlorobenzene	830	U Q	2600	830	260	ug/Kg	☼	12/19/18 18:16	10
1,1-Dichloroethane	1700	U	2600	1700	520	ug/Kg	☼	12/19/18 18:16	10
1,2-Dichloroethane	830	U	2600	830	260	ug/Kg	☼	12/19/18 18:16	10
1,1-Dichloroethene	1700	U	2600	1700	520	ug/Kg	☼	12/19/18 18:16	10
1,2-Dichloroethene, Total	830	U	1300	830	230	ug/Kg	☼	12/19/18 18:16	10
cis-1,2-Dichloroethene	830	U	1300	830	230	ug/Kg	☼	12/19/18 18:16	10
trans-1,2-Dichloroethene	1700	U	2600	1700	470	ug/Kg	☼	12/19/18 18:16	10
1,2-Dichloropropane	1700	U M	2600	1700	480	ug/Kg	☼	12/19/18 18:16	10
1,3-Dichloropropane	830	U Q	2600	830	290	ug/Kg	☼	12/19/18 18:16	10
2,2-Dichloropropane	830	U	2600	830	280	ug/Kg	☼	12/19/18 18:16	10
1,1-Dichloropropene	1700	U	2600	1700	500	ug/Kg	☼	12/19/18 18:16	10
cis-1,3-Dichloropropene	830	U	2600	830	280	ug/Kg	☼	12/19/18 18:16	10
trans-1,3-Dichloropropene	1700	U M	2600	1700	430	ug/Kg	☼	12/19/18 18:16	10
Ethylbenzene	**6100**	**D Q**	2600	830	350	ug/Kg	☼	12/19/18 18:16	10
2-Hexanone	6700	U M Q	10000	6700	2300	ug/Kg	☼	12/19/18 18:16	10
Hexachlorobutadiene	1700	U Q	2600	1700	510	ug/Kg	☼	12/19/18 18:16	10
Isopropylbenzene	**3400**	**D Q**	2600	830	300	ug/Kg	☼	12/19/18 18:16	10
4-Isopropyltoluene	**1300**	**J D Q**	2600	830	330	ug/Kg	☼	12/19/18 18:16	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-480 — **Lab Sample ID: 280-117883-4**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	1700	U	2600	1700	720	ug/Kg	☼	12/19/18 18:16	10
4-Methyl-2-pentanone (MIBK)	6700	U M	10000	6700	2300	ug/Kg	☼	12/19/18 18:16	10
Methyl tert-butyl ether	1700	U	2600	1700	520	ug/Kg	☼	12/19/18 18:16	10
Naphthalene	**3400**	**J D Q**	5200	830	390	ug/Kg	☼	12/19/18 18:16	10
N-Propylbenzene	**5200**	**D Q**	2600	1700	430	ug/Kg	☼	12/19/18 18:16	10
Styrene	830	U M Q	2600	830	270	ug/Kg	☼	12/19/18 18:16	10
1,1,1,2-Tetrachloroethane	830	U Q	2600	830	220	ug/Kg	☼	12/19/18 18:16	10
1,1,2,2-Tetrachloroethane	830	U M Q	2600	830	300	ug/Kg	☼	12/19/18 18:16	10
Tetrachloroethene	830	U Q	2600	830	280	ug/Kg	☼	12/19/18 18:16	10
Toluene	**18000**	**D**	2600	830	410	ug/Kg	☼	12/19/18 18:16	10
1,2,3-Trichlorobenzene	830	U Q	2600	830	360	ug/Kg	☼	12/19/18 18:16	10
1,1,1-Trichloroethane	420	U	2600	420	210	ug/Kg	☼	12/19/18 18:16	10
1,1,2-Trichloroethane	830	U M	2600	830	280	ug/Kg	☼	12/19/18 18:16	10
Trichloroethene	830	U	2600	830	240	ug/Kg	☼	12/19/18 18:16	10
Trichlorofluoromethane	1700	U Q	5200	1700	520	ug/Kg	☼	12/19/18 18:16	10
1,2,4-Trichlorobenzene	1700	U Q	2600	1700	490	ug/Kg	☼	12/19/18 18:16	10
1,2,3-Trichloropropane	1700	U M Q	2600	1700	490	ug/Kg	☼	12/19/18 18:16	10
1,2,4-Trimethylbenzene	**17000**	**D Q**	2600	830	320	ug/Kg	☼	12/19/18 18:16	10
1,3,5-Trimethylbenzene	**7700**	**D Q**	2600	830	410	ug/Kg	☼	12/19/18 18:16	10
Vinyl chloride	830	U Q	5200	830	280	ug/Kg	☼	12/19/18 18:16	10
o-Xylene	**16000**	**D Q**	1300	830	360	ug/Kg	☼	12/19/18 18:16	10
m-Xylene & p-Xylene	**47000**	**D Q**	2600	1700	810	ug/Kg	☼	12/19/18 18:16	10
2-Chlorotoluene	830	U M Q	2600	830	270	ug/Kg	☼	12/19/18 18:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*254*	*D Q*	*85 - 116*	*12/05/18 10:35*	*12/19/18 18:16*	*10*
1,2-Dichloroethane-d4 (Surr)	*118*	*D*	*71 - 136*	*12/05/18 10:35*	*12/19/18 18:16*	*10*
4-Bromofluorobenzene (Surr)	*189*	*D Q*	*79 - 119*	*12/05/18 10:35*	*12/19/18 18:16*	*10*
Dibromofluoromethane (Surr)	*103*	*D*	*78 - 119*	*12/05/18 10:35*	*12/19/18 18:16*	*10*

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**40000**	**D Q**	16000	14000	4400	ug/Kg	☼	12/19/18 18:35	10
Benzene	**17000**	**D Q**	2700	1800	490	ug/Kg	☼	12/19/18 18:35	10
Bromobenzene	440	U Q	2700	440	210	ug/Kg	☼	12/19/18 18:35	10
Bromochloromethane	1800	U Q	2700	1800	520	ug/Kg	☼	12/19/18 18:35	10
Bromodichloromethane	880	U M Q	2700	880	430	ug/Kg	☼	12/19/18 18:35	10
Bromoform	1800	U Q	2700	1800	1800	ug/Kg	☼	12/19/18 18:35	10
Bromomethane	1800	U Q	5500	1800	480	ug/Kg	☼	12/19/18 18:35	10
2-Butanone (MEK)	7000	U Q	11000	7000	3200	ug/Kg	☼	12/19/18 18:35	10
n-Butylbenzene	**5200**	**D Q**	2700	880	350	ug/Kg	☼	12/19/18 18:35	10
sec-Butylbenzene	**7300**	**D Q**	2700	880	420	ug/Kg	☼	12/19/18 18:35	10
tert-Butylbenzene	880	U Q	2700	880	310	ug/Kg	☼	12/19/18 18:35	10
Carbon disulfide	1800	U M Q	2700	1800	700	ug/Kg	☼	12/19/18 18:35	10
Carbon tetrachloride	440	U Q	2700	440	190	ug/Kg	☼	12/19/18 18:35	10
Chlorobenzene	880	U Q	2700	880	330	ug/Kg	☼	12/19/18 18:35	10
Chloroethane	1800	U Q	5500	1800	480	ug/Kg	☼	12/19/18 18:35	10
Chloroform	1800	U Q	2700	1800	500	ug/Kg	☼	12/19/18 18:35	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Chloromethane	1800	U M Q	5500	1800	550	ug/Kg	☼	12/19/18 18:35	10
4-Chlorotoluene	880	U M Q	2700	880	250	ug/Kg	☼	12/19/18 18:35	10
Dibromochloromethane	880	U Q	2700	880	360	ug/Kg	☼	12/19/18 18:35	10
1,2-Dibromo-3-Chloropropane	3500	U Q	5500	3500	940	ug/Kg	☼	12/19/18 18:35	10
Dichlorodifluoromethane	880	U Q	5500	880	240	ug/Kg	☼	12/19/18 18:35	10
Dibromomethane	880	U Q	2700	880	330	ug/Kg	☼	12/19/18 18:35	10
Ethylene Dibromide	880	U M Q	2700	880	270	ug/Kg	☼	12/19/18 18:35	10
1,2-Dichlorobenzene	3500	U Q	5500	3500	1000	ug/Kg	☼	12/19/18 18:35	10
1,3-Dichlorobenzene	1800	U Q	2700	1800	450	ug/Kg	☼	12/19/18 18:35	10
1,4-Dichlorobenzene	880	U Q	2700	880	270	ug/Kg	☼	12/19/18 18:35	10
1,1-Dichloroethane	1800	U Q	2700	1800	550	ug/Kg	☼	12/19/18 18:35	10
1,2-Dichloroethane	880	U M Q	2700	880	270	ug/Kg	☼	12/19/18 18:35	10
1,1-Dichloroethene	1800	U Q	2700	1800	550	ug/Kg	☼	12/19/18 18:35	10
1,2-Dichloroethene, Total	880	U	1400	880	240	ug/Kg	☼	12/19/18 18:35	10
cis-1,2-Dichloroethene	880	U Q	1400	880	240	ug/Kg	☼	12/19/18 18:35	10
trans-1,2-Dichloroethene	1800	U Q	2700	1800	490	ug/Kg	☼	12/19/18 18:35	10
1,2-Dichloropropane	1800	U M Q	2700	1800	510	ug/Kg	☼	12/19/18 18:35	10
1,3-Dichloropropane	880	U Q	2700	880	310	ug/Kg	☼	12/19/18 18:35	10
2,2-Dichloropropane	880	U Q	2700	880	300	ug/Kg	☼	12/19/18 18:35	10
1,1-Dichloropropene	1800	U Q	2700	1800	530	ug/Kg	☼	12/19/18 18:35	10
cis-1,3-Dichloropropene	880	U Q	2700	880	300	ug/Kg	☼	12/19/18 18:35	10
trans-1,3-Dichloropropene	1800	U M Q	2700	1800	450	ug/Kg	☼	12/19/18 18:35	10
Ethylbenzene	**26000**	**D Q**	2700	880	370	ug/Kg	☼	12/19/18 18:35	10
2-Hexanone	7000	U M Q	11000	7000	2400	ug/Kg	☼	12/19/18 18:35	10
Hexachlorobutadiene	1800	U Q	2700	1800	540	ug/Kg	☼	12/19/18 18:35	10
Isopropylbenzene	**6000**	**D Q**	2700	880	320	ug/Kg	☼	12/19/18 18:35	10
4-Isopropyltoluene	**2900**	**D Q**	2700	880	350	ug/Kg	☼	12/19/18 18:35	10
Methylene Chloride	1800	U Q	2700	1800	760	ug/Kg	☼	12/19/18 18:35	10
4-Methyl-2-pentanone (MIBK)	7000	U M Q	11000	7000	2500	ug/Kg	☼	12/19/18 18:35	10
Methyl tert-butyl ether	1800	U Q	2700	1800	550	ug/Kg	☼	12/19/18 18:35	10
Naphthalene	**7500**	**D Q**	5500	880	420	ug/Kg	☼	12/19/18 18:35	10
N-Propylbenzene	**11000**	**D Q**	2700	1800	450	ug/Kg	☼	12/19/18 18:35	10
Styrene	880	U M Q	2700	880	280	ug/Kg	☼	12/19/18 18:35	10
1,1,1,2-Tetrachloroethane	880	U Q	2700	880	230	ug/Kg	☼	12/19/18 18:35	10
1,1,2,2-Tetrachloroethane	880	U M Q	2700	880	320	ug/Kg	☼	12/19/18 18:35	10
Tetrachloroethene	880	U Q	2700	880	300	ug/Kg	☼	12/19/18 18:35	10
Toluene	**110000**	**D Q**	2700	880	430	ug/Kg	☼	12/19/18 18:35	10
1,2,3-Trichlorobenzene	880	U M Q	2700	880	380	ug/Kg	☼	12/19/18 18:35	10
1,1,1-Trichloroethane	440	U Q	2700	440	220	ug/Kg	☼	12/19/18 18:35	10
1,1,2-Trichloroethane	880	U M Q	2700	880	300	ug/Kg	☼	12/19/18 18:35	10
Trichloroethene	880	U Q	2700	880	250	ug/Kg	☼	12/19/18 18:35	10
Trichlorofluoromethane	1800	U Q	5500	1800	550	ug/Kg	☼	12/19/18 18:35	10
1,2,4-Trichlorobenzene	1800	U Q	2700	1800	510	ug/Kg	☼	12/19/18 18:35	10
1,2,3-Trichloropropane	1800	U M Q	2700	1800	510	ug/Kg	☼	12/19/18 18:35	10
1,2,4-Trimethylbenzene	**33000**	**D Q**	2700	880	340	ug/Kg	☼	12/19/18 18:35	10
1,3,5-Trimethylbenzene	**14000**	**D Q**	2700	880	430	ug/Kg	☼	12/19/18 18:35	10
Vinyl chloride	880	U Q	5500	880	300	ug/Kg	☼	12/19/18 18:35	10
o-Xylene	**26000**	**D Q**	1400	880	380	ug/Kg	☼	12/19/18 18:35	10
m-Xylene & p-Xylene	**77000**	**D Q**	2700	1800	850	ug/Kg	☼	12/19/18 18:35	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	880	U M Q	2700	880	280	ug/Kg	☼	12/19/18 18:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*378*	*D Q*	*85 - 116*	*12/05/18 12:25*	*12/19/18 18:35*	*10*
1,2-Dichloroethane-d4 (Surr)	*131*	*D*	*71 - 136*	*12/05/18 12:25*	*12/19/18 18:35*	*10*
4-Bromofluorobenzene (Surr)	*180*	*D Q*	*79 - 119*	*12/05/18 12:25*	*12/19/18 18:35*	*10*
Dibromofluoromethane (Surr)	*98*	*D*	*78 - 119*	*12/05/18 12:25*	*12/19/18 18:35*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S1-051218-01 — **Lab Sample ID: 280-117883-1**
Date Collected: 12/05/18 18:00 — **Matrix: Water**
Date Received: 12/07/18 09:10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**17**	**J**	25	25	10	ug/L		12/13/18 22:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*82 - 110*		*12/13/18 22:21*	*1*

Client Sample ID: P-S1-051218-475 — **Lab Sample ID: 280-117883-3**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1300**	**Q D**	66	61	18	mg/Kg	☼	12/14/18 20:20	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*2330*	*Q*	*77 - 123*	*12/13/18 14:14*	*12/14/18 20:20*	*50*

Client Sample ID: P-S1-051218-480 — **Lab Sample ID: 280-117883-5**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2700**	**Q D**	260	240	71	mg/Kg	☼	12/14/18 20:44	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*13042*	*Q*	*77 - 123*	*12/13/18 14:14*	*12/14/18 20:44*	*200*

Client Sample ID: P-S1-051218-489 — **Lab Sample ID: 280-117883-7**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**3600**	**Q D**	300	280	82	mg/Kg	☼	12/14/18 21:08	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*14431*	*Q*	*77 - 123*	*12/13/18 14:14*	*12/14/18 21:08*	*200*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S1-051218-01 — **Lab Sample ID: 280-117883-1**
Date Collected: 12/05/18 18:00 — **Matrix: Water**
Date Received: 12/07/18 09:10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/19/18 11:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*96*		*70 - 130*	*12/17/18 15:22*	*12/19/18 11:53*	*1*

Client Sample ID: V-S1-051218-475 — **Lab Sample ID: 280-117883-2**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 87.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**8.6**	**D**	1.1	0.44	0.17	ug/Kg	☼	01/10/19 13:00	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D M*	*55 - 130*	*12/19/18 15:21*	*01/10/19 13:00*	*10*

Client Sample ID: V-S1-051218-480 — **Lab Sample ID: 280-117883-4**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**56**	**D**	5.6	2.1	0.84	ug/Kg	☼	01/10/19 13:19	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D M*	*55 - 130*	*12/19/18 15:21*	*01/10/19 13:19*	*50*

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**130**	**J1 D M**	11	4.2	1.7	ug/Kg	☼	01/10/19 13:38	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/19/18 15:21*	*01/10/19 13:38*	*100*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S1-051218-475 — **Lab Sample ID: 280-117883-3**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**630**		8.0	4.0	1.4	mg/Kg	☼	12/17/18 23:06	1
Motor Oil (C20-C38)	**11**	**J**	24	23	7.8	mg/Kg	☼	12/17/18 23:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*86*		*45 - 130*	*12/13/18 19:41*	*12/17/18 23:06*	*1*
n-Octacosane	*98*		*25 - 162*	*12/13/18 19:41*	*12/17/18 23:06*	*1*

Client Sample ID: P-S1-051218-480 — **Lab Sample ID: 280-117883-5**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**670**		8.2	4.1	1.4	mg/Kg	☼	12/17/18 23:26	1
Motor Oil (C20-C38)	**13**	**J**	25	24	8.0	mg/Kg	☼	12/17/18 23:26	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	90		45 - 130	12/13/18 19:41	12/17/18 23:26	1
n-Octacosane	104		25 - 162	12/13/18 19:41	12/17/18 23:26	1

Client Sample ID: P-S1-051218-489 — **Lab Sample ID: 280-117883-7**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3300	D	33	17	5.7	mg/Kg	☼	12/18/18 15:00	4
Motor Oil (C20-C38)	97	U D	100	97	33	mg/Kg	☼	12/18/18 15:00	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	89	D	45 - 130	12/13/18 19:41	12/18/18 15:00	4
n-Octacosane	104	D	25 - 162	12/13/18 19:41	12/18/18 15:00	4

General Chemistry

Client Sample ID: V-S1-051218-475 — **Lab Sample ID: 280-117883-2**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 87.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.2		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: P-S1-051218-475 — **Lab Sample ID: 280-117883-3**
Date Collected: 12/05/18 08:55 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.4		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: V-S1-051218-480 — **Lab Sample ID: 280-117883-4**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.8		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: P-S1-051218-480 — **Lab Sample ID: 280-117883-5**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.1		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.2		0.1	0.05	0.1	%		12/11/18 16:21	1

Client Sample ID: P-S1-051218-489 — **Lab Sample ID: 280-117883-7**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.9		0.1	0.05	0.1	%		12/11/18 16:21	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-117883-2	V-S1-051218-475	161 D Q	101 D	152 D Q	93 D
280-117883-4	V-S1-051218-480	254 D Q	118 D	189 D Q	103 D
280-117883-6	V-S1-051218-489	378 D Q	131 D	180 D Q	98 D
LCS 280-441584/2-A	Lab Control Sample	105	107	108	108
LCS 280-441584/8-A	Lab Control Sample	87	90	93	90
LCSD 280-441584/3-A	Lab Control Sample Dup	117 Q	111	120 Q	114
LCSD 280-441584/9-A	Lab Control Sample Dup	88	90	89	93
MB 280-441584/1-A	Method Blank	107	107	108	107

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-117883-1	TB-S1-051218-01	107	125 Q	120 Q	108
LCS 280-441961/5	Lab Control Sample	90	99	95	87
MB 280-441961/4	Method Blank	103	104	101	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-117883-3	P-S1-051218-475	2330 Q
280-117883-5	P-S1-051218-480	13042 Q
280-117883-7	P-S1-051218-489	14431 Q
LCS 280-441160/2-A	Lab Control Sample	116
LCSD 280-441160/3-A	Lab Control Sample Dup	105
MB 280-441160/4-A	Method Blank	102

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-117883-1	TB-S1-051218-01	102
LCS 280-441121/3	Lab Control Sample	98
LCSD 280-441121/4	Lab Control Sample Dup	99
MB 280-441121/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-117883-2	V-S1-051218-475	0 D M
280-117883-4	V-S1-051218-480	0 D M
280-117883-6	V-S1-051218-489	0 D
280-117883-6 MS	V-S1-051218-489	0 D
280-117883-6 MSD	V-S1-051218-489	0 D
LCS 280-441914/2-A	Lab Control Sample	116
LCSD 280-441914/3-A	Lab Control Sample Dup	127
MB 280-441914/4-A	Method Blank	129 M

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-117883-1	TB-S1-051218-01	96
LCS 280-441610/2-A	Lab Control Sample	92
LCSD 280-441610/3-A	Lab Control Sample Dup	89
MB 280-441610/4-A	Method Blank	94

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-117883-3	P-S1-051218-475	86	98
280-117883-5	P-S1-051218-480	90	104
280-117883-7	P-S1-051218-489	89 D	104 D
LCS 280-441182/2-A	Lab Control Sample	89	101

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
LCS 280-441182/3-A	Lab Control Sample	96	107								
MB 280-441182/1-A	Method Blank	84	102								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441584/1-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441584

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/19/18 17:02	1
Benzene	160	U	250	160	45	ug/Kg		12/19/18 17:02	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/19/18 17:02	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/19/18 17:02	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/19/18 17:02	1
Bromoform	160	U	250	160	160	ug/Kg		12/19/18 17:02	1
Bromomethane	160	U	500	160	44	ug/Kg		12/19/18 17:02	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/19/18 17:02	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/19/18 17:02	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/19/18 17:02	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/19/18 17:02	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/19/18 17:02	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/19/18 17:02	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/19/18 17:02	1
Chloroethane	160	U	500	160	44	ug/Kg		12/19/18 17:02	1
Chloroform	160	U	250	160	46	ug/Kg		12/19/18 17:02	1
Chloromethane	160	U	500	160	50	ug/Kg		12/19/18 17:02	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/19/18 17:02	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/19/18 17:02	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/19/18 17:02	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/19/18 17:02	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/19/18 17:02	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/19/18 17:02	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/19/18 17:02	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/19/18 17:02	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/19/18 17:02	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/19/18 17:02	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/19/18 17:02	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/19/18 17:02	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/19/18 17:02	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/19/18 17:02	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/19/18 17:02	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/19/18 17:02	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/19/18 17:02	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/19/18 17:02	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/19/18 17:02	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/19/18 17:02	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/19/18 17:02	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/19/18 17:02	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/19/18 17:02	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/19/18 17:02	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/19/18 17:02	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/19/18 17:02	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/19/18 17:02	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/19/18 17:02	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/19/18 17:02	1
Naphthalene	80	U	500	80	38	ug/Kg		12/19/18 17:02	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/19/18 17:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441584/1-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441584

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/19/18 17:02	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/19/18 17:02	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/19/18 17:02	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/19/18 17:02	1
Toluene	80	U	250	80	39	ug/Kg		12/19/18 17:02	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/19/18 17:02	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/19/18 17:02	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/19/18 17:02	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/19/18 17:02	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/19/18 17:02	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/19/18 17:02	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/19/18 17:02	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/19/18 17:02	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/19/18 17:02	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/19/18 17:02	1
o-Xylene	80	U	130	80	35	ug/Kg		12/19/18 17:02	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/19/18 17:02	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/19/18 17:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*107*		*85 - 116*	*12/17/18 13:25*	*12/19/18 17:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*	*12/17/18 13:25*	*12/19/18 17:02*	*1*
4-Bromofluorobenzene (Surr)	*108*		*79 - 119*	*12/17/18 13:25*	*12/19/18 17:02*	*1*
Dibromofluoromethane (Surr)	*107*		*78 - 119*	*12/17/18 13:25*	*12/19/18 17:02*	*1*

Lab Sample ID: LCS 280-441584/2-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	7220		ug/Kg		90	36 - 164
Benzene	2000	1910		ug/Kg		96	77 - 121
Bromobenzene	2000	1990		ug/Kg		99	78 - 121
Bromochloromethane	2000	2000		ug/Kg		100	78 - 125
Bromodichloromethane	2000	2060		ug/Kg		103	75 - 127
Bromoform	2000	1900		ug/Kg		95	67 - 132
2-Butanone (MEK)	8000	7870		ug/Kg		98	51 - 148
n-Butylbenzene	2000	1880		ug/Kg		94	70 - 128
sec-Butylbenzene	2000	1930		ug/Kg		96	73 - 126
tert-Butylbenzene	2000	1970		ug/Kg		99	73 - 125
Carbon disulfide	2000	1720		ug/Kg		86	63 - 132
Carbon tetrachloride	2000	1840		ug/Kg		92	70 - 135
Chlorobenzene	2000	1920		ug/Kg		96	79 - 120
Chloroform	2000	1950		ug/Kg		97	78 - 123
4-Chlorotoluene	2000	1970		ug/Kg		99	72 - 124
Dibromochloromethane	2000	2110		ug/Kg		106	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1940		ug/Kg		97	61 - 132
Dibromomethane	2000	2010		ug/Kg		101	78 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441584/2-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	2000	2060		ug/Kg		103	78 - 122
1,2-Dichlorobenzene	2000	1950		ug/Kg		97	78 - 121
1,3-Dichlorobenzene	2000	1910		ug/Kg		95	77 - 121
1,4-Dichlorobenzene	2000	1910		ug/Kg		95	75 - 120
1,1-Dichloroethane	2000	1900		ug/Kg		95	76 - 125
1,2-Dichloroethane	2000	1960		ug/Kg		98	73 - 128
1,1-Dichloroethene	2000	1800		ug/Kg		90	70 - 131
cis-1,2-Dichloroethene	2000	1930		ug/Kg		97	77 - 123
trans-1,2-Dichloroethene	2000	1920		ug/Kg		96	74 - 125
1,2-Dichloropropane	2000	2040		ug/Kg		102	76 - 123
1,3-Dichloropropane	2000	1970		ug/Kg		99	77 - 121
2,2-Dichloropropane	2000	1860		ug/Kg		93	67 - 133
1,1-Dichloropropene	2000	1890		ug/Kg		94	76 - 125
cis-1,3-Dichloropropene	2000	2120		ug/Kg		106	74 - 126
trans-1,3-Dichloropropene	2000	2090		ug/Kg		105	71 - 130
Ethylbenzene	2000	1890		ug/Kg		94	76 - 122
2-Hexanone	8000	7920		ug/Kg		99	53 - 145
Hexachlorobutadiene	2000	1940		ug/Kg		97	61 - 135
Isopropylbenzene	2000	1960		ug/Kg		98	68 - 134
4-Isopropyltoluene	2000	1970		ug/Kg		98	73 - 127
Methylene Chloride	2000	1780		ug/Kg		89	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	8100		ug/Kg		101	65 - 135
Methyl tert-butyl ether	2000	1970		ug/Kg		98	73 - 125
Naphthalene	2000	1930		ug/Kg		97	62 - 129
N-Propylbenzene	2000	1950		ug/Kg		98	73 - 125
Styrene	2000	2000		ug/Kg		100	76 - 124
1,1,1,2-Tetrachloroethane	2000	2040		ug/Kg		102	78 - 125
1,1,2,2-Tetrachloroethane	2000	2020		ug/Kg		101	70 - 124
Tetrachloroethene	2000	1880		ug/Kg		94	73 - 128
Toluene	2000	1970		ug/Kg		99	77 - 121
1,2,3-Trichlorobenzene	2000	1930		ug/Kg		97	66 - 130
1,1,1-Trichloroethane	2000	1860		ug/Kg		93	73 - 130
1,1,2-Trichloroethane	2000	2090		ug/Kg		105	78 - 121
Trichloroethene	2000	1920		ug/Kg		96	77 - 123
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		96	67 - 129
1,2,3-Trichloropropane	2000	2110		ug/Kg		105	73 - 125
1,2,4-Trimethylbenzene	2000	1940		ug/Kg		97	75 - 123
1,3,5-Trimethylbenzene	2000	1970		ug/Kg		98	73 - 124
o-Xylene	2000	1920		ug/Kg		96	77 - 123
m-Xylene & p-Xylene	2000	1880		ug/Kg		94	77 - 124
2-Chlorotoluene	2000	1960		ug/Kg		98	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*108*		*79 - 119*
Dibromofluoromethane (Surr)	*108*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441584/8-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441584

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	2000	1220		ug/Kg		61	53 - 143
Chloroethane	2000	1330		ug/Kg		67	59 - 139
Chloromethane	2000	1230		ug/Kg		61	50 - 136
Dichlorodifluoromethane	2000	1050		ug/Kg		52	29 - 149
Trichlorofluoromethane	2000	1360		ug/Kg		68	62 - 140
Vinyl chloride	2000	1280		ug/Kg		64	56 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*87*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*90*		*78 - 119*

Lab Sample ID: LCSD 280-441584/3-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441584

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	7620		ug/Kg		95	36 - 164	5	20
Benzene	2000	1970		ug/Kg		99	77 - 121	3	20
Bromobenzene	2000	2120	Q	ug/Kg		106	78 - 121	7	20
Bromochloromethane	2000	2020		ug/Kg		101	78 - 125	1	20
Bromodichloromethane	2000	2120		ug/Kg		106	75 - 127	3	20
Bromoform	2000	2000	Q	ug/Kg		100	67 - 132	5	20
2-Butanone (MEK)	8000	7970		ug/Kg		100	51 - 148	1	20
n-Butylbenzene	2000	2120	Q	ug/Kg		106	70 - 128	12	20
sec-Butylbenzene	2000	2160	Q	ug/Kg		108	73 - 126	12	20
tert-Butylbenzene	2000	2200	Q	ug/Kg		110	73 - 125	11	20
Carbon disulfide	2000	1710		ug/Kg		86	63 - 132	1	20
Carbon tetrachloride	2000	1920		ug/Kg		96	70 - 135	4	20
Chlorobenzene	2000	2080	Q	ug/Kg		104	79 - 120	8	20
Chloroform	2000	1990		ug/Kg		99	78 - 123	2	20
4-Chlorotoluene	2000	2140	Q	ug/Kg		107	72 - 124	8	20
Dibromochloromethane	2000	2230	Q	ug/Kg		112	74 - 126	6	20
1,2-Dibromo-3-Chloropropane	2000	2000	Q	ug/Kg		100	61 - 132	3	20
Dibromomethane	2000	2060		ug/Kg		103	78 - 125	2	20
Ethylene Dibromide	2000	2170	Q	ug/Kg		108	78 - 122	5	20
1,2-Dichlorobenzene	2000	2090	Q	ug/Kg		105	78 - 121	7	20
1,3-Dichlorobenzene	2000	2080	Q	ug/Kg		104	77 - 121	9	20
1,4-Dichlorobenzene	2000	2080	Q	ug/Kg		104	75 - 120	9	20
1,1-Dichloroethane	2000	1940		ug/Kg		97	76 - 125	2	20
1,2-Dichloroethane	2000	1980		ug/Kg		99	73 - 128	1	20
1,1-Dichloroethene	2000	1800		ug/Kg		90	70 - 131	0	20
cis-1,2-Dichloroethene	2000	1970		ug/Kg		99	77 - 123	2	20
trans-1,2-Dichloroethene	2000	1950		ug/Kg		98	74 - 125	2	20
1,2-Dichloropropane	2000	2080		ug/Kg		104	76 - 123	2	20
1,3-Dichloropropane	2000	2100	Q	ug/Kg		105	77 - 121	6	20
2,2-Dichloropropane	2000	1930		ug/Kg		97	67 - 133	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441584/3-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441584

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloropropene			2000	1940		ug/Kg		97	76 - 125	3	20
cis-1,3-Dichloropropene			2000	2310		ug/Kg		116	74 - 126	9	20
trans-1,3-Dichloropropene			2000	2200		ug/Kg		110	71 - 130	5	20
Ethylbenzene			2000	2070	Q	ug/Kg		103	76 - 122	9	20
2-Hexanone			8000	8480	Q	ug/Kg		106	53 - 145	7	20
Hexachlorobutadiene			2000	2200	Q	ug/Kg		110	61 - 135	13	20
Isopropylbenzene			2000	2130	Q	ug/Kg		106	68 - 134	8	20
4-Isopropyltoluene			2000	2190	Q	ug/Kg		109	73 - 127	11	20
Methylene Chloride			2000	1790		ug/Kg		90	70 - 128	1	20
4-Methyl-2-pentanone (MIBK)			8000	8240		ug/Kg		103	65 - 135	2	20
Methyl tert-butyl ether			2000	1990		ug/Kg		99	73 - 125	1	20
Naphthalene			2000	1980	Q	ug/Kg		99	62 - 129	2	20
N-Propylbenzene			2000	2150	Q	ug/Kg		107	73 - 125	9	20
Styrene			2000	2180	Q	ug/Kg		109	76 - 124	9	20
1,1,1,2-Tetrachloroethane			2000	2170	Q	ug/Kg		108	78 - 125	6	20
1,1,2,2-Tetrachloroethane			2000	2060	Q	ug/Kg		103	70 - 124	2	20
Tetrachloroethene			2000	2070	Q	ug/Kg		104	73 - 128	10	20
Toluene			2000	2080		ug/Kg		104	77 - 121	5	20
1,2,3-Trichlorobenzene			2000	2080	Q	ug/Kg		104	66 - 130	7	20
1,1,1-Trichloroethane			2000	1930		ug/Kg		96	73 - 130	3	20
1,1,2-Trichloroethane			2000	2140		ug/Kg		107	78 - 121	2	20
Trichloroethene			2000	2010		ug/Kg		101	77 - 123	5	20
1,2,4-Trichlorobenzene			2000	2080	Q	ug/Kg		104	67 - 129	7	20
1,2,3-Trichloropropane			2000	2160	Q	ug/Kg		108	73 - 125	3	20
1,2,4-Trimethylbenzene			2000	2130	Q	ug/Kg		106	75 - 123	9	20
1,3,5-Trimethylbenzene			2000	2190	Q	ug/Kg		109	73 - 124	11	20
o-Xylene			2000	2100	Q	ug/Kg		105	77 - 123	9	20
m-Xylene & p-Xylene			2000	2060	Q	ug/Kg		103	77 - 124	9	20
2-Chlorotoluene			2000	2130	Q	ug/Kg		107	75 - 122	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*117*	*Q*	*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*111*		*71 - 136*
4-Bromofluorobenzene (Surr)	*120*	*Q*	*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: LCSD 280-441584/9-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441584

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromomethane			2000	1590	Q	ug/Kg		79	53 - 143	26	20
Chloroethane			2000	1410		ug/Kg		71	59 - 139	6	20
Chloromethane			2000	1700	Q	ug/Kg		85	50 - 136	32	20
Dichlorodifluoromethane			2000	1470	Q	ug/Kg		73	29 - 149	33	20
Trichlorofluoromethane			2000	1790	Q	ug/Kg		90	62 - 140	27	20
Vinyl chloride			2000	1720	Q	ug/Kg		86	56 - 135	29	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441584/9-A
Matrix: Solid
Analysis Batch: 441837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441584

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*88*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*
4-Bromofluorobenzene (Surr)	*89*		*79 - 119*
Dibromofluoromethane (Surr)	*93*		*78 - 119*

Lab Sample ID: MB 280-441961/4
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/19/18 23:24	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/19/18 23:24	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/19/18 23:24	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/19/18 23:24	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/19/18 23:24	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/19/18 23:24	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/19/18 23:24	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/19/18 23:24	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/19/18 23:24	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/19/18 23:24	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/19/18 23:24	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/19/18 23:24	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/19/18 23:24	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/19/18 23:24	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/19/18 23:24	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/19/18 23:24	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441961/4
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/19/18 23:24	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/19/18 23:24	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/19/18 23:24	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/19/18 23:24	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/19/18 23:24	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/19/18 23:24	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/19/18 23:24	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/19/18 23:24	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/19/18 23:24	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/19/18 23:24	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/19/18 23:24	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/19/18 23:24	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/19/18 23:24	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/19/18 23:24	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/19/18 23:24	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/19/18 23:24	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/19/18 23:24	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/19/18 23:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*89 - 112*		*12/19/18 23:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*12/19/18 23:24*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/19/18 23:24*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/19/18 23:24*	*1*

Lab Sample ID: LCS 280-441961/5
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.7		ug/L		89	39 - 160
Benzene	5.00	4.59		ug/L		92	79 - 120
Bromobenzene	5.00	4.43		ug/L		89	80 - 120
Bromochloromethane	5.00	4.27		ug/L		85	78 - 123
Bromodichloromethane	5.00	4.89		ug/L		98	79 - 125
Bromoform	5.00	4.22		ug/L		84	66 - 130
Bromomethane	5.00	3.84		ug/L		77	53 - 141
2-Butanone (MEK)	20.0	16.4		ug/L		82	56 - 143

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441961/5
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
n-Butylbenzene	5.00	4.70		ug/L		94	75 - 128
sec-Butylbenzene	5.00	4.69		ug/L		94	77 - 126
tert-Butylbenzene	5.00	5.01		ug/L		100	78 - 124
Carbon disulfide	5.00	4.20		ug/L		84	64 - 133
Carbon tetrachloride	5.00	4.74		ug/L		95	72 - 136
Chlorobenzene	5.00	4.48		ug/L		90	82 - 118
Chloroethane	5.00	4.21		ug/L		84	60 - 138
Chloroform	5.00	4.86		ug/L		97	79 - 124
Chloromethane	5.00	4.51		ug/L		90	50 - 139
4-Chlorotoluene	5.00	4.65		ug/L		93	78 - 122
Dibromochloromethane	5.00	4.63		ug/L		93	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.05	J	ug/L		81	62 - 128
Dichlorodifluoromethane	5.00	4.04		ug/L		81	32 - 152
Dibromomethane	5.00	4.54		ug/L		91	79 - 123
Ethylene Dibromide	5.00	4.62		ug/L		92	77 - 121
1,2-Dichlorobenzene	5.00	4.20		ug/L		84	80 - 119
1,3-Dichlorobenzene	5.00	4.32		ug/L		86	80 - 119
1,4-Dichlorobenzene	5.00	4.27		ug/L		85	79 - 118
1,1-Dichloroethane	5.00	4.77		ug/L		95	77 - 125
1,2-Dichloroethane	5.00	5.20		ug/L		104	73 - 128
1,1-Dichloroethene	5.00	4.25		ug/L		85	71 - 131
cis-1,2-Dichloroethene	5.00	4.41		ug/L		88	78 - 123
trans-1,2-Dichloroethene	5.00	4.45		ug/L		89	75 - 124
1,2-Dichloropropane	5.00	4.91		ug/L		98	78 - 122
1,3-Dichloropropane	5.00	4.88		ug/L		98	80 - 119
2,2-Dichloropropane	5.00	4.73		ug/L		95	60 - 139
1,1-Dichloropropene	5.00	4.95		ug/L		99	79 - 125
cis-1,3-Dichloropropene	5.00	5.30		ug/L		106	75 - 124
trans-1,3-Dichloropropene	5.00	5.03		ug/L		101	73 - 127
Ethylbenzene	5.00	4.29		ug/L		86	79 - 121
2-Hexanone	20.0	18.7		ug/L		94	57 - 139
Hexachlorobutadiene	5.00	4.20		ug/L		84	66 - 134
Isopropylbenzene	5.00	4.96		ug/L		99	72 - 131
4-Isopropyltoluene	5.00	4.73		ug/L		95	77 - 127
Methylene Chloride	5.00	4.31	J	ug/L		86	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	18.3		ug/L		91	67 - 130
Methyl tert-butyl ether	5.00	4.66	J	ug/L		93	71 - 124
Naphthalene	5.00	3.68		ug/L		74	61 - 128
N-Propylbenzene	5.00	4.65		ug/L		93	76 - 126
Styrene	5.00	4.22		ug/L		84	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.54		ug/L		91	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.78		ug/L		96	71 - 121
Tetrachloroethene	5.00	4.26		ug/L		85	74 - 129
Toluene	5.00	4.59		ug/L		92	80 - 121
1,2,3-Trichlorobenzene	5.00	3.95		ug/L		79	69 - 129
1,1,1-Trichloroethane	5.00	4.77		ug/L		95	74 - 131
1,1,2-Trichloroethane	5.00	4.50		ug/L		90	80 - 119
Trichloroethene	5.00	4.62		ug/L		92	79 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441961/5
Matrix: Water
Analysis Batch: 441961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Trichlorofluoromethane	5.00	4.25		ug/L		85	65 - 141
1,2,4-Trichlorobenzene	5.00	3.86		ug/L		77	69 - 130
1,2,3-Trichloropropane	5.00	5.16		ug/L		103	73 - 122
1,2,4-Trimethylbenzene	5.00	4.74		ug/L		95	76 - 124
1,3,5-Trimethylbenzene	5.00	4.85		ug/L		97	75 - 124
Vinyl chloride	5.00	4.58		ug/L		92	58 - 137
o-Xylene	5.00	4.23		ug/L		85	78 - 122
m-Xylene & p-Xylene	5.00	4.35		ug/L		87	80 - 121
2-Chlorotoluene	5.00	4.52		ug/L		90	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*
Dibromofluoromethane (Surr)	*87*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-441121/5
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/13/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*12/13/18 13:29*	*1*

Lab Sample ID: LCS 280-441121/3
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	81.7		ug/L		104	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Lab Sample ID: LCSD 280-441121/4
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	74.9		ug/L		95	78 - 122	9	30

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-441121/4
Matrix: Water
Analysis Batch: 441121

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: MB 280-441160/4-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441160

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/14/18 12:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*12/13/18 14:14*	*12/14/18 12:22*	*1*

Lab Sample ID: LCS 280-441160/2-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.11		mg/Kg		93	79 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	*116*		*77 - 123*

Lab Sample ID: LCSD 280-441160/3-A
Matrix: Solid
Analysis Batch: 441189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441160

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	5.50	6.49		mg/Kg		118	79 - 122	24	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	*105*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-441610/4-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441610

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/17/18 19:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*94*		*70 - 130*	*12/17/18 15:22*	*12/17/18 19:01*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-441610/2-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441610

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.197		ug/L		79	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*92*		*70 - 130*

Lab Sample ID: LCSD 280-441610/3-A
Matrix: Water
Analysis Batch: 441613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441610

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.201		ug/L		80	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*89*		*70 - 130*

Lab Sample ID: MB 280-441914/4-A
Matrix: Solid
Analysis Batch: 443835

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441914

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/10/19 12:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*129*	*M*	*55 - 130*	*12/19/18 15:21*	*01/10/19 12:40*	*1*

Lab Sample ID: LCS 280-441914/2-A
Matrix: Solid
Analysis Batch: 443835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441914

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.805		ug/Kg		92	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*116*		*55 - 130*

Lab Sample ID: LCSD 280-441914/3-A
Matrix: Solid
Analysis Batch: 443835

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441914

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.849		ug/Kg		97	70 - 130	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*127*		*55 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: 280-117883-6 MS
Matrix: Solid
Analysis Batch: 443835

Client Sample ID: V-S1-051218-489
Prep Type: Total/NA
Prep Batch: 441914

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	130	J1 D M	0.982	160	4 D M	ug/Kg	☼	2776	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*0*	*D*	*55 - 130*

Lab Sample ID: 280-117883-6 MSD
Matrix: Solid
Analysis Batch: 443835

Client Sample ID: V-S1-051218-489
Prep Type: Total/NA
Prep Batch: 441914

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	130	J1 D M	0.976	206	J1 4 D M	ug/Kg	☼	7544	70 - 130	25	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*0*	*D*	*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441182/1-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441182

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.27	J	8.0	4.0	1.4	mg/Kg		12/17/18 18:05	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		12/17/18 18:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*45 - 130*	*12/13/18 19:41*	*12/17/18 18:05*	*1*
n-Octacosane	*102*		*25 - 162*	*12/13/18 19:41*	*12/17/18 18:05*	*1*

Lab Sample ID: LCS 280-441182/2-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	132	125		mg/Kg		95	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*45 - 130*
n-Octacosane	*101*		*25 - 162*

Lab Sample ID: LCS 280-441182/3-A
Matrix: Solid
Analysis Batch: 441579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	326	329		mg/Kg		101	39 - 106

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	96		45 - 130
n-Octacosane	107		25 - 162

GC/MS VOA

Prep Batch: 441584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-2	V-S1-051218-475	Total/NA	Solid	5035	
280-117883-4	V-S1-051218-480	Total/NA	Solid	5035	
280-117883-6	V-S1-051218-489	Total/NA	Solid	5035	
MB 280-441584/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441584/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 280-441584/8-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441584/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
LCSD 280-441584/9-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-2	V-S1-051218-475	Total/NA	Solid	8260B	441584
280-117883-4	V-S1-051218-480	Total/NA	Solid	8260B	441584
280-117883-6	V-S1-051218-489	Total/NA	Solid	8260B	441584
MB 280-441584/1-A	Method Blank	Total/NA	Solid	8260B	441584
LCS 280-441584/2-A	Lab Control Sample	Total/NA	Solid	8260B	441584
LCS 280-441584/8-A	Lab Control Sample	Total/NA	Solid	8260B	441584
LCSD 280-441584/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441584
LCSD 280-441584/9-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441584

Analysis Batch: 441961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-1	TB-S1-051218-01	Total/NA	Water	8260B	
MB 280-441961/4	Method Blank	Total/NA	Water	8260B	
LCS 280-441961/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 441121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-1	TB-S1-051218-01	Total/NA	Water	8015D GRO	
MB 280-441121/5	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-441121/3	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-441121/4	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Prep Batch: 441160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-3	P-S1-051218-475	Total/NA	Solid	5035	
280-117883-5	P-S1-051218-480	Total/NA	Solid	5035	
280-117883-7	P-S1-051218-489	Total/NA	Solid	5035	
MB 280-441160/4-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 441189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-3	P-S1-051218-475	Total/NA	Solid	8015D GRO	441160
280-117883-5	P-S1-051218-480	Total/NA	Solid	8015D GRO	441160
280-117883-7	P-S1-051218-489	Total/NA	Solid	8015D GRO	441160
MB 280-441160/4-A	Method Blank	Total/NA	Solid	8015D GRO	441160

GC VOA (Continued)

Analysis Batch: 441189 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-441160/2-A	Lab Control Sample	Total/NA	Solid	8015D GRO	441160
LCSD 280-441160/3-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	441160

GC Semi VOA

Prep Batch: 441182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-3	P-S1-051218-475	Total/NA	Solid	3546	
280-117883-5	P-S1-051218-480	Total/NA	Solid	3546	
280-117883-7	P-S1-051218-489	Total/NA	Solid	3546	
MB 280-441182/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 441579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-3	P-S1-051218-475	Total/NA	Solid	8015D DRO	441182
280-117883-5	P-S1-051218-480	Total/NA	Solid	8015D DRO	441182
MB 280-441182/1-A	Method Blank	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182
LCS 280-441182/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	441182

Prep Batch: 441610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-1	TB-S1-051218-01	Total/NA	Water	8011	
MB 280-441610/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-441610/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-441610/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 441613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-441610/4-A	Method Blank	Total/NA	Water	8011	441610
LCS 280-441610/2-A	Lab Control Sample	Total/NA	Water	8011	441610
LCSD 280-441610/3-A	Lab Control Sample Dup	Total/NA	Water	8011	441610

Analysis Batch: 441736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-7	P-S1-051218-489	Total/NA	Solid	8015D DRO	441182

Analysis Batch: 441831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-1	TB-S1-051218-01	Total/NA	Water	8011	441610

Prep Batch: 441914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-2	V-S1-051218-475	Total/NA	Solid	8011	
280-117883-4	V-S1-051218-480	Total/NA	Solid	8011	
280-117883-6	V-S1-051218-489	Total/NA	Solid	8011	
MB 280-441914/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-441914/2-A	Lab Control Sample	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 441914 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-441914/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-117883-6 MS	V-S1-051218-489	Total/NA	Solid	8011	
280-117883-6 MSD	V-S1-051218-489	Total/NA	Solid	8011	

Analysis Batch: 443835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-2	V-S1-051218-475	Total/NA	Solid	8011	441914
280-117883-4	V-S1-051218-480	Total/NA	Solid	8011	441914
280-117883-6	V-S1-051218-489	Total/NA	Solid	8011	441914
MB 280-441914/4-A	Method Blank	Total/NA	Solid	8011	441914
LCS 280-441914/2-A	Lab Control Sample	Total/NA	Solid	8011	441914
LCSD 280-441914/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	441914
280-117883-6 MS	V-S1-051218-489	Total/NA	Solid	8011	441914
280-117883-6 MSD	V-S1-051218-489	Total/NA	Solid	8011	441914

General Chemistry

Analysis Batch: 440818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-117883-2	V-S1-051218-475	Total/NA	Solid	Moisture	
280-117883-3	P-S1-051218-475	Total/NA	Solid	Moisture	
280-117883-4	V-S1-051218-480	Total/NA	Solid	Moisture	
280-117883-5	P-S1-051218-480	Total/NA	Solid	Moisture	
280-117883-6	V-S1-051218-489	Total/NA	Solid	Moisture	
280-117883-7	P-S1-051218-489	Total/NA	Solid	Moisture	

Client Sample ID: TB-S1-051218-01

Lab Sample ID: 280-117883-1

Date Collected: 12/05/18 18:00

Matrix: Water

Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	441961	12/20/18 03:25	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	441121	12/13/18 22:21	GPM	TAL DEN
Total/NA	Prep	8011			34.7 mL	35 mL	441610	12/17/18 15:22	MJS	TAL DEN
Total/NA	Analysis	8011		1			441831	12/19/18 11:53	JLW	TAL DEN

Client Sample ID: V-S1-051218-475

Lab Sample ID: 280-117883-2

Date Collected: 12/05/18 08:55

Matrix: Solid

Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: V-S1-051218-475

Lab Sample ID: 280-117883-2

Date Collected: 12/05/18 08:55

Matrix: Solid

Date Received: 12/07/18 09:10

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.098 g	1000 mL	441584	12/05/18 08:55	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	441837	12/19/18 17:58	JLS	TAL DEN
Total/NA	Prep	8011			9.95 g	35 mL	441914	12/19/18 15:21	MJS	TAL DEN
Total/NA	Analysis	8011		10			443835	01/10/19 13:00	JLW	TAL DEN

Client Sample ID: P-S1-051218-475

Lab Sample ID: 280-117883-3

Date Collected: 12/05/18 08:55

Matrix: Solid

Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: P-S1-051218-475

Lab Sample ID: 280-117883-3

Date Collected: 12/05/18 08:55

Matrix: Solid

Date Received: 12/07/18 09:10

Percent Solids: 90.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.496 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		50	.1 mL	5 mL	441189	12/14/18 20:20	GPM	TAL DEN
Total/NA	Prep	3546			16.6 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 23:06	AMB1	TAL DEN

Client Sample ID: V-S1-051218-480 — **Lab Sample ID: 280-117883-4**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: V-S1-051218-480 — **Lab Sample ID: 280-117883-4**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.398 g	1000 mL	441584	12/05/18 10:35	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	441837	12/19/18 18:16	JLS	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	441914	12/19/18 15:21	MJS	TAL DEN
Total/NA	Analysis	8011		50			443835	01/10/19 13:19	JLW	TAL DEN

Client Sample ID: P-S1-051218-480 — **Lab Sample ID: 280-117883-5**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: P-S1-051218-480 — **Lab Sample ID: 280-117883-5**
Date Collected: 12/05/18 10:35 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 90.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.539 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		200	.1 mL	5 mL	441189	12/14/18 20:44	GPM	TAL DEN
Total/NA	Prep	3546			16.1 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			441579	12/17/18 23:26	AMB1	TAL DEN

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: V-S1-051218-489 — **Lab Sample ID: 280-117883-6**
Date Collected: 12/05/18 12:25 — **Matrix: Solid**
Date Received: 12/07/18 09:10 — **Percent Solids: 89.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.086 g	1000 mL	441584	12/05/18 12:25	CAS	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Client Sample ID: V-S1-051218-489

Lab Sample ID: 280-117883-6
Date Collected: 12/05/18 12:25
Matrix: Solid
Date Received: 12/07/18 09:10
Percent Solids: 89.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	20 mL	20 mL	441837	12/19/18 18:35	JLS	TAL DEN
Total/NA	Prep	8011			9.98 g	35 mL	441914	12/19/18 15:21	MJS	TAL DEN
Total/NA	Analysis	8011		100			443835	01/10/19 13:38	JLW	TAL DEN

Client Sample ID: P-S1-051218-489

Lab Sample ID: 280-117883-7
Date Collected: 12/05/18 12:25
Matrix: Solid
Date Received: 12/07/18 09:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			440818	12/11/18 16:21	LMD	TAL DEN

Client Sample ID: P-S1-051218-489

Lab Sample ID: 280-117883-7
Date Collected: 12/05/18 12:25
Matrix: Solid
Date Received: 12/07/18 09:10
Percent Solids: 90.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.786 g	5 mL	441160	12/13/18 14:14	SU	TAL DEN
Total/NA	Analysis	8015D GRO		200	.1 mL	5 mL	441189	12/14/18 21:08	GPM	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	441182	12/13/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		4			441736	12/18/18 15:00	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-117883-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC1-51-TA-20181205

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3392 7634
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com	COC No: ~~EOC1-51-TA-20181205~~ JRL
Company: EA Engineering, Science, and Technology			Page: 1 of 1
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO		Job #:
City: Greenwood Village	TAT Requested (days): Per PO		
State, Zip: CO, 80111			
Phone: 303-590-9143(Tel)	PO #: 16065		
Email: pmoss@eaest.com	WO #: 62735DM02.1017		
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071		
Site: Kirtland BFF	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A		
TB-51-051218-01	12/05/18	1800	G	W	N	N						X	X		X	6	
V-51-051218-475	12/05/18	0855	G	S	N	N	X	X	X							5	
P-51-051218-475	12/05/18	0855	G	S	N	N				X	X					3	
V-51-051218-480	12/05/18	1035	G	S	N	N	X	X	X							5	
P-51-051218-480	12/05/18	1035	G	S	N	N				X	X					3	
V-51-051218-489	12/05/18	1225	G	S	N	N	X	X	X							5	
P-51-051218-489	12/05/18	1225	G	S	N	N				X	X					3	

280-117883 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if sa
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Joshua Livingston	Date/Time: 12/05/18 1400 MST	Company: EA	Received by:		Date/Time: 12/7/18 0910	Company: TA DEN	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.4 +1.0 IR #5 transfer by JD

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-117883-1

Login Number: 117883
List Number: 1
Creator: Staack, KiAundra A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	TERRACORES SAMPLED ON 12/05/18 RECIEVED 12/07/18
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118241-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/1/2019 5:33:27 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118241-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118241-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The sample was received on 12/14/2018 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

Receipt Exceptions

No sampling times were given on VOA vials for three of three sodium thiosulfate vials nor for three of three HCL VOA vials for 8015-GRO. Sampling times have been logged per the Chain of Custody.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample RB-V2-111218-01 (280-118241-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/21/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Sample RB-V2-111218-01 (280-118241-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/21/2018 and analyzed on 01/16/2019.

The continuing calibration verification (CCV) associated with batch 280-444011 recovered above the upper control limit for Ethylene Dibromide. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The MB is the only effected item, as all other samples and QC were reanalyzed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample RB-V2-111218-01 (280-118241-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/31/2018.

Reanalysis of the following sample was performed outside of the analytical holding time due to failure of quality control parameters in the initial analysis: RB-V2-111218-01 (280-118241-1). The calibration failed due to contaminated vials in the initial analysis. The re-analysis batch had acceptable QC.

Job ID: 280-118241-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample RB-V2-111218-01 (280-118241-1) was analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 12/18/2018 and analyzed on 12/20/2018.

Per the method comments, the following samples are reported from analysis of extracts that were silica gel cleaned: RB-V2-111218-01 (280-118241-1), (LCS 280-441778/2-A), (LCS 280-441778/4-A), (LCSD 280-441778/3-A), (LCSD 280-441778/5-A) and (MB 280-441778/1-A). This is for preparation batch 280-441778 and analytical batch 280-442025.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-441778. A duplicate LCS (LCSD)was performed.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Client Sample ID: RB-V2-111218-01

Lab Sample ID: 280-118241-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.8	J	10	6.4	1.9	ug/L	1		8260B	Total/NA
Benzene	1.2		1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Ethylbenzene	0.86	J	1.0	0.40	0.16	ug/L	1		8260B	Total/NA
Styrene	0.23	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Toluene	8.7		1.0	0.40	0.17	ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	0.31	J	1.0	0.40	0.15	ug/L	1		8260B	Total/NA
o-Xylene	1.1		1.0	0.40	0.19	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	3.1		2.0	0.80	0.34	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10 - RA	23	J H	25	25	10	ug/L	1		8015D GRO	Total/NA
Ethylene Dibromide	0.15		0.020	0.014	0.0038	ug/L	1		8011	Total/NA
Diesel Range Organics [C10-C28]	0.067	J	0.26	0.13	0.034	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118241-1	RB-V2-111218-01	Water	12/11/18 15:45	12/14/18 09:20

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**3.8**	**J**	10	6.4	1.9	ug/L		12/21/18 13:28	1
Benzene	**1.2**		1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/21/18 13:28	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 13:28	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/21/18 13:28	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/21/18 13:28	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/21/18 13:28	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/21/18 13:28	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/21/18 13:28	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/21/18 13:28	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/21/18 13:28	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 13:28	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/21/18 13:28	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/21/18 13:28	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 13:28	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 13:28	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/21/18 13:28	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 13:28	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/21/18 13:28	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/21/18 13:28	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/21/18 13:28	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 13:28	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 13:28	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 13:28	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 13:28	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 13:28	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 13:28	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 13:28	1
Ethylbenzene	**0.86**	**J**	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/21/18 13:28	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/21/18 13:28	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 13:28	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/21/18 13:28	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/21/18 13:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/21/18 13:28	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/21/18 13:28	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 13:28	1
N-Propylbenzene	0.40	U M	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Styrene	**0.23**	**J**	1.0	0.40	0.17	ug/L		12/21/18 13:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 13:28	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 13:28	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/21/18 13:28	1
Toluene	**8.7**		1.0	0.40	0.17	ug/L		12/21/18 13:28	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 13:28	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/21/18 13:28	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/21/18 13:28	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 13:28	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/21/18 13:28	1
1,2,4-Trimethylbenzene	**0.31**	**J**	1.0	0.40	0.15	ug/L		12/21/18 13:28	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 13:28	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/21/18 13:28	1
o-Xylene	**1.1**		1.0	0.40	0.19	ug/L		12/21/18 13:28	1
m-Xylene & p-Xylene	**3.1**		2.0	0.80	0.34	ug/L		12/21/18 13:28	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/21/18 13:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*81 - 118*		*12/21/18 13:28*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*12/21/18 13:28*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/21/18 13:28*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**23**	**J H**	25	25	10	ug/L		12/31/18 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*82 - 110*		*12/31/18 19:11*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**0.15**		0.020	0.014	0.0038	ug/L		01/16/19 13:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*	*M*	*70 - 130*	*12/21/18 14:08*	*01/16/19 13:24*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.067**	**J**	0.26	0.13	0.034	mg/L		12/20/18 18:20	1
Motor Oil (C20-C38)	0.13	U	0.53	0.13	0.059	mg/L		12/20/18 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*56 - 125*	*12/18/18 19:08*	*12/20/18 18:20*	*1*
n-Octacosane	*101*		*60 - 142*	*12/18/18 19:08*	*12/20/18 18:20*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118241-1	RB-V2-111218-01	95	103	94	98
LCS 280-442155/5	Lab Control Sample	94	108	94	102
MB 280-442155/4	Method Blank	99	110	103	105

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-118241-1 - RA	RB-V2-111218-01	87
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-118241-1	RB-V2-111218-01	103 M
LCS 280-442225/2-A	Lab Control Sample	100
LCSD 280-442225/3-A	Lab Control Sample Dup	101
MB 280-442225/4-A	Method Blank	95

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-118241-1	RB-V2-111218-01	84	101
LCS 280-441778/2-A	Lab Control Sample	91	105
LCS 280-441778/4-A	Lab Control Sample	101	110
LCSD 280-441778/3-A	Lab Control Sample Dup	95	115
LCSD 280-441778/5-A	Lab Control Sample Dup	92	108
MB 280-441778/1-A	Method Blank	90	108

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-442155/4
Matrix: Water
Analysis Batch: 442155

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/21/18 10:08	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/21/18 10:08	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 10:08	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/21/18 10:08	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/21/18 10:08	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/21/18 10:08	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/21/18 10:08	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/21/18 10:08	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/21/18 10:08	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/21/18 10:08	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 10:08	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/21/18 10:08	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/21/18 10:08	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 10:08	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 10:08	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/21/18 10:08	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 10:08	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/21/18 10:08	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/21/18 10:08	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/21/18 10:08	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 10:08	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 10:08	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 10:08	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 10:08	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/21/18 10:08	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 10:08	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 10:08	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/21/18 10:08	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/21/18 10:08	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 10:08	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/21/18 10:08	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/21/18 10:08	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/21/18 10:08	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/21/18 10:08	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/21/18 10:08	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442155/4
Matrix: Water
Analysis Batch: 442155

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 10:08	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 10:08	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/21/18 10:08	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 10:08	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/21/18 10:08	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/21/18 10:08	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/21/18 10:08	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/21/18 10:08	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/21/18 10:08	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/21/18 10:08	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/21/18 10:08	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/21/18 10:08	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/21/18 10:08	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/21/18 10:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*12/21/18 10:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*81 - 118*		*12/21/18 10:08*	*1*
4-Bromofluorobenzene (Surr)	*103*		*85 - 114*		*12/21/18 10:08*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 119*		*12/21/18 10:08*	*1*

Lab Sample ID: LCS 280-442155/5
Matrix: Water
Analysis Batch: 442155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	24.8		ug/L		124	39 - 160
Benzene	5.00	5.14		ug/L		103	79 - 120
Bromobenzene	5.00	5.12		ug/L		102	80 - 120
Bromochloromethane	5.00	5.58		ug/L		112	78 - 123
Bromodichloromethane	5.00	5.42		ug/L		108	79 - 125
Bromoform	5.00	5.00		ug/L		100	66 - 130
Bromomethane	5.00	5.50		ug/L		110	53 - 141
2-Butanone (MEK)	20.0	20.8		ug/L		104	56 - 143
n-Butylbenzene	5.00	4.97		ug/L		99	75 - 128
sec-Butylbenzene	5.00	5.05		ug/L		101	77 - 126
tert-Butylbenzene	5.00	5.01		ug/L		100	78 - 124
Carbon disulfide	5.00	5.31		ug/L		106	64 - 133
Carbon tetrachloride	5.00	5.37		ug/L		107	72 - 136
Chlorobenzene	5.00	4.97		ug/L		99	82 - 118
Chloroethane	5.00	5.35		ug/L		107	60 - 138
Chloroform	5.00	5.49		ug/L		110	79 - 124
Chloromethane	5.00	4.77		ug/L		95	50 - 139
4-Chlorotoluene	5.00	4.93		ug/L		99	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442155/5
Matrix: Water
Analysis Batch: 442155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.31		ug/L		106	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.31		ug/L		106	62 - 128
Dichlorodifluoromethane	5.00	4.87		ug/L		97	32 - 152
Dibromomethane	5.00	5.39		ug/L		108	79 - 123
Ethylene Dibromide	5.00	5.23		ug/L		105	77 - 121
1,2-Dichlorobenzene	5.00	5.18		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	4.91		ug/L		98	80 - 119
1,4-Dichlorobenzene	5.00	4.84		ug/L		97	79 - 118
1,1-Dichloroethane	5.00	5.30		ug/L		106	77 - 125
1,2-Dichloroethane	5.00	5.95		ug/L		119	73 - 128
1,1-Dichloroethene	5.00	5.23		ug/L		105	71 - 131
cis-1,2-Dichloroethene	5.00	5.27		ug/L		105	78 - 123
trans-1,2-Dichloroethene	5.00	5.37		ug/L		107	75 - 124
1,2-Dichloropropane	5.00	5.38		ug/L		108	78 - 122
1,3-Dichloropropane	5.00	5.39		ug/L		108	80 - 119
2,2-Dichloropropane	5.00	5.67		ug/L		113	60 - 139
1,1-Dichloropropene	5.00	5.43		ug/L		109	79 - 125
cis-1,3-Dichloropropene	5.00	5.11		ug/L		102	75 - 124
trans-1,3-Dichloropropene	5.00	5.36		ug/L		107	73 - 127
Ethylbenzene	5.00	4.90		ug/L		98	79 - 121
2-Hexanone	20.0	21.2		ug/L		106	57 - 139
Hexachlorobutadiene	5.00	4.85		ug/L		97	66 - 134
Isopropylbenzene	5.00	4.97		ug/L		99	72 - 131
4-Isopropyltoluene	5.00	5.11		ug/L		102	77 - 127
Methylene Chloride	5.00	5.09		ug/L		102	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	22.0		ug/L		110	67 - 130
Methyl tert-butyl ether	5.00	5.88		ug/L		118	71 - 124
Naphthalene	5.00	4.76		ug/L		95	61 - 128
N-Propylbenzene	5.00	5.02		ug/L		100	76 - 126
Styrene	5.00	4.92		ug/L		98	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.21		ug/L		104	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.27		ug/L		105	71 - 121
Tetrachloroethene	5.00	4.80		ug/L		96	74 - 129
Toluene	5.00	5.35		ug/L		107	80 - 121
1,2,3-Trichlorobenzene	5.00	4.92		ug/L		98	69 - 129
1,1,1-Trichloroethane	5.00	5.43		ug/L		109	74 - 131
1,1,2-Trichloroethane	5.00	5.49		ug/L		110	80 - 119
Trichloroethene	5.00	4.88		ug/L		98	79 - 123
Trichlorofluoromethane	5.00	5.53		ug/L		111	65 - 141
1,2,4-Trichlorobenzene	5.00	4.61		ug/L		92	69 - 130
1,2,3-Trichloropropane	5.00	5.61		ug/L		112	73 - 122
1,2,4-Trimethylbenzene	5.00	4.96		ug/L		99	76 - 124
1,3,5-Trimethylbenzene	5.00	5.06		ug/L		101	75 - 124
Vinyl chloride	5.00	5.25		ug/L		105	58 - 137
o-Xylene	5.00	5.29		ug/L		106	78 - 122
m-Xylene & p-Xylene	5.00	4.94		ug/L		99	80 - 121
2-Chlorotoluene	5.00	5.00		ug/L		100	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442155/5
Matrix: Water
Analysis Batch: 442155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*108*		*81 - 118*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*
Dibromofluoromethane (Surr)	*102*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.3		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442225/4-A
Matrix: Water
Analysis Batch: 444413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442225

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/16/19 13:05	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442225/4-A
Matrix: Water
Analysis Batch: 444413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442225

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	95		70 - 130	12/21/18 14:08	01/16/19 13:05	1

Lab Sample ID: LCS 280-442225/2-A
Matrix: Water
Analysis Batch: 444413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442225

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.206		ug/L		83	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	100		70 - 130

Lab Sample ID: LCSD 280-442225/3-A
Matrix: Water
Analysis Batch: 444413

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442225

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.209		ug/L		84	70 - 130	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	101		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441778/1-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441778

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		12/20/18 16:40	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		12/20/18 16:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	90		56 - 125	12/18/18 19:08	12/20/18 16:40	1
n-Octacosane	108		60 - 142	12/18/18 19:08	12/20/18 16:40	1

Lab Sample ID: LCS 280-441778/2-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			2.00	1.81		mg/L		91	36 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	91		56 - 125
n-Octacosane	105		60 - 142

Lab Sample ID: LCS 280-441778/4-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.31		mg/L		106	41 - 113		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*101*		*56 - 125*
n-Octacosane	*110*		*60 - 142*

Lab Sample ID: LCSD 280-441778/3-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	2.11		mg/L		105	36 - 132	15	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*95*		*56 - 125*
n-Octacosane	*115*		*60 - 142*

Lab Sample ID: LCSD 280-441778/5-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	5.01		mg/L		100	41 - 113	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*92*		*56 - 125*
n-Octacosane	*108*		*60 - 142*

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

GC/MS VOA

Analysis Batch: 442155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1	RB-V2-111218-01	Total/NA	Water	8260B	
MB 280-442155/4	Method Blank	Total/NA	Water	8260B	
LCS 280-442155/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1 - RA	RB-V2-111218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 441778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1	RB-V2-111218-01	Total/NA	Water	3510C	
MB 280-441778/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-441778/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-441778/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-441778/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-441778/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 442025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1	RB-V2-111218-01	Total/NA	Water	8015D DRO	441778
MB 280-441778/1-A	Method Blank	Total/NA	Water	8015D DRO	441778
LCS 280-441778/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	441778
LCS 280-441778/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	441778
LCSD 280-441778/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	441778
LCSD 280-441778/5-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	441778

Prep Batch: 442225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1	RB-V2-111218-01	Total/NA	Water	8011	
MB 280-442225/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-442225/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442225/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 444413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118241-1	RB-V2-111218-01	Total/NA	Water	8011	442225
MB 280-442225/4-A	Method Blank	Total/NA	Water	8011	442225
LCS 280-442225/2-A	Lab Control Sample	Total/NA	Water	8011	442225
LCSD 280-442225/3-A	Lab Control Sample Dup	Total/NA	Water	8011	442225

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Client Sample ID: RB-V2-111218-01
Date Collected: 12/11/18 15:45
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118241-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442155	12/21/18 13:28	DPI	TAL DEN
Total/NA	Analysis	8015D GRO	RA	1	5 mL	5 mL	442898	12/31/18 19:11	SU	TAL DEN
Total/NA	Prep	8011			34.2 mL	35 mL	442225	12/21/18 14:08	MJS	TAL DEN
Total/NA	Analysis	8011		1			444413	01/16/19 13:24	JLW	TAL DEN
Total/NA	Prep	3510C			946.1 mL	1 mL	441778	12/18/18 19:08	AJE	TAL DEN
Total/NA	Analysis	8015D DRO		1			442025	12/20/18 18:20	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118241-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

4433 3393 1008

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: COC1-V2-TA-20181213
Client Contact: Pamela Moss	Phone: (575)930-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
RB-V2-111218-01	12/11/18	1545	G	W	N	N						X	X	X	X	10	



Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	12/13/18 1800	EA		12/14/18 0920	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 10.6 & 10.7 by AP 12/14/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118241-1

Login Number: 118241
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118266-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/5/2019 4:16:29 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
H	Sample was prepped or analyzed beyond the specified holding time
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118266-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118266-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/14/2018 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

Receipt Exceptions

The DI water terracores for sample ID V-V2-121218-080 were collected 12/12 at 1153, and received on 12/14 at 0920, and for sample ID V-V2-121218-103, collected on 12/12 at 1600 and received 12/14 at 0920. Samples were received within the 48 hour holding time, but with less than half the hold time remaining. Due to high receipt volume, the laboratory was unable to freeze the containers within hold, and froze them at 2025 on 12/14/18. The samples have been frozen, and per prior project history, the lab proceeded with analysis.

No sampling times were given on the container label for one of one soil jar for sample ID P-V2-131218-159 and V-V2-131218-159.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-V2-121218-080 (280-118266-2), V-V2-121218-103 (280-118266-4), V-V2-131218-117 (280-118266-6) and V-V2-131218-159 (280-118266-8) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/12/2018 and 12/13/2018 and analyzed on 12/27/2018.

Reanalysis of the following samples was performed outside of the analytical holding time due to the CCVC failing the first analysis . The Internal Standard was high due to matrix in the previous samples: V-V2-121218-080 (280-118266-2) and V-V2-121218-103 (280-118266-4).

The following samples required a dilution due to the nature of the sample matrix: V-V2-121218-080 (280-118266-2), V-V2-121218-103 (280-118266-4), V-V2-131218-117 (280-118266-6) and V-V2-131218-159 (280-118266-8). Because of this dilution, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

Dichlorodifluoromethane, trans-1,3-Dichloropropene and Vinyl chloride exceeded the RPD limit for LCSD 280-441739/3-A. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Job ID: 280-118266-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Sample TB-V2-131218-01 (280-118266-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/27/2018.

Naphthalene was detected in method blank MB 280-442672/19 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-V2-121218-080 (280-118266-2), V-V2-121218-103 (280-118266-4), V-V2-131218-117 (280-118266-6) and V-V2-131218-159 (280-118266-8) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/20/2018 and 12/27/2018 and analyzed on 01/02/2019 and 01/15/2019.

Samples V-V2-121218-080 (280-118266-2)[500X], V-V2-121218-103 (280-118266-4)[500X], V-V2-131218-117 (280-118266-6)[50X] and V-V2-131218-159 (280-118266-8)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples were diluted to bring the concentration of target analytes within the calibration range: V-V2-121218-080 (280-118266-2) and V-V2-121218-103 (280-118266-4). As such, surrogates were diluted beyond the ability to reliably calculate recoveries, and elevated reporting limits (RLs) are provided.

The following sample was diluted due to abundance of target analytes: V-V2-131218-117 (280-118266-6). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The following sample was diluted due to the nature of the sample matrix: V-V2-131218-159 (280-118266-8). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The 1,2-Dibromopropane surrogate recovery for the method blank (MB) and the following samples was outside acceptance limits (high biased) on the confirmation column: (MB 280-441971/4-A). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-V2-131218-01 (280-118266-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 12/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-V2-121218-080 (280-118266-3), P-V2-121218-103 (280-118266-5), P-V2-131218-117 (280-118266-7) and P-V2-131218-159 (280-118266-9) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/12/2018 and 12/13/2018 and analyzed on 12/27/2018, 12/28/2018 and 12/31/2018.

Samples P-V2-131218-117 (280-118266-7)[200X] and P-V2-131218-159 (280-118266-9)[200X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly. Surrogate recoveries were outside control limit due to the required dilutions, and associated results have been flagged "Q".

Reanalysis of samples P-V2-121218-080 (280-118266-3) and P-V2-121218-103 (280-118266-5) was performed outside of the analytical holding time due to the samples' matrix. Additional dilutions had to be made to obtain data within the calibration curve. Surrogate recoveries were outside control limit due to the required dilutions, and associated results have been flagged "Q".

Gasoline Range Organics (GRO)-C6-C10 exceeded the RPD limit for LCSD 280-442492/2-A. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control limits. The following samples are associated: P-V2-121218-080 (280-118266-3) and P-V2-121218-103 (280-118266-5).

Job ID: 280-118266-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-V2-131218-01 (280-118266-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/26/2018 and 12/31/2018.

Re-analysis of the following sample was performed outside of the analytical holding time due to failure of several quality control parameters in the initial analysis: TB-V2-131218-01 (280-118266-1). The calibration failed due to contaminated vials in the initial analysis. The re-analysis batch had acceptable calibration and QC; therefore, as instructed by the client, the re-analysis has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-V2-121218-080 (280-118266-3), P-V2-121218-103 (280-118266-5), P-V2-131218-117 (280-118266-7) and P-V2-131218-159 (280-118266-9) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/20/2018 and analyzed on 01/04/2019.

Samples P-V2-121218-080 (280-118266-3)[5X], P-V2-121218-103 (280-118266-5)[5X], P-V2-131218-117 (280-118266-7)[2X] and P-V2-131218-159 (280-118266-9)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V2-121218-080 (280-118266-3), P-V2-121218-103 (280-118266-5), P-V2-131218-117 (280-118266-7), P-V2-131218-159 (280-118266-9), (LCS 280-442077/2-A), (LCS 280-442077/3-A), (MB 280-442077/1-A), (280-118290-A-3-A), (280-118290-A-3-B MS), (280-118290-A-3-D MS), (280-118290-A-3-C MSD) and (280-118290-A-3-E MSD). This is in preparation batch 280-442077 and analytical batch 280-443317.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442077/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V2-121218-080 (280-118266-2), P-V2-121218-080 (280-118266-3), V-V2-121218-103 (280-118266-4), P-V2-121218-103 (280-118266-5), V-V2-131218-117 (280-118266-6), P-V2-131218-117 (280-118266-7), V-V2-131218-159 (280-118266-8) and P-V2-131218-159 (280-118266-9) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/15/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Client Sample ID: TB-V2-131218-01 — Lab Sample ID: 280-118266-1

No Detections.

Client Sample ID: V-V2-121218-080 — Lab Sample ID: 280-118266-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	160000	H D Q	17000	15000	4700	ug/Kg	10	☼	8260B	Total/NA
Benzene	2900	H D Q	2900	1900	530	ug/Kg	10	☼	8260B	Total/NA
2-Butanone (MEK)	23000	H D Q	12000	7500	3400	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	480	J H D Q	2900	930	290	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	2800	J H D Q	2900	930	400	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	350	J H D Q	2900	930	340	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	650	J H D Q	5800	930	440	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	500	J H D Q	2900	1900	480	ug/Kg	10	☼	8260B	Total/NA
Toluene	23000	H D Q	2900	930	450	ug/Kg	10	☼	8260B	Total/NA
1,1,2-Trichloroethane	3800	H D Q	2900	930	310	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	1700	J H D Q	2900	930	360	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	650	J H D Q	2900	930	450	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	3200	H D Q	1500	930	410	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	7800	H D Q	2900	1900	910	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	500	D	54	21	8.2	ug/Kg	500	☼	8011	Total/NA

Client Sample ID: P-V2-121218-080 — Lab Sample ID: 280-118266-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	21000	H D Q	1600	1400	420	mg/Kg	1000	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	8300	D	43	21	7.3	mg/Kg	5	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	50	J D	130	130	42	mg/Kg	5	☼	8015D DRO	Total/NA

Client Sample ID: V-V2-121218-103 — Lab Sample ID: 280-118266-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	41000	H D Q	29000	24000	7600	ug/Kg	10	☼	8260B	Total/NA
Benzene	7900	H D Q	4800	3100	860	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	21000	H D Q	4800	1500	610	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	25000	H D Q	4800	1500	730	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	1400	J H D Q	4800	1500	480	ug/Kg	10	☼	8260B	Total/NA
trans-1,3-Dichloropropene	8600	H D Q	4800	3100	790	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	71000	H D Q	4800	1500	650	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	17000	H D Q	4800	1500	550	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	13000	H D Q	4800	1500	610	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	40000	H D Q	9600	1500	730	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	29000	H D Q	4800	3100	780	ug/Kg	10	☼	8260B	Total/NA
Toluene	200000	H D Q	4800	1500	750	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	120000	H D Q	4800	1500	590	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	44000	H D Q	4800	1500	750	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	78000	H D Q	2400	1500	670	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	220000	H D Q	4800	3100	1500	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	520	D	51	20	7.7	ug/Kg	500	☼	8011	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Client Sample ID: P-V2-121218-103 — Lab Sample ID: 280-118266-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	7200	H D Q	3100	2800	830	mg/Kg	2000	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	7500	D	37	18	6.3	mg/Kg	5	☼	8015D DRO	Total/NA

Client Sample ID: V-V2-131218-117 — Lab Sample ID: 280-118266-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4200	J D Q	11000	7200	2000	ug/Kg	50	☼	8260B	Total/NA
n-Butylbenzene	12000	D Q	11000	3600	1400	ug/Kg	50	☼	8260B	Total/NA
sec-Butylbenzene	13000	D Q	11000	3600	1700	ug/Kg	50	☼	8260B	Total/NA
Ethylbenzene	35000	D Q	11000	3600	1500	ug/Kg	50	☼	8260B	Total/NA
Isopropylbenzene	8300	J D Q	11000	3600	1300	ug/Kg	50	☼	8260B	Total/NA
4-Isopropyltoluene	7200	J D Q	11000	3600	1400	ug/Kg	50	☼	8260B	Total/NA
Naphthalene	19000	J D Q	22000	3600	1700	ug/Kg	50	☼	8260B	Total/NA
N-Propylbenzene	16000	D Q	11000	7200	1800	ug/Kg	50	☼	8260B	Total/NA
Toluene	110000	D Q	11000	3600	1800	ug/Kg	50	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	62000	D Q	11000	3600	1400	ug/Kg	50	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	21000	D Q	11000	3600	1800	ug/Kg	50	☼	8260B	Total/NA
o-Xylene	37000	D Q	5600	3600	1600	ug/Kg	50	☼	8260B	Total/NA
m-Xylene & p-Xylene	110000	D Q	11000	7200	3500	ug/Kg	50	☼	8260B	Total/NA
Ethylene Dibromide	49	D M Q	5.7	2.2	0.85	ug/Kg	50	☼	8011	Total/NA

Client Sample ID: P-V2-131218-117 — Lab Sample ID: 280-118266-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	7800	D Q	340	310	92	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	2800	D	17	8.7	3.0	mg/Kg	2	☼	8015D DRO	Total/NA

Client Sample ID: V-V2-131218-159 — Lab Sample ID: 280-118266-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	32000	D Q	25000	21000	6700	ug/Kg	10	☼	8260B	Total/NA
Benzene	3400	J D	4200	2700	750	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	22000	D Q	4200	1300	530	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	22000	D Q	4200	1300	630	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	17000	D Q	4200	1300	570	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	6900	D Q	4200	1300	480	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	8200	D Q	4200	1300	530	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	38000	D Q	8300	1300	630	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	15000	D Q	4200	2700	680	ug/Kg	10	☼	8260B	Total/NA
1,1,1,2-Tetrachloroethane	810	J D Q	4200	1300	350	ug/Kg	10	☼	8260B	Total/NA
Toluene	31000	D	4200	1300	650	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	63000	D Q	4200	1300	520	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	21000	D Q	4200	1300	650	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	19000	D Q	2100	1300	580	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	43000	D Q	4200	2700	1300	ug/Kg	10	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Client Sample ID: P-V2-131218-159

Lab Sample ID: 280-118266-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2100	D Q	350	320	95	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	8700	D	39	19	6.6	mg/Kg	5	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	55	J D	120	110	38	mg/Kg	5	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118266-1	TB-V2-131218-01	Water	12/13/18 16:00	12/14/18 09:20
280-118266-2	V-V2-121218-080	Solid	12/12/18 11:53	12/14/18 09:20
280-118266-3	P-V2-121218-080	Solid	12/12/18 11:53	12/14/18 09:20
280-118266-4	V-V2-121218-103	Solid	12/12/18 16:00	12/14/18 09:20
280-118266-5	P-V2-121218-103	Solid	12/12/18 16:00	12/14/18 09:20
280-118266-6	V-V2-131218-117	Solid	12/13/18 08:20	12/14/18 09:20
280-118266-7	P-V2-131218-117	Solid	12/13/18 08:20	12/14/18 09:20
280-118266-8	V-V2-131218-159	Solid	12/13/18 11:40	12/14/18 09:20
280-118266-9	P-V2-131218-159	Solid	12/13/18 11:40	12/14/18 09:20

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V2-131218-01
Date Collected: 12/13/18 16:00
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/27/18 23:54	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/27/18 23:54	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/27/18 23:54	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/27/18 23:54	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/27/18 23:54	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/27/18 23:54	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/27/18 23:54	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/27/18 23:54	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/27/18 23:54	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/27/18 23:54	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/27/18 23:54	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/27/18 23:54	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/27/18 23:54	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/27/18 23:54	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/27/18 23:54	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/27/18 23:54	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/27/18 23:54	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/27/18 23:54	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/27/18 23:54	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/27/18 23:54	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/27/18 23:54	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/27/18 23:54	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/27/18 23:54	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/27/18 23:54	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/27/18 23:54	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/27/18 23:54	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
trans-1,3-Dichloropropene	0.40	U M	1.0	0.40	0.19	ug/L		12/27/18 23:54	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/27/18 23:54	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/27/18 23:54	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/27/18 23:54	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/27/18 23:54	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/27/18 23:54	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/27/18 23:54	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/27/18 23:54	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/27/18 23:54	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V2-131218-01
Date Collected: 12/13/18 16:00
Date Received: 12/14/18 09:20
Lab Sample ID: 280-118266-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/27/18 23:54	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/27/18 23:54	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/27/18 23:54	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/27/18 23:54	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/27/18 23:54	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/27/18 23:54	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/27/18 23:54	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/27/18 23:54	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/27/18 23:54	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/27/18 23:54	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/27/18 23:54	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/27/18 23:54	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/27/18 23:54	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/27/18 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*89 - 112*		*12/27/18 23:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*		*12/27/18 23:54*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/27/18 23:54*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*12/27/18 23:54*	*1*

Client Sample ID: V-V2-121218-080
Date Collected: 12/12/18 11:53
Date Received: 12/14/18 09:20
Lab Sample ID: 280-118266-2
Matrix: Solid
Percent Solids: 91.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**160000**	**H D Q**	17000	15000	4700	ug/Kg	☼	12/27/18 15:08	10
Benzene	**2900**	**H D Q**	2900	1900	530	ug/Kg	☼	12/27/18 15:08	10
Bromobenzene	470	U H Q	2900	470	220	ug/Kg	☼	12/27/18 15:08	10
Bromochloromethane	1900	U H Q	2900	1900	550	ug/Kg	☼	12/27/18 15:08	10
Bromodichloromethane	930	U H M Q	2900	930	460	ug/Kg	☼	12/27/18 15:08	10
Bromoform	1900	U H Q	2900	1900	1900	ug/Kg	☼	12/27/18 15:08	10
Bromomethane	1900	U H Q	5800	1900	510	ug/Kg	☼	12/27/18 15:08	10
2-Butanone (MEK)	**23000**	**H D Q**	12000	7500	3400	ug/Kg	☼	12/27/18 15:08	10
n-Butylbenzene	930	U H Q	2900	930	370	ug/Kg	☼	12/27/18 15:08	10
sec-Butylbenzene	930	U H Q	2900	930	440	ug/Kg	☼	12/27/18 15:08	10
tert-Butylbenzene	930	U H Q	2900	930	330	ug/Kg	☼	12/27/18 15:08	10
Carbon disulfide	1900	U H Q	2900	1900	750	ug/Kg	☼	12/27/18 15:08	10
Carbon tetrachloride	470	U H Q	2900	470	200	ug/Kg	☼	12/27/18 15:08	10
Chlorobenzene	930	U H Q	2900	930	350	ug/Kg	☼	12/27/18 15:08	10
Chloroethane	1900	U H Q	5800	1900	510	ug/Kg	☼	12/27/18 15:08	10
Chloroform	1900	U H Q	2900	1900	540	ug/Kg	☼	12/27/18 15:08	10
Chloromethane	1900	U H M Q	5800	1900	580	ug/Kg	☼	12/27/18 15:08	10
4-Chlorotoluene	930	U H Q	2900	930	270	ug/Kg	☼	12/27/18 15:08	10
Dibromochloromethane	930	U H Q	2900	930	380	ug/Kg	☼	12/27/18 15:08	10
1,2-Dibromo-3-Chloropropane	3700	U H Q	5800	3700	1000	ug/Kg	☼	12/27/18 15:08	10
Dichlorodifluoromethane	930	U H Q	5800	930	260	ug/Kg	☼	12/27/18 15:08	10
Dibromomethane	930	U H Q	2900	930	350	ug/Kg	☼	12/27/18 15:08	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-121218-080 — **Lab Sample ID: 280-118266-2**
Date Collected: 12/12/18 11:53 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 91.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**480**	**J H D Q**	2900	930	290	ug/Kg	☼	12/27/18 15:08	10
1,2-Dichlorobenzene	3700	U H Q	5800	3700	1100	ug/Kg	☼	12/27/18 15:08	10
1,3-Dichlorobenzene	1900	U H Q	2900	1900	470	ug/Kg	☼	12/27/18 15:08	10
1,4-Dichlorobenzene	930	U H Q	2900	930	290	ug/Kg	☼	12/27/18 15:08	10
1,1-Dichloroethane	1900	U H Q	2900	1900	590	ug/Kg	☼	12/27/18 15:08	10
1,2-Dichloroethane	930	U H Q	2900	930	290	ug/Kg	☼	12/27/18 15:08	10
1,1-Dichloroethene	1900	U H Q	2900	1900	590	ug/Kg	☼	12/27/18 15:08	10
1,2-Dichloroethene, Total	930	U H	1500	930	260	ug/Kg	☼	12/27/18 15:08	10
cis-1,2-Dichloroethene	930	U H Q	1500	930	260	ug/Kg	☼	12/27/18 15:08	10
trans-1,2-Dichloroethene	1900	U H Q	2900	1900	520	ug/Kg	☼	12/27/18 15:08	10
1,2-Dichloropropane	1900	U H M Q	2900	1900	540	ug/Kg	☼	12/27/18 15:08	10
1,3-Dichloropropane	930	U H Q	2900	930	330	ug/Kg	☼	12/27/18 15:08	10
2,2-Dichloropropane	930	U H Q	2900	930	310	ug/Kg	☼	12/27/18 15:08	10
1,1-Dichloropropene	1900	U H Q	2900	1900	560	ug/Kg	☼	12/27/18 15:08	10
cis-1,3-Dichloropropene	930	U H Q	2900	930	310	ug/Kg	☼	12/27/18 15:08	10
trans-1,3-Dichloropropene	1900	U H M Q	2900	1900	480	ug/Kg	☼	12/27/18 15:08	10
Ethylbenzene	**2800**	**J H D Q**	2900	930	400	ug/Kg	☼	12/27/18 15:08	10
2-Hexanone	7500	U H M Q	12000	7500	2500	ug/Kg	☼	12/27/18 15:08	10
Hexachlorobutadiene	1900	U H Q	2900	1900	570	ug/Kg	☼	12/27/18 15:08	10
Isopropylbenzene	**350**	**J H D Q**	2900	930	340	ug/Kg	☼	12/27/18 15:08	10
4-Isopropyltoluene	930	U H Q	2900	930	370	ug/Kg	☼	12/27/18 15:08	10
Methylene Chloride	1900	U H Q	2900	1900	800	ug/Kg	☼	12/27/18 15:08	10
4-Methyl-2-pentanone (MIBK)	7500	U H Q	12000	7500	2600	ug/Kg	☼	12/27/18 15:08	10
Methyl tert-butyl ether	1900	U H Q	2900	1900	580	ug/Kg	☼	12/27/18 15:08	10
Naphthalene	**650**	**J H D Q**	5800	930	440	ug/Kg	☼	12/27/18 15:08	10
N-Propylbenzene	**500**	**J H D Q**	2900	1900	480	ug/Kg	☼	12/27/18 15:08	10
Styrene	930	U H Q	2900	930	300	ug/Kg	☼	12/27/18 15:08	10
1,1,1,2-Tetrachloroethane	930	U H Q	2900	930	240	ug/Kg	☼	12/27/18 15:08	10
1,1,2,2-Tetrachloroethane	930	U H M Q	2900	930	340	ug/Kg	☼	12/27/18 15:08	10
Tetrachloroethene	930	U H Q	2900	930	310	ug/Kg	☼	12/27/18 15:08	10
Toluene	**23000**	**H D Q**	2900	930	450	ug/Kg	☼	12/27/18 15:08	10
1,2,3-Trichlorobenzene	930	U H Q	2900	930	410	ug/Kg	☼	12/27/18 15:08	10
1,1,1-Trichloroethane	470	U H Q	2900	470	230	ug/Kg	☼	12/27/18 15:08	10
1,1,2-Trichloroethane	**3800**	**H D Q**	2900	930	310	ug/Kg	☼	12/27/18 15:08	10
Trichloroethene	930	U H Q	2900	930	270	ug/Kg	☼	12/27/18 15:08	10
Trichlorofluoromethane	1900	U H Q	5800	1900	580	ug/Kg	☼	12/27/18 15:08	10
1,2,4-Trichlorobenzene	1900	U H Q	2900	1900	550	ug/Kg	☼	12/27/18 15:08	10
1,2,3-Trichloropropane	1900	U H Q	2900	1900	550	ug/Kg	☼	12/27/18 15:08	10
1,2,4-Trimethylbenzene	**1700**	**J H D Q**	2900	930	360	ug/Kg	☼	12/27/18 15:08	10
1,3,5-Trimethylbenzene	**650**	**J H D Q**	2900	930	450	ug/Kg	☼	12/27/18 15:08	10
Vinyl chloride	930	U H Q	5800	930	310	ug/Kg	☼	12/27/18 15:08	10
o-Xylene	**3200**	**H D Q**	1500	930	410	ug/Kg	☼	12/27/18 15:08	10
m-Xylene & p-Xylene	**7800**	**H D Q**	2900	1900	910	ug/Kg	☼	12/27/18 15:08	10
2-Chlorotoluene	930	U H Q	2900	930	300	ug/Kg	☼	12/27/18 15:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*14*	*Q*	*85 - 116*	*12/12/18 11:53*	*12/27/18 15:08*	*10*
1,2-Dichloroethane-d4 (Surr)	*52*	*Q*	*71 - 136*	*12/12/18 11:53*	*12/27/18 15:08*	*10*
4-Bromofluorobenzene (Surr)	*12*	*Q*	*79 - 119*	*12/12/18 11:53*	*12/27/18 15:08*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-121218-080
Date Collected: 12/12/18 11:53
Date Received: 12/14/18 09:20
Lab Sample ID: 280-118266-2
Matrix: Solid
Percent Solids: 91.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	33	Q	78 - 119	12/12/18 11:53	12/27/18 15:08	10

Client Sample ID: V-V2-121218-103
Date Collected: 12/12/18 16:00
Date Received: 12/14/18 09:20
Lab Sample ID: 280-118266-4
Matrix: Solid
Percent Solids: 96.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**41000**	**H D Q**	29000	24000	7600	ug/Kg	☼	12/27/18 15:27	10
Benzene	**7900**	**H D Q**	4800	3100	860	ug/Kg	☼	12/27/18 15:27	10
Bromobenzene	760	U H Q	4800	760	360	ug/Kg	☼	12/27/18 15:27	10
Bromochloromethane	3100	U H Q	4800	3100	900	ug/Kg	☼	12/27/18 15:27	10
Bromodichloromethane	1500	U H M Q	4800	1500	760	ug/Kg	☼	12/27/18 15:27	10
Bromoform	3100	U H Q	4800	3100	3100	ug/Kg	☼	12/27/18 15:27	10
Bromomethane	3100	U H Q	9600	3100	840	ug/Kg	☼	12/27/18 15:27	10
2-Butanone (MEK)	12000	U H Q	19000	12000	5600	ug/Kg	☼	12/27/18 15:27	10
n-Butylbenzene	**21000**	**H D Q**	4800	1500	610	ug/Kg	☼	12/27/18 15:27	10
sec-Butylbenzene	**25000**	**H D Q**	4800	1500	730	ug/Kg	☼	12/27/18 15:27	10
tert-Butylbenzene	1500	U H M Q	4800	1500	540	ug/Kg	☼	12/27/18 15:27	10
Carbon disulfide	3100	U H M Q	4800	3100	1200	ug/Kg	☼	12/27/18 15:27	10
Carbon tetrachloride	760	U H Q	4800	760	330	ug/Kg	☼	12/27/18 15:27	10
Chlorobenzene	1500	U H Q	4800	1500	570	ug/Kg	☼	12/27/18 15:27	10
Chloroethane	3100	U H Q	9600	3100	840	ug/Kg	☼	12/27/18 15:27	10
Chloroform	3100	U H Q	4800	3100	880	ug/Kg	☼	12/27/18 15:27	10
Chloromethane	3100	U H Q	9600	3100	960	ug/Kg	☼	12/27/18 15:27	10
4-Chlorotoluene	1500	U H M Q	4800	1500	440	ug/Kg	☼	12/27/18 15:27	10
Dibromochloromethane	1500	U H M Q	4800	1500	630	ug/Kg	☼	12/27/18 15:27	10
1,2-Dibromo-3-Chloropropane	6100	U H Q	9600	6100	1600	ug/Kg	☼	12/27/18 15:27	10
Dichlorodifluoromethane	1500	U H Q	9600	1500	420	ug/Kg	☼	12/27/18 15:27	10
Dibromomethane	1500	U H Q	4800	1500	570	ug/Kg	☼	12/27/18 15:27	10
Ethylene Dibromide	**1400**	**J H D Q**	4800	1500	480	ug/Kg	☼	12/27/18 15:27	10
1,2-Dichlorobenzene	6100	U H Q	9600	6100	1800	ug/Kg	☼	12/27/18 15:27	10
1,3-Dichlorobenzene	3100	U H Q	4800	3100	780	ug/Kg	☼	12/27/18 15:27	10
1,4-Dichlorobenzene	1500	U H Q	4800	1500	480	ug/Kg	☼	12/27/18 15:27	10
1,1-Dichloroethane	3100	U H Q	4800	3100	970	ug/Kg	☼	12/27/18 15:27	10
1,2-Dichloroethane	1500	U H M Q	4800	1500	480	ug/Kg	☼	12/27/18 15:27	10
1,1-Dichloroethene	3100	U H Q	4800	3100	970	ug/Kg	☼	12/27/18 15:27	10
1,2-Dichloroethene, Total	1500	U H	2400	1500	420	ug/Kg	☼	12/27/18 15:27	10
cis-1,2-Dichloroethene	1500	U H Q	2400	1500	420	ug/Kg	☼	12/27/18 15:27	10
trans-1,2-Dichloroethene	3100	U H Q	4800	3100	860	ug/Kg	☼	12/27/18 15:27	10
1,2-Dichloropropane	3100	U H M Q	4800	3100	880	ug/Kg	☼	12/27/18 15:27	10
1,3-Dichloropropane	1500	U H Q	4800	1500	540	ug/Kg	☼	12/27/18 15:27	10
2,2-Dichloropropane	1500	U H Q	4800	1500	520	ug/Kg	☼	12/27/18 15:27	10
1,1-Dichloropropene	3100	U H Q	4800	3100	920	ug/Kg	☼	12/27/18 15:27	10
cis-1,3-Dichloropropene	1500	U H Q	4800	1500	520	ug/Kg	☼	12/27/18 15:27	10
trans-1,3-Dichloropropene	**8600**	**H D Q**	4800	3100	790	ug/Kg	☼	12/27/18 15:27	10
Ethylbenzene	**71000**	**H D Q**	4800	1500	650	ug/Kg	☼	12/27/18 15:27	10
2-Hexanone	12000	U H M Q	19000	12000	4100	ug/Kg	☼	12/27/18 15:27	10
Hexachlorobutadiene	3100	U H Q	4800	3100	940	ug/Kg	☼	12/27/18 15:27	10
Isopropylbenzene	**17000**	**H D Q**	4800	1500	550	ug/Kg	☼	12/27/18 15:27	10
4-Isopropyltoluene	**13000**	**H D Q**	4800	1500	610	ug/Kg	☼	12/27/18 15:27	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-121218-103
Date Collected: 12/12/18 16:00
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-4
Matrix: Solid
Percent Solids: 96.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	3100	U H M Q	4800	3100	1300	ug/Kg	☼	12/27/18 15:27	10
4-Methyl-2-pentanone (MIBK)	12000	U H M Q	19000	12000	4300	ug/Kg	☼	12/27/18 15:27	10
Methyl tert-butyl ether	3100	U H Q	4800	3100	960	ug/Kg	☼	12/27/18 15:27	10
Naphthalene	**40000**	**H D Q**	9600	1500	730	ug/Kg	☼	12/27/18 15:27	10
N-Propylbenzene	**29000**	**H D Q**	4800	3100	780	ug/Kg	☼	12/27/18 15:27	10
Styrene	1500	U H M Q	4800	1500	500	ug/Kg	☼	12/27/18 15:27	10
1,1,1,2-Tetrachloroethane	1500	U H Q	4800	1500	400	ug/Kg	☼	12/27/18 15:27	10
1,1,2,2-Tetrachloroethane	1500	U H M Q	4800	1500	550	ug/Kg	☼	12/27/18 15:27	10
Tetrachloroethene	1500	U H Q	4800	1500	520	ug/Kg	☼	12/27/18 15:27	10
Toluene	**200000**	**H D Q**	4800	1500	750	ug/Kg	☼	12/27/18 15:27	10
1,2,3-Trichlorobenzene	1500	U H M Q	4800	1500	670	ug/Kg	☼	12/27/18 15:27	10
1,1,1-Trichloroethane	760	U H Q	4800	760	380	ug/Kg	☼	12/27/18 15:27	10
1,1,2-Trichloroethane	1500	U H M Q	4800	1500	520	ug/Kg	☼	12/27/18 15:27	10
Trichloroethene	1500	U H Q	4800	1500	440	ug/Kg	☼	12/27/18 15:27	10
Trichlorofluoromethane	3100	U H Q	9600	3100	960	ug/Kg	☼	12/27/18 15:27	10
1,2,4-Trichlorobenzene	3100	U H M Q	4800	3100	890	ug/Kg	☼	12/27/18 15:27	10
1,2,3-Trichloropropane	3100	U H M Q	4800	3100	900	ug/Kg	☼	12/27/18 15:27	10
1,2,4-Trimethylbenzene	**120000**	**H D Q**	4800	1500	590	ug/Kg	☼	12/27/18 15:27	10
1,3,5-Trimethylbenzene	**44000**	**H D Q**	4800	1500	750	ug/Kg	☼	12/27/18 15:27	10
Vinyl chloride	1500	U H Q	9600	1500	520	ug/Kg	☼	12/27/18 15:27	10
o-Xylene	**78000**	**H D Q**	2400	1500	670	ug/Kg	☼	12/27/18 15:27	10
m-Xylene & p-Xylene	**220000**	**H D Q**	4800	3100	1500	ug/Kg	☼	12/27/18 15:27	10
2-Chlorotoluene	1500	U H M Q	4800	1500	500	ug/Kg	☼	12/27/18 15:27	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*526*	*Q*	*85 - 116*	*12/12/18 16:00*	*12/27/18 15:27*	*10*
1,2-Dichloroethane-d4 (Surr)	*188*	*Q*	*71 - 136*	*12/12/18 16:00*	*12/27/18 15:27*	*10*
4-Bromofluorobenzene (Surr)	*0*	*Q*	*79 - 119*	*12/12/18 16:00*	*12/27/18 15:27*	*10*
Dibromofluoromethane (Surr)	*151*	*Q*	*78 - 119*	*12/12/18 16:00*	*12/27/18 15:27*	*10*

Client Sample ID: V-V2-131218-117
Date Collected: 12/13/18 08:20
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	58000	U Q	67000	58000	18000	ug/Kg	☼	12/27/18 12:48	50
Benzene	**4200**	**J D Q**	11000	7200	2000	ug/Kg	☼	12/27/18 12:48	50
Bromobenzene	1800	U Q	11000	1800	850	ug/Kg	☼	12/27/18 12:48	50
Bromochloromethane	7200	U Q	11000	7200	2100	ug/Kg	☼	12/27/18 12:48	50
Bromodichloromethane	3600	U M Q	11000	3600	1800	ug/Kg	☼	12/27/18 12:48	50
Bromoform	7200	U Q	11000	7200	7200	ug/Kg	☼	12/27/18 12:48	50
Bromomethane	7200	U Q	22000	7200	2000	ug/Kg	☼	12/27/18 12:48	50
2-Butanone (MEK)	29000	U Q	45000	29000	13000	ug/Kg	☼	12/27/18 12:48	50
n-Butylbenzene	**12000**	**D Q**	11000	3600	1400	ug/Kg	☼	12/27/18 12:48	50
sec-Butylbenzene	**13000**	**D Q**	11000	3600	1700	ug/Kg	☼	12/27/18 12:48	50
tert-Butylbenzene	3600	U Q	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
Carbon disulfide	7200	U M Q	11000	7200	2900	ug/Kg	☼	12/27/18 12:48	50
Carbon tetrachloride	1800	U Q	11000	1800	760	ug/Kg	☼	12/27/18 12:48	50
Chlorobenzene	3600	U Q	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
Chloroethane	7200	U Q	22000	7200	2000	ug/Kg	☼	12/27/18 12:48	50
Chloroform	7200	U Q	11000	7200	2100	ug/Kg	☼	12/27/18 12:48	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-131218-117 — **Lab Sample ID: 280-118266-6**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Chloromethane	7200	U Q	22000	7200	2200	ug/Kg	☼	12/27/18 12:48	50
4-Chlorotoluene	3600	U M Q	11000	3600	1000	ug/Kg	☼	12/27/18 12:48	50
Dibromochloromethane	3600	U Q	11000	3600	1500	ug/Kg	☼	12/27/18 12:48	50
1,2-Dibromo-3-Chloropropane	14000	U Q	22000	14000	3900	ug/Kg	☼	12/27/18 12:48	50
Dichlorodifluoromethane	3600	U Q	22000	3600	990	ug/Kg	☼	12/27/18 12:48	50
Dibromomethane	3600	U Q	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
Ethylene Dibromide	3600	U Q	11000	3600	1100	ug/Kg	☼	12/27/18 12:48	50
1,2-Dichlorobenzene	14000	U Q	22000	14000	4200	ug/Kg	☼	12/27/18 12:48	50
1,3-Dichlorobenzene	7200	U Q	11000	7200	1800	ug/Kg	☼	12/27/18 12:48	50
1,4-Dichlorobenzene	3600	U Q	11000	3600	1100	ug/Kg	☼	12/27/18 12:48	50
1,1-Dichloroethane	7200	U Q	11000	7200	2300	ug/Kg	☼	12/27/18 12:48	50
1,2-Dichloroethane	3600	U Q	11000	3600	1100	ug/Kg	☼	12/27/18 12:48	50
1,1-Dichloroethene	7200	U Q	11000	7200	2300	ug/Kg	☼	12/27/18 12:48	50
1,2-Dichloroethene, Total	3600	U	5600	3600	990	ug/Kg	☼	12/27/18 12:48	50
cis-1,2-Dichloroethene	3600	U Q	5600	3600	990	ug/Kg	☼	12/27/18 12:48	50
trans-1,2-Dichloroethene	7200	U Q	11000	7200	2000	ug/Kg	☼	12/27/18 12:48	50
1,2-Dichloropropane	7200	U M Q	11000	7200	2100	ug/Kg	☼	12/27/18 12:48	50
1,3-Dichloropropane	3600	U Q	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
2,2-Dichloropropane	3600	U Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
1,1-Dichloropropene	7200	U Q	11000	7200	2200	ug/Kg	☼	12/27/18 12:48	50
cis-1,3-Dichloropropene	3600	U Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
trans-1,3-Dichloropropene	7200	U M Q	11000	7200	1900	ug/Kg	☼	12/27/18 12:48	50
Ethylbenzene	**35000**	**D Q**	11000	3600	1500	ug/Kg	☼	12/27/18 12:48	50
2-Hexanone	29000	U M Q	45000	29000	9800	ug/Kg	☼	12/27/18 12:48	50
Hexachlorobutadiene	7200	U Q	11000	7200	2200	ug/Kg	☼	12/27/18 12:48	50
Isopropylbenzene	**8300**	**J D Q**	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
4-Isopropyltoluene	**7200**	**J D Q**	11000	3600	1400	ug/Kg	☼	12/27/18 12:48	50
Methylene Chloride	7200	U M Q	11000	7200	3100	ug/Kg	☼	12/27/18 12:48	50
4-Methyl-2-pentanone (MIBK)	29000	U M Q	45000	29000	10000	ug/Kg	☼	12/27/18 12:48	50
Methyl tert-butyl ether	7200	U Q	11000	7200	2200	ug/Kg	☼	12/27/18 12:48	50
Naphthalene	**19000**	**J D Q**	22000	3600	1700	ug/Kg	☼	12/27/18 12:48	50
N-Propylbenzene	**16000**	**D Q**	11000	7200	1800	ug/Kg	☼	12/27/18 12:48	50
Styrene	3600	U M Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
1,1,1,2-Tetrachloroethane	3600	U Q	11000	3600	940	ug/Kg	☼	12/27/18 12:48	50
1,1,2,2-Tetrachloroethane	3600	U M Q	11000	3600	1300	ug/Kg	☼	12/27/18 12:48	50
Tetrachloroethene	3600	U Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
Toluene	**110000**	**D Q**	11000	3600	1800	ug/Kg	☼	12/27/18 12:48	50
1,2,3-Trichlorobenzene	3600	U Q	11000	3600	1600	ug/Kg	☼	12/27/18 12:48	50
1,1,1-Trichloroethane	1800	U Q	11000	1800	900	ug/Kg	☼	12/27/18 12:48	50
1,1,2-Trichloroethane	3600	U M Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
Trichloroethene	3600	U Q	11000	3600	1000	ug/Kg	☼	12/27/18 12:48	50
Trichlorofluoromethane	7200	U Q	22000	7200	2200	ug/Kg	☼	12/27/18 12:48	50
1,2,4-Trichlorobenzene	7200	U Q	11000	7200	2100	ug/Kg	☼	12/27/18 12:48	50
1,2,3-Trichloropropane	7200	U M Q	11000	7200	2100	ug/Kg	☼	12/27/18 12:48	50
1,2,4-Trimethylbenzene	**62000**	**D Q**	11000	3600	1400	ug/Kg	☼	12/27/18 12:48	50
1,3,5-Trimethylbenzene	**21000**	**D Q**	11000	3600	1800	ug/Kg	☼	12/27/18 12:48	50
Vinyl chloride	3600	U Q	22000	3600	1200	ug/Kg	☼	12/27/18 12:48	50
o-Xylene	**37000**	**D Q**	5600	3600	1600	ug/Kg	☼	12/27/18 12:48	50
m-Xylene & p-Xylene	**110000**	**D Q**	11000	7200	3500	ug/Kg	☼	12/27/18 12:48	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-131218-117
Date Collected: 12/13/18 08:20
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-6
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	3600	U Q	11000	3600	1200	ug/Kg	☼	12/27/18 12:48	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*551*	*D Q*	*85 - 116*	*12/13/18 08:20*	*12/27/18 12:48*	*50*
1,2-Dichloroethane-d4 (Surr)	*0*	*D Q*	*71 - 136*	*12/13/18 08:20*	*12/27/18 12:48*	*50*
4-Bromofluorobenzene (Surr)	*298*	*D Q*	*79 - 119*	*12/13/18 08:20*	*12/27/18 12:48*	*50*
Dibromofluoromethane (Surr)	*178*	*D Q*	*78 - 119*	*12/13/18 08:20*	*12/27/18 12:48*	*50*

Client Sample ID: V-V2-131218-159
Date Collected: 12/13/18 11:40
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-8
Matrix: Solid
Percent Solids: 96.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**32000**	**D Q**	25000	21000	6700	ug/Kg	☼	12/27/18 15:46	10
Benzene	**3400**	**J D**	4200	2700	750	ug/Kg	☼	12/27/18 15:46	10
Bromobenzene	670	U Q	4200	670	320	ug/Kg	☼	12/27/18 15:46	10
Bromochloromethane	2700	U Q	4200	2700	780	ug/Kg	☼	12/27/18 15:46	10
Bromodichloromethane	1300	U M	4200	1300	660	ug/Kg	☼	12/27/18 15:46	10
Bromoform	2700	U Q	4200	2700	2700	ug/Kg	☼	12/27/18 15:46	10
Bromomethane	2700	U Q	8300	2700	730	ug/Kg	☼	12/27/18 15:46	10
2-Butanone (MEK)	11000	U M Q	17000	11000	4900	ug/Kg	☼	12/27/18 15:46	10
n-Butylbenzene	**22000**	**D Q**	4200	1300	530	ug/Kg	☼	12/27/18 15:46	10
sec-Butylbenzene	**22000**	**D Q**	4200	1300	630	ug/Kg	☼	12/27/18 15:46	10
tert-Butylbenzene	1300	U M Q	4200	1300	470	ug/Kg	☼	12/27/18 15:46	10
Carbon disulfide	2700	U Q	4200	2700	1100	ug/Kg	☼	12/27/18 15:46	10
Carbon tetrachloride	670	U	4200	670	280	ug/Kg	☼	12/27/18 15:46	10
Chlorobenzene	1300	U Q	4200	1300	500	ug/Kg	☼	12/27/18 15:46	10
Chloroethane	2700	U Q	8300	2700	730	ug/Kg	☼	12/27/18 15:46	10
Chloroform	2700	U Q	4200	2700	770	ug/Kg	☼	12/27/18 15:46	10
Chloromethane	2700	U Q	8300	2700	830	ug/Kg	☼	12/27/18 15:46	10
4-Chlorotoluene	1300	U M Q	4200	1300	380	ug/Kg	☼	12/27/18 15:46	10
Dibromochloromethane	1300	U Q	4200	1300	550	ug/Kg	☼	12/27/18 15:46	10
1,2-Dibromo-3-Chloropropane	5300	U Q	8300	5300	1400	ug/Kg	☼	12/27/18 15:46	10
Dichlorodifluoromethane	1300	U Q	8300	1300	370	ug/Kg	☼	12/27/18 15:46	10
Dibromomethane	1300	U	4200	1300	500	ug/Kg	☼	12/27/18 15:46	10
Ethylene Dibromide	1300	U M Q	4200	1300	420	ug/Kg	☼	12/27/18 15:46	10
1,2-Dichlorobenzene	5300	U Q	8300	5300	1600	ug/Kg	☼	12/27/18 15:46	10
1,3-Dichlorobenzene	2700	U Q	4200	2700	680	ug/Kg	☼	12/27/18 15:46	10
1,4-Dichlorobenzene	1300	U Q	4200	1300	420	ug/Kg	☼	12/27/18 15:46	10
1,1-Dichloroethane	2700	U Q	4200	2700	840	ug/Kg	☼	12/27/18 15:46	10
1,2-Dichloroethane	1300	U	4200	1300	420	ug/Kg	☼	12/27/18 15:46	10
1,1-Dichloroethene	2700	U Q	4200	2700	840	ug/Kg	☼	12/27/18 15:46	10
1,2-Dichloroethene, Total	1300	U	2100	1300	370	ug/Kg	☼	12/27/18 15:46	10
cis-1,2-Dichloroethene	1300	U Q	2100	1300	370	ug/Kg	☼	12/27/18 15:46	10
trans-1,2-Dichloroethene	2700	U Q	4200	2700	750	ug/Kg	☼	12/27/18 15:46	10
1,2-Dichloropropane	2700	U M	4200	2700	770	ug/Kg	☼	12/27/18 15:46	10
1,3-Dichloropropane	1300	U Q	4200	1300	470	ug/Kg	☼	12/27/18 15:46	10
2,2-Dichloropropane	1300	U Q	4200	1300	450	ug/Kg	☼	12/27/18 15:46	10
1,1-Dichloropropene	2700	U	4200	2700	800	ug/Kg	☼	12/27/18 15:46	10
cis-1,3-Dichloropropene	1300	U M	4200	1300	450	ug/Kg	☼	12/27/18 15:46	10
trans-1,3-Dichloropropene	2700	U M Q	4200	2700	690	ug/Kg	☼	12/27/18 15:46	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-131218-159 — **Lab Sample ID: 280-118266-8**
Date Collected: 12/13/18 11:40 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylbenzene	**17000**	**D Q**	4200	1300	570	ug/Kg	☼	12/27/18 15:46	10
2-Hexanone	11000	U M Q	17000	11000	3600	ug/Kg	☼	12/27/18 15:46	10
Hexachlorobutadiene	2700	U Q	4200	2700	820	ug/Kg	☼	12/27/18 15:46	10
Isopropylbenzene	**6900**	**D Q**	4200	1300	480	ug/Kg	☼	12/27/18 15:46	10
4-Isopropyltoluene	**8200**	**D Q**	4200	1300	530	ug/Kg	☼	12/27/18 15:46	10
Methylene Chloride	2700	U Q	4200	2700	1100	ug/Kg	☼	12/27/18 15:46	10
4-Methyl-2-pentanone (MIBK)	11000	U M	17000	11000	3700	ug/Kg	☼	12/27/18 15:46	10
Methyl tert-butyl ether	2700	U Q	4200	2700	830	ug/Kg	☼	12/27/18 15:46	10
Naphthalene	**38000**	**D Q**	8300	1300	630	ug/Kg	☼	12/27/18 15:46	10
N-Propylbenzene	**15000**	**D Q**	4200	2700	680	ug/Kg	☼	12/27/18 15:46	10
Styrene	1300	U M Q	4200	1300	430	ug/Kg	☼	12/27/18 15:46	10
1,1,1,2-Tetrachloroethane	**810**	**J D Q**	4200	1300	350	ug/Kg	☼	12/27/18 15:46	10
1,1,2,2-Tetrachloroethane	1300	U M Q	4200	1300	480	ug/Kg	☼	12/27/18 15:46	10
Tetrachloroethene	1300	U Q	4200	1300	450	ug/Kg	☼	12/27/18 15:46	10
Toluene	**31000**	**D**	4200	1300	650	ug/Kg	☼	12/27/18 15:46	10
1,2,3-Trichlorobenzene	1300	U M Q	4200	1300	580	ug/Kg	☼	12/27/18 15:46	10
1,1,1-Trichloroethane	670	U Q	4200	670	330	ug/Kg	☼	12/27/18 15:46	10
1,1,2-Trichloroethane	1300	U M	4200	1300	450	ug/Kg	☼	12/27/18 15:46	10
Trichloroethene	1300	U M	4200	1300	380	ug/Kg	☼	12/27/18 15:46	10
Trichlorofluoromethane	2700	U Q	8300	2700	830	ug/Kg	☼	12/27/18 15:46	10
1,2,4-Trichlorobenzene	2700	U M Q	4200	2700	780	ug/Kg	☼	12/27/18 15:46	10
1,2,3-Trichloropropane	2700	U M Q	4200	2700	780	ug/Kg	☼	12/27/18 15:46	10
1,2,4-Trimethylbenzene	**63000**	**D Q**	4200	1300	520	ug/Kg	☼	12/27/18 15:46	10
1,3,5-Trimethylbenzene	**21000**	**D Q**	4200	1300	650	ug/Kg	☼	12/27/18 15:46	10
Vinyl chloride	1300	U Q	8300	1300	450	ug/Kg	☼	12/27/18 15:46	10
o-Xylene	**19000**	**D Q**	2100	1300	580	ug/Kg	☼	12/27/18 15:46	10
m-Xylene & p-Xylene	**43000**	**D Q**	4200	2700	1300	ug/Kg	☼	12/27/18 15:46	10
2-Chlorotoluene	1300	U M Q	4200	1300	430	ug/Kg	☼	12/27/18 15:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*169*	*D Q*	*85 - 116*	*12/13/18 11:40*	*12/27/18 15:46*	*10*
1,2-Dichloroethane-d4 (Surr)	*132*	*D*	*71 - 136*	*12/13/18 11:40*	*12/27/18 15:46*	*10*
4-Bromofluorobenzene (Surr)	*172*	*D Q*	*79 - 119*	*12/13/18 11:40*	*12/27/18 15:46*	*10*
Dibromofluoromethane (Surr)	*126*	*D Q*	*78 - 119*	*12/13/18 11:40*	*12/27/18 15:46*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-V2-131218-01 — **Lab Sample ID: 280-118266-1**
Date Collected: 12/13/18 16:00 — **Matrix: Water**
Date Received: 12/14/18 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U H	25	25	10	ug/L		12/31/18 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*82 - 110*		*12/31/18 20:00*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-V2-121218-080
Date Collected: 12/12/18 11:53
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-3
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	21000	H D Q	1600	1400	420	mg/Kg	☼	12/31/18 21:59	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*57735*	*Q*	*77 - 123*	*12/12/18 11:53*	*12/31/18 21:59*	*1000*

Client Sample ID: P-V2-121218-103
Date Collected: 12/12/18 16:00
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-5
Matrix: Solid
Percent Solids: 97.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	7200	H D Q	3100	2800	830	mg/Kg	☼	12/28/18 22:15	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*18481*	*Q*	*77 - 123*	*12/12/18 16:00*	*12/28/18 22:15*	*2000*

Client Sample ID: P-V2-131218-117
Date Collected: 12/13/18 08:20
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-7
Matrix: Solid
Percent Solids: 88.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	7800	D Q	340	310	92	mg/Kg	☼	12/27/18 17:55	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*19081*	*Q*	*77 - 123*	*12/13/18 08:20*	*12/27/18 17:55*	*200*

Client Sample ID: P-V2-131218-159
Date Collected: 12/13/18 11:40
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-9
Matrix: Solid
Percent Solids: 91.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	2100	D Q	350	320	95	mg/Kg	☼	12/27/18 18:19	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*1079*	*Q*	*77 - 123*	*12/13/18 11:40*	*12/27/18 18:19*	*200*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-V2-131218-01
Date Collected: 12/13/18 16:00
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		12/27/18 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*70 - 130*	*12/27/18 11:44*	*12/27/18 21:48*	*1*

Client Sample ID: V-V2-121218-080
Date Collected: 12/12/18 11:53
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-2
Matrix: Solid
Percent Solids: 91.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	500	D	54	21	8.2	ug/Kg	☼	01/02/19 22:26	500

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/20/18 06:52*	*01/02/19 22:26*	*500*

Client Sample ID: V-V2-121218-103 — **Lab Sample ID: 280-118266-4**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**520**	**D**	51	20	7.7	ug/Kg	☼	01/02/19 23:05	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/20/18 06:52*	*01/02/19 23:05*	*500*

Client Sample ID: V-V2-131218-117 — **Lab Sample ID: 280-118266-6**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**49**	**D M Q**	5.7	2.2	0.85	ug/Kg	☼	01/15/19 17:52	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*0*	*D M*	*55 - 130*	*12/27/18 14:22*	*01/15/19 17:52*	*50*

Client Sample ID: V-V2-131218-159 — **Lab Sample ID: 280-118266-8**
Date Collected: 12/13/18 11:40 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.79	U M Q	2.1	0.79	0.31	ug/Kg	☼	01/15/19 18:11	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*0*	*D M*	*55 - 130*	*12/27/18 14:22*	*01/15/19 18:11*	*20*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V2-121218-080 — **Lab Sample ID: 280-118266-3**
Date Collected: 12/12/18 11:53 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 90.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**8300**	**D**	43	21	7.3	mg/Kg	☼	01/04/19 15:43	5
Motor Oil (C20-C38)	**50**	**J D**	130	130	42	mg/Kg	☼	01/04/19 15:43	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*69*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 15:43*	*5*
n-Octacosane	*76*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 15:43*	*5*

Client Sample ID: P-V2-121218-103 — **Lab Sample ID: 280-118266-5**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 97.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**7500**	**D**	37	18	6.3	mg/Kg	☼	01/04/19 16:28	5
Motor Oil (C20-C38)	110	U D	110	110	36	mg/Kg	☼	01/04/19 16:28	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	*82*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 16:28*	*5*
n-Octacosane	*96*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 16:28*	*5*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V2-131218-117 — **Lab Sample ID: 280-118266-7**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2800**	**D**	17	8.7	3.0	mg/Kg	☼	01/04/19 17:12	2
Motor Oil (C20-C38)	51	U D	52	51	17	mg/Kg	☼	01/04/19 17:12	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 17:12*	*2*
n-Octacosane	*70*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 17:12*	*2*

Client Sample ID: P-V2-131218-159 — **Lab Sample ID: 280-118266-9**
Date Collected: 12/13/18 11:40 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 91.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**8700**	**D**	39	19	6.6	mg/Kg	☼	01/04/19 18:17	5
Motor Oil (C20-C38)	**55**	**J D**	120	110	38	mg/Kg	☼	01/04/19 18:17	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*81*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 18:17*	*5*
n-Octacosane	*93*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 18:17*	*5*

General Chemistry

Client Sample ID: V-V2-121218-080 — **Lab Sample ID: 280-118266-2**
Date Collected: 12/12/18 11:53 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 91.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.9**		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: P-V2-121218-080 — **Lab Sample ID: 280-118266-3**
Date Collected: 12/12/18 11:53 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 90.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.2**		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: V-V2-121218-103 — **Lab Sample ID: 280-118266-4**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.1**		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: P-V2-121218-103 — **Lab Sample ID: 280-118266-5**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 97.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**2.9**		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: V-V2-131218-117 — **Lab Sample ID: 280-118266-6**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.8**		0.1	0.05	0.1	%		12/15/18 09:39	1

General Chemistry

Client Sample ID: P-V2-131218-117 — **Lab Sample ID: 280-118266-7**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.8		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: V-V2-131218-159 — **Lab Sample ID: 280-118266-8**
Date Collected: 12/13/18 11:40 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.9		0.1	0.05	0.1	%		12/15/18 09:39	1

Client Sample ID: P-V2-131218-159 — **Lab Sample ID: 280-118266-9**
Date Collected: 12/13/18 11:40 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 91.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.4		0.1	0.05	0.1	%		12/15/18 09:39	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118266-2	V-V2-121218-080	14 Q	52 Q	12 Q	33 Q
280-118266-4	V-V2-121218-103	526 Q	188 Q	0 Q	151 Q
280-118266-6	V-V2-131218-117	551 D Q	0 D Q	298 D Q	178 D Q
280-118266-8	V-V2-131218-159	169 D Q	132 D	172 D Q	126 D Q
LCS 280-441739/2-A	Lab Control Sample	98	112	94	108
LCSD 280-441739/3-A	Lab Control Sample Dup	107	113	91	114
MB 280-441739/1-A	Method Blank	105	128	101	118

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118266-1	TB-V2-131218-01	96	93	99	96
LCS 280-442672/4	Lab Control Sample	98	95	100	97
MB 280-442672/19	Method Blank	98	94	105	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118266-3	P-V2-121218-080	57735 Q
280-118266-5	P-V2-121218-103	18481 Q
280-118266-7	P-V2-131218-117	19081 Q
280-118266-9	P-V2-131218-159	1079 Q
LCS 280-442492/1-A	Lab Control Sample	98
LCS 280-442646/1-A	Lab Control Sample	98
LCSD 280-442492/2-A - RA	Lab Control Sample Dup	102
LCSD 280-442646/2-A	Lab Control Sample Dup	93
MB 280-442492/3-A	Method Blank	97
MB 280-442646/3-A	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118266-1	TB-V2-131218-01	90
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118266-2	V-V2-121218-080	0 D
280-118266-4	V-V2-121218-103	0 D
280-118266-6	V-V2-131218-117	0 D M
280-118266-8	V-V2-131218-159	0 D M
LCS 280-441971/2-A	Lab Control Sample	98
LCS 280-442668/1-A	Lab Control Sample	107
LCSD 280-441971/3-A	Lab Control Sample Dup	102
LCSD 280-442668/2-A	Lab Control Sample Dup	106
MB 280-441971/4-A	Method Blank	101
MB 280-442668/3-A	Method Blank	102

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-118266-1	TB-V2-131218-01	102
LCS 280-442645/2-A	Lab Control Sample	99
LCSD 280-442645/3-A	Lab Control Sample Dup	98
MB 280-442645/4-A	Method Blank	97

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-118266-3	P-V2-121218-080	69 D	76 D
280-118266-5	P-V2-121218-103	82 D	96 D

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-118266-7	P-V2-131218-117	60 D	70 D								
280-118266-9	P-V2-131218-159	81 D	93 D								
LCS 280-442077/2-A	Lab Control Sample	76	94								
LCS 280-442077/3-A	Lab Control Sample	77	97								
MB 280-442077/1-A	Method Blank	70	90								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/26/18 13:15	1
Benzene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/26/18 13:15	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/26/18 13:15	1
Bromoform	160	U	250	160	160	ug/Kg		12/26/18 13:15	1
Bromomethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/26/18 13:15	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/26/18 13:15	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/26/18 13:15	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/26/18 13:15	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Chloroethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
Chloroform	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
Chloromethane	160	U M	500	160	50	ug/Kg		12/26/18 13:15	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/26/18 13:15	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/26/18 13:15	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/26/18 13:15	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/26/18 13:15	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/26/18 13:15	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/26/18 13:15	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/26/18 13:15	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/26/18 13:15	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/26/18 13:15	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/26/18 13:15	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/26/18 13:15	1
Naphthalene	80	U	500	80	38	ug/Kg		12/26/18 13:15	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/26/18 13:15	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Toluene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/26/18 13:15	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/26/18 13:15	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/26/18 13:15	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/26/18 13:15	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/26/18 13:15	1
o-Xylene	80	U	130	80	35	ug/Kg		12/26/18 13:15	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/26/18 13:15	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*128*		*71 - 136*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	7430		ug/Kg		93	36 - 164
Benzene	2000	1850		ug/Kg		93	77 - 121
Bromobenzene	2000	1840		ug/Kg		92	78 - 121
Bromochloromethane	2000	2150		ug/Kg		107	78 - 125
Bromodichloromethane	2000	2110		ug/Kg		105	75 - 127
Bromoform	2000	2100		ug/Kg		105	67 - 132
Bromomethane	2000	1740		ug/Kg		87	53 - 143
2-Butanone (MEK)	8000	8150		ug/Kg		102	51 - 148
n-Butylbenzene	2000	1440		ug/Kg		72	70 - 128
sec-Butylbenzene	2000	1600		ug/Kg		80	73 - 126
tert-Butylbenzene	2000	1660		ug/Kg		83	73 - 125
Carbon disulfide	2000	1580		ug/Kg		79	63 - 132
Carbon tetrachloride	2000	1790		ug/Kg		89	70 - 135
Chlorobenzene	2000	1800		ug/Kg		90	79 - 120
Chloroethane	2000	1580		ug/Kg		79	59 - 139
Chloroform	2000	1920		ug/Kg		96	78 - 123
Chloromethane	2000	1330		ug/Kg		67	50 - 136
4-Chlorotoluene	2000	1690		ug/Kg		84	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2240		ug/Kg		112	74 - 126
1,2-Dibromo-3-Chloropropane	2000	2060		ug/Kg		103	61 - 132
Dichlorodifluoromethane	2000	1220		ug/Kg		61	29 - 149
Dibromomethane	2000	2190		ug/Kg		110	78 - 125
Ethylene Dibromide	2000	2190		ug/Kg		110	78 - 122
1,2-Dichlorobenzene	2000	1770		ug/Kg		88	78 - 121
1,3-Dichlorobenzene	2000	1660		ug/Kg		83	77 - 121
1,4-Dichlorobenzene	2000	1670		ug/Kg		84	75 - 120
1,1-Dichloroethane	2000	1840		ug/Kg		92	76 - 125
1,2-Dichloroethane	2000	2100		ug/Kg		105	73 - 128
1,1-Dichloroethene	2000	1710		ug/Kg		85	70 - 131
cis-1,2-Dichloroethene	2000	1890		ug/Kg		94	77 - 123
trans-1,2-Dichloroethene	2000	1850		ug/Kg		93	74 - 125
1,2-Dichloropropane	2000	2060		ug/Kg		103	76 - 123
1,3-Dichloropropane	2000	2070		ug/Kg		103	77 - 121
2,2-Dichloropropane	2000	1760		ug/Kg		88	67 - 133
1,1-Dichloropropene	2000	1800		ug/Kg		90	76 - 125
cis-1,3-Dichloropropene	2000	2230		ug/Kg		112	74 - 126
trans-1,3-Dichloropropene	2000	2280		ug/Kg		114	71 - 130
Ethylbenzene	2000	1690		ug/Kg		85	76 - 122
2-Hexanone	8000	9000		ug/Kg		113	53 - 145
Hexachlorobutadiene	2000	1450		ug/Kg		73	61 - 135
Isopropylbenzene	2000	1660		ug/Kg		83	68 - 134
4-Isopropyltoluene	2000	1560		ug/Kg		78	73 - 127
Methylene Chloride	2000	1760		ug/Kg		88	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	9560		ug/Kg		119	65 - 135
Methyl tert-butyl ether	2000	2250		ug/Kg		112	73 - 125
Naphthalene	2000	1890		ug/Kg		94	62 - 129
N-Propylbenzene	2000	1630		ug/Kg		81	73 - 125
Styrene	2000	1840		ug/Kg		92	76 - 124
1,1,1,2-Tetrachloroethane	2000	1970		ug/Kg		99	78 - 125
1,1,2,2-Tetrachloroethane	2000	2090		ug/Kg		104	70 - 124
Tetrachloroethene	2000	1750		ug/Kg		87	73 - 128
Toluene	2000	1870		ug/Kg		94	77 - 121
1,2,3-Trichlorobenzene	2000	1790		ug/Kg		90	66 - 130
1,1,1-Trichloroethane	2000	1800		ug/Kg		90	73 - 130
1,1,2-Trichloroethane	2000	2250		ug/Kg		113	78 - 121
Trichloroethene	2000	1840		ug/Kg		92	77 - 123
Trichlorofluoromethane	2000	1680		ug/Kg		84	62 - 140
1,2,4-Trichlorobenzene	2000	1670		ug/Kg		84	67 - 129
1,2,3-Trichloropropane	2000	2200		ug/Kg		110	73 - 125
1,2,4-Trimethylbenzene	2000	1620		ug/Kg		81	75 - 123
1,3,5-Trimethylbenzene	2000	1660		ug/Kg		83	73 - 124
Vinyl chloride	2000	1470		ug/Kg		74	56 - 135
o-Xylene	2000	1730		ug/Kg		87	77 - 123
m-Xylene & p-Xylene	2000	1660		ug/Kg		83	77 - 124
2-Chlorotoluene	2000	1700		ug/Kg		85	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*108*		*78 - 119*

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	8720		ug/Kg		109	36 - 164	16	20
Benzene	2000	1940		ug/Kg		97	77 - 121	5	20
Bromobenzene	2000	1830		ug/Kg		91	78 - 121	1	20
Bromochloromethane	2000	2300		ug/Kg		115	78 - 125	7	20
Bromodichloromethane	2000	2050		ug/Kg		102	75 - 127	3	20
Bromoform	2000	2130		ug/Kg		106	67 - 132	1	20
Bromomethane	2000	2100		ug/Kg		105	53 - 143	19	20
2-Butanone (MEK)	8000	8170		ug/Kg		102	51 - 148	0	20
n-Butylbenzene	2000	1570		ug/Kg		79	70 - 128	9	20
sec-Butylbenzene	2000	1720		ug/Kg		86	73 - 126	7	20
tert-Butylbenzene	2000	1670		ug/Kg		84	73 - 125	1	20
Carbon disulfide	2000	1900		ug/Kg		95	63 - 132	18	20
Carbon tetrachloride	2000	2110		ug/Kg		106	70 - 135	17	20
Chlorobenzene	2000	1860		ug/Kg		93	79 - 120	3	20
Chloroethane	2000	1900		ug/Kg		95	59 - 139	19	20
Chloroform	2000	2090		ug/Kg		105	78 - 123	9	20
Chloromethane	2000	1580		ug/Kg		79	50 - 136	17	20
4-Chlorotoluene	2000	1670		ug/Kg		84	72 - 124	1	20
Dibromochloromethane	2000	2330		ug/Kg		116	74 - 126	4	20
1,2-Dibromo-3-Chloropropane	2000	2350		ug/Kg		118	61 - 132	13	20
Dichlorodifluoromethane	2000	1540	Q	ug/Kg		77	29 - 149	23	20
Dibromomethane	2000	2080		ug/Kg		104	78 - 125	5	20
Ethylene Dibromide	2000	2010		ug/Kg		100	78 - 122	9	20
1,2-Dichlorobenzene	2000	1880		ug/Kg		94	78 - 121	6	20
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121	2	20
1,4-Dichlorobenzene	2000	1670		ug/Kg		83	75 - 120	0	20
1,1-Dichloroethane	2000	2070		ug/Kg		104	76 - 125	12	20
1,2-Dichloroethane	2000	2090		ug/Kg		105	73 - 128	0	20
1,1-Dichloroethene	2000	2000		ug/Kg		100	70 - 131	16	20
cis-1,2-Dichloroethene	2000	2050		ug/Kg		103	77 - 123	8	20
trans-1,2-Dichloroethene	2000	2130		ug/Kg		107	74 - 125	14	20
1,2-Dichloropropane	2000	2070		ug/Kg		103	76 - 123	0	20
1,3-Dichloropropane	2000	1960		ug/Kg		98	77 - 121	5	20
2,2-Dichloropropane	2000	2050		ug/Kg		103	67 - 133	15	20
1,1-Dichloropropene	2000	1930		ug/Kg		96	76 - 125	7	20
cis-1,3-Dichloropropene	2000	2070		ug/Kg		104	74 - 126	7	20
trans-1,3-Dichloropropene	2000	1790	Q	ug/Kg		89	71 - 130	24	20
Ethylbenzene	2000	1900		ug/Kg		95	76 - 122	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	9290		ug/Kg		116	53 - 145	3	20
Hexachlorobutadiene	2000	1490		ug/Kg		74	61 - 135	3	20
Isopropylbenzene	2000	1830		ug/Kg		91	68 - 134	10	20
4-Isopropyltoluene	2000	1680		ug/Kg		84	73 - 127	7	20
Methylene Chloride	2000	2010		ug/Kg		101	70 - 128	14	20
4-Methyl-2-pentanone (MIBK)	8000	9740		ug/Kg		122	65 - 135	2	20
Methyl tert-butyl ether	2000	2400		ug/Kg		120	73 - 125	6	20
Naphthalene	2000	2220		ug/Kg		111	62 - 129	16	20
N-Propylbenzene	2000	1770		ug/Kg		89	73 - 125	8	20
Styrene	2000	1890		ug/Kg		95	76 - 124	3	20
1,1,1,2-Tetrachloroethane	2000	2320		ug/Kg		116	78 - 125	16	20
1,1,2,2-Tetrachloroethane	2000	2170		ug/Kg		109	70 - 124	4	20
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128	10	20
Toluene	2000	1850		ug/Kg		93	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2100		ug/Kg		105	66 - 130	16	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	15	20
1,1,2-Trichloroethane	2000	2050		ug/Kg		102	78 - 121	10	20
Trichloroethene	2000	1870		ug/Kg		94	77 - 123	2	20
Trichlorofluoromethane	2000	2060		ug/Kg		103	62 - 140	20	20
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		96	67 - 129	14	20
1,2,3-Trichloropropane	2000	2250		ug/Kg		113	73 - 125	2	20
1,2,4-Trimethylbenzene	2000	1740		ug/Kg		87	75 - 123	7	20
1,3,5-Trimethylbenzene	2000	1770		ug/Kg		89	73 - 124	6	20
Vinyl chloride	2000	1820	Q	ug/Kg		91	56 - 135	21	20
o-Xylene	2000	2010		ug/Kg		100	77 - 123	15	20
m-Xylene & p-Xylene	2000	1870		ug/Kg		93	77 - 124	12	20
2-Chlorotoluene	2000	1810		ug/Kg		91	75 - 122	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: MB 280-442672/19
Matrix: Water
Analysis Batch: 442672

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/28/18 00:36	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 00:36	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 00:36	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 00:36	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/28/18 00:36	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 00:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442672/19
Matrix: Water
Analysis Batch: 442672

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 00:36	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 00:36	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/28/18 00:36	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/28/18 00:36	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 00:36	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 00:36	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 00:36	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 00:36	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 00:36	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 00:36	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 00:36	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 00:36	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 00:36	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 00:36	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 00:36	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 00:36	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 00:36	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 00:36	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 00:36	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 00:36	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 00:36	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 00:36	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 00:36	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 00:36	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 00:36	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 00:36	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 00:36	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 00:36	1
Naphthalene	0.238	J	1.0	0.80	0.22	ug/L		12/28/18 00:36	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 00:36	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 00:36	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 00:36	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 00:36	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 00:36	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442672/19
Matrix: Water
Analysis Batch: 442672

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 00:36	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 00:36	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 00:36	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 00:36	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 00:36	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/28/18 00:36	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 00:36	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 00:36	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 00:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*89 - 112*		*12/28/18 00:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*81 - 118*		*12/28/18 00:36*	*1*
4-Bromofluorobenzene (Surr)	*105*		*85 - 114*		*12/28/18 00:36*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/28/18 00:36*	*1*

Lab Sample ID: LCS 280-442672/4
Matrix: Water
Analysis Batch: 442672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.2		ug/L		106	39 - 160
Benzene	5.00	5.83		ug/L		117	79 - 120
Bromobenzene	5.00	5.55		ug/L		111	80 - 120
Bromochloromethane	5.00	5.36		ug/L		107	78 - 123
Bromodichloromethane	5.00	5.29		ug/L		106	79 - 125
Bromoform	5.00	4.43		ug/L		89	66 - 130
Bromomethane	5.00	6.18		ug/L		124	53 - 141
2-Butanone (MEK)	20.0	20.0		ug/L		100	56 - 143
n-Butylbenzene	5.00	5.85		ug/L		117	75 - 128
sec-Butylbenzene	5.00	5.89		ug/L		118	77 - 126
tert-Butylbenzene	5.00	5.91		ug/L		118	78 - 124
Carbon disulfide	5.00	6.51		ug/L		130	64 - 133
Carbon tetrachloride	5.00	5.61		ug/L		112	72 - 136
Chlorobenzene	5.00	5.80		ug/L		116	82 - 118
Chloroethane	5.00	5.83		ug/L		117	60 - 138
Chloroform	5.00	5.65		ug/L		113	79 - 124
Chloromethane	5.00	5.88		ug/L		118	50 - 139
4-Chlorotoluene	5.00	5.66		ug/L		113	78 - 122
Dibromochloromethane	5.00	5.07		ug/L		101	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.43	J	ug/L		89	62 - 128
Dichlorodifluoromethane	5.00	5.87		ug/L		117	32 - 152
Dibromomethane	5.00	5.14		ug/L		103	79 - 123
Ethylene Dibromide	5.00	5.23		ug/L		105	77 - 121
1,2-Dichlorobenzene	5.00	5.45		ug/L		109	80 - 119
1,3-Dichlorobenzene	5.00	5.54		ug/L		111	80 - 119
1,4-Dichlorobenzene	5.00	5.72		ug/L		114	79 - 118
1,1-Dichloroethane	5.00	5.87		ug/L		117	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442672/4
Matrix: Water
Analysis Batch: 442672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.59		ug/L		112	73 - 128
1,1-Dichloroethene	5.00	6.30		ug/L		126	71 - 131
cis-1,2-Dichloroethene	5.00	5.69		ug/L		114	78 - 123
trans-1,2-Dichloroethene	5.00	6.11		ug/L		122	75 - 124
1,2-Dichloropropane	5.00	5.83		ug/L		117	78 - 122
1,3-Dichloropropane	5.00	5.55		ug/L		111	80 - 119
2,2-Dichloropropane	5.00	6.01		ug/L		120	60 - 139
1,1-Dichloropropene	5.00	6.12		ug/L		122	79 - 125
cis-1,3-Dichloropropene	5.00	5.77		ug/L		115	75 - 124
trans-1,3-Dichloropropene	5.00	5.11		ug/L		102	73 - 127
Ethylbenzene	5.00	6.03		ug/L		121	79 - 121
2-Hexanone	20.0	21.6		ug/L		108	57 - 139
Hexachlorobutadiene	5.00	5.63		ug/L		113	66 - 134
Isopropylbenzene	5.00	5.81		ug/L		116	72 - 131
4-Isopropyltoluene	5.00	5.88		ug/L		118	77 - 127
Methylene Chloride	5.00	5.47		ug/L		109	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	20.1		ug/L		100	67 - 130
Methyl tert-butyl ether	5.00	5.38		ug/L		108	71 - 124
Naphthalene	5.00	5.05		ug/L		101	61 - 128
N-Propylbenzene	5.00	5.92		ug/L		118	76 - 126
Styrene	5.00	5.74		ug/L		115	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.66		ug/L		113	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.98		ug/L		100	71 - 121
Tetrachloroethene	5.00	5.76		ug/L		115	74 - 129
Toluene	5.00	5.55		ug/L		111	80 - 121
1,2,3-Trichlorobenzene	5.00	5.13		ug/L		103	69 - 129
1,1,1-Trichloroethane	5.00	5.75		ug/L		115	74 - 131
1,1,2-Trichloroethane	5.00	5.06		ug/L		101	80 - 119
Trichloroethene	5.00	5.72		ug/L		114	79 - 123
Trichlorofluoromethane	5.00	6.29		ug/L		126	65 - 141
1,2,4-Trichlorobenzene	5.00	5.14		ug/L		103	69 - 130
1,2,3-Trichloropropane	5.00	5.16		ug/L		103	73 - 122
1,2,4-Trimethylbenzene	5.00	5.86		ug/L		117	76 - 124
1,3,5-Trimethylbenzene	5.00	5.73		ug/L		115	75 - 124
Vinyl chloride	5.00	6.13		ug/L		123	58 - 137
o-Xylene	5.00	6.04		ug/L		121	78 - 122
m-Xylene & p-Xylene	5.00	5.85		ug/L		117	80 - 121
2-Chlorotoluene	5.00	5.81		ug/L		116	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*95*		*81 - 118*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*
Dibromofluoromethane (Surr)	*97*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442492/3-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442492

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/28/18 21:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*	*12/26/18 10:24*	*12/28/18 21:27*	*1*

Lab Sample ID: LCS 280-442492/1-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442492

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	4.79		mg/Kg		87	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/27/18 15:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*	*12/27/18 11:52*	*12/27/18 15:33*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.43		mg/Kg		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.23		mg/Kg		99	79 - 122	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	82.3		ug/L		105	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Lab Sample ID: LCSD 280-442492/2-A
Matrix: Solid
Analysis Batch: 443049

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442492

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10 - RA			5.50	6.58	Q	mg/Kg		120	79 - 122	31	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr) - RA	*102*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-441971/4-A
Matrix: Solid
Analysis Batch: 443045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441971

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/02/19 18:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*101*		*55 - 130*	*12/20/18 06:52*	*01/02/19 18:36*	*1*

Lab Sample ID: LCS 280-441971/2-A
Matrix: Solid
Analysis Batch: 443045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441971

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.694		ug/Kg		79	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*55 - 130*

Lab Sample ID: LCSD 280-441971/3-A
Matrix: Solid
Analysis Batch: 443045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441971

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.720		ug/Kg		82	70 - 130	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*102*		*55 - 130*

Lab Sample ID: MB 280-442645/4-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442645

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/27/18 17:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*		*70 - 130*	*12/27/18 11:44*	*12/27/18 17:59*	*1*

Lab Sample ID: LCS 280-442645/2-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442645

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.217		ug/L		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*99*		*70 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-442645/3-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442645

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.211		ug/L		84	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*70 - 130*

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/15/19 17:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*55 - 130*	*12/27/18 14:22*	*01/15/19 17:32*	*1*

Lab Sample ID: LCS 280-442668/1-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.770		ug/Kg		88	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*107*		*55 - 130*

Lab Sample ID: LCSD 280-442668/2-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.783		ug/Kg		89	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*106*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.05	J	7.7	3.8	1.3	mg/Kg		01/04/19 14:15	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg		01/04/19 14:15	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	12/20/18 19:41	01/04/19 14:15	1
n-Octacosane	90		25 - 162	12/20/18 19:41	01/04/19 14:15	1

Lab Sample ID: LCS 280-442077/2-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	113		mg/Kg		85	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	76		45 - 130
n-Octacosane	94		25 - 162

Lab Sample ID: LCS 280-442077/3-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	271		mg/Kg		83	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	77		45 - 130
n-Octacosane	97		25 - 162

Method: Moisture - Percent Moisture

Lab Sample ID: 280-118266-7 DU
Matrix: Solid
Analysis Batch: 441423

Client Sample ID: P-V2-131218-117
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	11.8			11.8		%				0.4	20

GC/MS VOA

Prep Batch: 441739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-2	V-V2-121218-080	Total/NA	Solid	5035	
280-118266-4	V-V2-121218-103	Total/NA	Solid	5035	
280-118266-6	V-V2-131218-117	Total/NA	Solid	5035	
280-118266-8	V-V2-131218-159	Total/NA	Solid	5035	
MB 280-441739/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-441739/1-A	Method Blank	Total/NA	Solid	8260B	441739

Analysis Batch: 442672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-1	TB-V2-131218-01	Total/NA	Water	8260B	
MB 280-442672/19	Method Blank	Total/NA	Water	8260B	
LCS 280-442672/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 442694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-2	V-V2-121218-080	Total/NA	Solid	8260B	441739
280-118266-4	V-V2-121218-103	Total/NA	Solid	8260B	441739
280-118266-6	V-V2-131218-117	Total/NA	Solid	8260B	441739
280-118266-8	V-V2-131218-159	Total/NA	Solid	8260B	441739
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	8260B	441739
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441739

GC VOA

Prep Batch: 442492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-3	P-V2-121218-080	Total/NA	Solid	5035	
280-118266-5	P-V2-121218-103	Total/NA	Solid	5035	
MB 280-442492/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442492/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442492/2-A - RA	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-7	P-V2-131218-117	Total/NA	Solid	8015D GRO	442646
280-118266-9	P-V2-131218-159	Total/NA	Solid	8015D GRO	442646
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-7	P-V2-131218-117	Total/NA	Solid	5035	
280-118266-9	P-V2-131218-159	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	

GC VOA (Continued)

Prep Batch: 442646 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-5	P-V2-121218-103	Total/NA	Solid	8015D GRO	442492
MB 280-442492/3-A	Method Blank	Total/NA	Solid	8015D GRO	442492
LCS 280-442492/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442492

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-1	TB-V2-131218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Analysis Batch: 442903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-3	P-V2-121218-080	Total/NA	Solid	8015D GRO	442492

Analysis Batch: 443049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-442492/2-A - RA	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442492

GC Semi VOA

Prep Batch: 441971

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-2	V-V2-121218-080	Total/NA	Solid	8011	
280-118266-4	V-V2-121218-103	Total/NA	Solid	8011	
MB 280-441971/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-441971/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-441971/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 442077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-3	P-V2-121218-080	Total/NA	Solid	3546	
280-118266-5	P-V2-121218-103	Total/NA	Solid	3546	
280-118266-7	P-V2-131218-117	Total/NA	Solid	3546	
280-118266-9	P-V2-131218-159	Total/NA	Solid	3546	
MB 280-442077/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 442645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-1	TB-V2-131218-01	Total/NA	Water	8011	
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

GC Semi VOA (Continued)

Prep Batch: 442668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-6	V-V2-131218-117	Total/NA	Solid	8011	
280-118266-8	V-V2-131218-159	Total/NA	Solid	8011	
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 442681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-1	TB-V2-131218-01	Total/NA	Water	8011	442645
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	442645
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	442645
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	442645

Analysis Batch: 443045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-2	V-V2-121218-080	Total/NA	Solid	8011	441971
280-118266-4	V-V2-121218-103	Total/NA	Solid	8011	441971
MB 280-441971/4-A	Method Blank	Total/NA	Solid	8011	441971
LCS 280-441971/2-A	Lab Control Sample	Total/NA	Solid	8011	441971
LCSD 280-441971/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	441971

Analysis Batch: 443317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-3	P-V2-121218-080	Total/NA	Solid	8015D DRO	442077
280-118266-5	P-V2-121218-103	Total/NA	Solid	8015D DRO	442077
280-118266-7	P-V2-131218-117	Total/NA	Solid	8015D DRO	442077
280-118266-9	P-V2-131218-159	Total/NA	Solid	8015D DRO	442077
MB 280-442077/1-A	Method Blank	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-6	V-V2-131218-117	Total/NA	Solid	8011	442668
280-118266-8	V-V2-131218-159	Total/NA	Solid	8011	442668
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	442668
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	442668
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442668

General Chemistry

Analysis Batch: 441423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-2	V-V2-121218-080	Total/NA	Solid	Moisture	
280-118266-3	P-V2-121218-080	Total/NA	Solid	Moisture	
280-118266-4	V-V2-121218-103	Total/NA	Solid	Moisture	
280-118266-5	P-V2-121218-103	Total/NA	Solid	Moisture	
280-118266-6	V-V2-131218-117	Total/NA	Solid	Moisture	
280-118266-7	P-V2-131218-117	Total/NA	Solid	Moisture	
280-118266-8	V-V2-131218-159	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 441423 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118266-9	P-V2-131218-159	Total/NA	Solid	Moisture	
280-118266-7 DU	P-V2-131218-117	Total/NA	Solid	Moisture	

Client Sample ID: TB-V2-131218-01

Lab Sample ID: 280-118266-1

Date Collected: 12/13/18 16:00

Matrix: Water

Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442672	12/27/18 23:54	DPI	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	442898	12/31/18 20:00	SU	TAL DEN
Total/NA	Prep	8011			33.9 mL	35 mL	442645	12/27/18 11:44	MJS	TAL DEN
Total/NA	Analysis	8011		1			442681	12/27/18 21:48	JLW	TAL DEN

Client Sample ID: V-V2-121218-080

Lab Sample ID: 280-118266-2

Date Collected: 12/12/18 11:53

Matrix: Solid

Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: V-V2-121218-080

Lab Sample ID: 280-118266-2

Date Collected: 12/12/18 11:53

Matrix: Solid

Date Received: 12/14/18 09:20

Percent Solids: 91.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.709 g	1000 mL	441739	12/12/18 11:53	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 15:08	JLS	TAL DEN
Total/NA	Prep	8011			10.09 g	35 mL	441971	12/20/18 06:52	SU	TAL DEN
Total/NA	Analysis	8011		500			443045	01/02/19 22:26	JLW	TAL DEN

Client Sample ID: P-V2-121218-080

Lab Sample ID: 280-118266-3

Date Collected: 12/12/18 11:53

Matrix: Solid

Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: P-V2-121218-080

Lab Sample ID: 280-118266-3

Date Collected: 12/12/18 11:53

Matrix: Solid

Date Received: 12/14/18 09:20

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.567 g	5 mL	442492	12/12/18 11:53	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1000	0.1 mL	5 mL	442903	12/31/18 21:59	SU	TAL DEN
Total/NA	Prep	3546			15.4 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 15:43	AMB1	TAL DEN

Client Sample ID: V-V2-121218-103 — **Lab Sample ID: 280-118266-4**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: V-V2-121218-103 — **Lab Sample ID: 280-118266-4**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 96.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2.698 g	1000 mL	441739	12/12/18 16:00	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 15:27	JLS	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	441971	12/20/18 06:52	SU	TAL DEN
Total/NA	Analysis	8011		500			443045	01/02/19 23:05	JLW	TAL DEN

Client Sample ID: P-V2-121218-103 — **Lab Sample ID: 280-118266-5**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: P-V2-121218-103 — **Lab Sample ID: 280-118266-5**
Date Collected: 12/12/18 16:00 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 97.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.135 g	5 mL	442492	12/12/18 16:00	SU	TAL DEN
Total/NA	Analysis	8015D GRO		2000	0.1 mL	5 mL	442742	12/28/18 22:15	SU	TAL DEN
Total/NA	Prep	3546			16.8 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 16:28	AMB1	TAL DEN

Client Sample ID: V-V2-131218-117 — **Lab Sample ID: 280-118266-6**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: V-V2-131218-117 — **Lab Sample ID: 280-118266-6**
Date Collected: 12/13/18 08:20 — **Matrix: Solid**
Date Received: 12/14/18 09:20 — **Percent Solids: 88.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.31 g	1000 mL	441739	12/13/18 08:20	JLS	TAL DEN

Client Sample ID: V-V2-131218-117

Lab Sample ID: 280-118266-6
Date Collected: 12/13/18 08:20
Matrix: Solid
Date Received: 12/14/18 09:20
Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	20 mL	20 mL	442694	12/27/18 12:48	JLS	TAL DEN
Total/NA	Prep	8011			9.97 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		50			444292	01/15/19 17:52	JLW	TAL DEN

Client Sample ID: P-V2-131218-117

Lab Sample ID: 280-118266-7
Date Collected: 12/13/18 08:20
Matrix: Solid
Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: P-V2-131218-117

Lab Sample ID: 280-118266-7
Date Collected: 12/13/18 08:20
Matrix: Solid
Date Received: 12/14/18 09:20
Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.417 g	5 mL	442646	12/13/18 08:20	SU	TAL DEN
Total/NA	Analysis	8015D GRO		200	0.1 mL	5 mL	442639	12/27/18 17:55	TEM	TAL DEN
Total/NA	Prep	3546			15.6 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		2			443317	01/04/19 17:12	AMB1	TAL DEN

Client Sample ID: V-V2-131218-159

Lab Sample ID: 280-118266-8
Date Collected: 12/13/18 11:40
Matrix: Solid
Date Received: 12/14/18 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: V-V2-131218-159

Lab Sample ID: 280-118266-8
Date Collected: 12/13/18 11:40
Matrix: Solid
Date Received: 12/14/18 09:20
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.127 g	1000 mL	441739	12/13/18 11:40	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 15:46	JLS	TAL DEN
Total/NA	Prep	8011			10.01 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		20			444292	01/15/19 18:11	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Client Sample ID: P-V2-131218-159
Date Collected: 12/13/18 11:40
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441423	12/15/18 09:39	JDR	TAL DEN

Client Sample ID: P-V2-131218-159
Date Collected: 12/13/18 11:40
Date Received: 12/14/18 09:20

Lab Sample ID: 280-118266-9
Matrix: Solid
Percent Solids: 91.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.965 g	5 mL	442646	12/13/18 11:40	SU	TAL DEN
Total/NA	Analysis	8015D GRO		200	0.1 mL	5 mL	442639	12/27/18 18:19	TEM	TAL DEN
Total/NA	Prep	3546			16.9 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 18:17	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118266-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

4433 3393 0994

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s):	COC No: CO C2-U2-TA-2018/213
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A		
TB-V2-131218-01	12/13/18	1600	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-V2-121218-080	12/12/18	1153	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-V2-121218-080	12/12/18	1153	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-V2-121218-103	12/12/18	1600	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-V2-121218-103	12/12/18	1600	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-V2-131218-117	12/13/18	0820	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-V2-131218-117	12/13/18	0820	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-V2-131218-159	12/13/18	1140	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-V2-131218-159	12/13/18	1140	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

280-118266 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	JOSHUA LIVINGSTON	12/13/18 1500	EA		12/14/18 0920	TA DEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3 + 0.7 IR 9 transfer 0400

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118266-1

Login Number: 118266
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118290-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/5/2019 4:28:06 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118290-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118290-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/15/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-V2-141218-215 (280-118290-2) and V-V2-141218-254 (280-118290-4) were analyzed for volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared on 12/14/2018 and analyzed on 12/27/2018.

The methanol vial for sample V-V2-141218-215 (280-118290-2) was dry and had no methanol in it. The sample was prepped from the jar instead. This is for prep method 5030B: Prep batch 441739 Analytical Batch 442694.

The following samples required a dilution due to the nature of the sample matrix: V-V2-141218-215 (280-118290-2) and V-V2-141218-254 (280-118290-4). Because of this dilution, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

Dichlorodifluoromethane, trans-1,3-Dichloropropene and Vinyl chloride exceeded the RPD limit for LCSD 280-441739/3-A. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-V2-141218-01 (280-118290-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/28/2018.

The continuing calibration verification check (CCVC) associated with batch 280-442719 recovered above the upper control limit for 2-Butanone (50%) at 57.6%. The samples associated with this CCVC were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: TB-V2-141218-01 (280-118290-1) and (CCVC 280-442719/34).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-V2-141218-215 (280-118290-2) and V-V2-141218-254 (280-118290-4) were analyzed for EDB and DBCP in accordance with

Job ID: 280-118290-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

8011. The samples were prepared on 12/27/2018 and analyzed on 01/15/2019.

The following samples were diluted due to abundance of target analytes: V-V2-141218-215 (280-118290-2) and V-V2-141218-254 (280-118290-4). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-V2-141218-01 (280-118290-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/27/2018 and analyzed on 01/04/2019.

Compound 1,2-Dibromopropane, 1,2,3-Trichloropropane, 1,2-Dibromo-3-Chloropropane, and 1,2-Dibromoethane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following sample: (CCV 280-443225/19). This retention time shift was taken into account when reviewing the sample(s) for target compounds. All analytes were within QC limits.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-V2-141218-215 (280-118290-3) and P-V2-141218-254 (280-118290-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/14/2018 and analyzed on 12/27/2018.

Samples P-V2-141218-215 (280-118290-3)[200X] and P-V2-141218-254 (280-118290-5)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V2-141218-215 (280-118290-3). a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V2-141218-254 (280-118290-5). Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-V2-141218-01 (280-118290-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/26/2018 and 12/31/2018.

Re-analysis of the following sample was performed outside of the analytical holding time due to failure of several quality control parameters in the initial analysis: TB-V2-141218-01 (280-118290-1). The calibration failed due to contaminated vials in the initial analysis. The re-analysis batch had acceptable calibration and QC; therefore, as instructed by the client, the re-analysis has been reported.

Surrogate recovery for the following sample was outside the lower control limit: TB-V2-141218-01 (280-118290-1). Associated results have been flagged "Q". This sample was already reanalyzed outside of holding time and did not contain any target analytes; therefore, the data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-V2-141218-215 (280-118290-3) and P-V2-141218-254 (280-118290-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/20/2018 and analyzed on 01/04/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V2-141218-215 (280-118290-3), P-V2-141218-254 (280-118290-5), (LCS 280-442077/2-A), (LCS 280-442077/3-A), (MB 280-442077/1-A), (280-118290-A-3-B MS), (280-118290-A-3-D MS), (280-118290-A-3-C MSD) and (280-118290-A-3-E MSD). This is for preparation batch 280-442077 and analytical batch 280-443317.

Job ID: 280-118290-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples P-V2-141218-215 (280-118290-3)[5X] and P-V2-141218-254 (280-118290-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442077/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

Diesel Range Organics [C10-C28] failed the recovery criteria high for the MS of sample P-V2-141218-215MS (280-118290-3) in batch 280-443317. Diesel Range Organics [C10-C28] failed the recovery criteria low for the MSD of sample P-V2-141218-215MSD (280-118290-3) in batch 280-443317. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount; therefore, control limits are not applicable. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V2-141218-215 (280-118290-2), P-V2-141218-215 (280-118290-3), V-V2-141218-254 (280-118290-4) and P-V2-141218-254 (280-118290-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Client Sample ID: TB-V2-141218-01 — Lab Sample ID: 280-118290-1

No Detections.

Client Sample ID: V-V2-141218-215 — Lab Sample ID: 280-118290-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	28000	D	15000	13000	4000	ug/Kg	10		8260B	Total/NA
n-Butylbenzene	8300	D Q	2500	800	320	ug/Kg	10		8260B	Total/NA
sec-Butylbenzene	7800	D Q	2500	800	380	ug/Kg	10		8260B	Total/NA
Ethylbenzene	10000	D Q	2500	800	340	ug/Kg	10		8260B	Total/NA
Isopropylbenzene	3500	D Q	2500	800	290	ug/Kg	10		8260B	Total/NA
4-Isopropyltoluene	4400	D Q	2500	800	320	ug/Kg	10		8260B	Total/NA
Naphthalene	15000	D Q	5000	800	380	ug/Kg	10		8260B	Total/NA
N-Propylbenzene	7200	D Q	2500	1600	410	ug/Kg	10		8260B	Total/NA
Toluene	15000	D	2500	800	390	ug/Kg	10		8260B	Total/NA
1,2,4-Trimethylbenzene	35000	D Q	2500	800	310	ug/Kg	10		8260B	Total/NA
1,3,5-Trimethylbenzene	11000	D Q	2500	800	390	ug/Kg	10		8260B	Total/NA
o-Xylene	13000	D Q	1200	800	350	ug/Kg	10		8260B	Total/NA
m-Xylene & p-Xylene	32000	D Q	2500	1600	780	ug/Kg	10		8260B	Total/NA
Ethylene Dibromide	21	D M Q	2.0	0.78	0.31	ug/Kg	20	☼	8011	Total/NA

Client Sample ID: P-V2-141218-215 — Lab Sample ID: 280-118290-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	2700	D Q	300	270	81	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3900	J1 D	40	20	6.7	mg/Kg	5	☼	8015D DRO	Total/NA

Client Sample ID: V-V2-141218-254 — Lab Sample ID: 280-118290-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	67000	D	19000	17000	5200	ug/Kg	10	☼	8260B	Total/NA
Benzene	4700	D	3200	2100	590	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	16000	D Q	3200	1000	420	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	15000	D Q	3200	1000	490	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	24000	D Q	3200	1000	440	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	6200	D Q	3200	1000	380	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	8200	D Q	3200	1000	420	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	23000	D Q	6500	1000	490	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	13000	D Q	3200	2100	530	ug/Kg	10	☼	8260B	Total/NA
Toluene	84000	D	3200	1000	510	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	59000	D Q	3200	1000	400	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	18000	D Q	3200	1000	510	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	25000	D Q	1600	1000	450	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	71000	D Q	3200	2100	1000	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	330	D Q	54	21	8.1	ug/Kg	500	☼	8011	Total/NA

Client Sample ID: P-V2-141218-254 — Lab Sample ID: 280-118290-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	5900	D Q	420	390	110	mg/Kg	250	☼	8015D GRO	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: P-V2-141218-254 (Continued)
Lab Sample ID: 280-118290-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	5400	D	37	19	6.3	mg/Kg	5	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118290-1	TB-V2-141218-01	Water	12/14/18 14:00	12/15/18 09:05
280-118290-2	V-V2-141218-215	Solid	12/14/18 09:53	12/15/18 09:05
280-118290-3	P-V2-141218-215	Solid	12/14/18 09:53	12/15/18 09:05
280-118290-4	V-V2-141218-254	Solid	12/14/18 14:22	12/15/18 09:05
280-118290-5	P-V2-141218-254	Solid	12/14/18 14:22	12/15/18 09:05

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V2-141218-01
Date Collected: 12/14/18 14:00
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/28/18 14:34	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 14:34	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 14:34	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 14:34	1
2-Butanone (MEK)	4.0	U Q	6.0	4.0	2.0	ug/L		12/28/18 14:34	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 14:34	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 14:34	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 14:34	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/28/18 14:34	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/28/18 14:34	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 14:34	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 14:34	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 14:34	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 14:34	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 14:34	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 14:34	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 14:34	1
1,2-Dichloroethane	0.40	U M	1.0	0.40	0.13	ug/L		12/28/18 14:34	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 14:34	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 14:34	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 14:34	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 14:34	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 14:34	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 14:34	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 14:34	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 14:34	1
cis-1,3-Dichloropropene	0.40	U M	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 14:34	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 14:34	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 14:34	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 14:34	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 14:34	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 14:34	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 14:34	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 14:34	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 14:34	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Styrene	0.40	U M	1.0	0.40	0.17	ug/L		12/28/18 14:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V2-141218-01 — **Lab Sample ID: 280-118290-1**
Date Collected: 12/14/18 14:00 — **Matrix: Water**
Date Received: 12/15/18 09:05

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 14:34	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 14:34	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 14:34	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 14:34	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 14:34	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 14:34	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 14:34	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 14:34	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 14:34	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 14:34	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/28/18 14:34	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 14:34	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 14:34	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*89 - 112*		*12/28/18 14:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*111*		*81 - 118*		*12/28/18 14:34*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/28/18 14:34*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 119*		*12/28/18 14:34*	*1*

Client Sample ID: V-V2-141218-215 — **Lab Sample ID: 280-118290-2**
Date Collected: 12/14/18 09:53 — **Matrix: Solid**
Date Received: 12/15/18 09:05

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**28000**	**D**	15000	13000	4000	ug/Kg		12/27/18 16:05	10
Benzene	1600	U	2500	1600	450	ug/Kg		12/27/18 16:05	10
Bromobenzene	400	U Q	2500	400	190	ug/Kg		12/27/18 16:05	10
Bromochloromethane	1600	U	2500	1600	470	ug/Kg		12/27/18 16:05	10
Bromodichloromethane	800	U M	2500	800	400	ug/Kg		12/27/18 16:05	10
Bromoform	1600	U Q	2500	1600	1600	ug/Kg		12/27/18 16:05	10
Bromomethane	1600	U	5000	1600	440	ug/Kg		12/27/18 16:05	10
2-Butanone (MEK)	6400	U M	10000	6400	2900	ug/Kg		12/27/18 16:05	10
n-Butylbenzene	**8300**	**D Q**	2500	800	320	ug/Kg		12/27/18 16:05	10
sec-Butylbenzene	**7800**	**D Q**	2500	800	380	ug/Kg		12/27/18 16:05	10
tert-Butylbenzene	800	U M Q	2500	800	280	ug/Kg		12/27/18 16:05	10
Carbon disulfide	1600	U	2500	1600	640	ug/Kg		12/27/18 16:05	10
Carbon tetrachloride	400	U	2500	400	170	ug/Kg		12/27/18 16:05	10
Chlorobenzene	800	U Q	2500	800	300	ug/Kg		12/27/18 16:05	10
Chloroethane	1600	U	5000	1600	440	ug/Kg		12/27/18 16:05	10
Chloroform	1600	U	2500	1600	460	ug/Kg		12/27/18 16:05	10
Chloromethane	1600	U M	5000	1600	500	ug/Kg		12/27/18 16:05	10
4-Chlorotoluene	800	U M Q	2500	800	230	ug/Kg		12/27/18 16:05	10
Dibromochloromethane	800	U Q	2500	800	330	ug/Kg		12/27/18 16:05	10
1,2-Dibromo-3-Chloropropane	3200	U Q	5000	3200	860	ug/Kg		12/27/18 16:05	10
Dichlorodifluoromethane	800	U Q	5000	800	220	ug/Kg		12/27/18 16:05	10
Dibromomethane	800	U	2500	800	300	ug/Kg		12/27/18 16:05	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141218-215
Date Collected: 12/14/18 09:53
Date Received: 12/15/18 09:05
Lab Sample ID: 280-118290-2
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	800	U Q	2500	800	250	ug/Kg		12/27/18 16:05	10
1,2-Dichlorobenzene	3200	U Q	5000	3200	940	ug/Kg		12/27/18 16:05	10
1,3-Dichlorobenzene	1600	U Q	2500	1600	410	ug/Kg		12/27/18 16:05	10
1,4-Dichlorobenzene	800	U Q	2500	800	250	ug/Kg		12/27/18 16:05	10
1,1-Dichloroethane	1600	U	2500	1600	500	ug/Kg		12/27/18 16:05	10
1,2-Dichloroethane	800	U	2500	800	250	ug/Kg		12/27/18 16:05	10
1,1-Dichloroethene	1600	U	2500	1600	500	ug/Kg		12/27/18 16:05	10
1,2-Dichloroethene, Total	800	U	1200	800	220	ug/Kg		12/27/18 16:05	10
cis-1,2-Dichloroethene	800	U	1200	800	220	ug/Kg		12/27/18 16:05	10
trans-1,2-Dichloroethene	1600	U	2500	1600	450	ug/Kg		12/27/18 16:05	10
1,2-Dichloropropane	1600	U M	2500	1600	460	ug/Kg		12/27/18 16:05	10
1,3-Dichloropropane	800	U Q	2500	800	280	ug/Kg		12/27/18 16:05	10
2,2-Dichloropropane	800	U M	2500	800	270	ug/Kg		12/27/18 16:05	10
1,1-Dichloropropene	1600	U	2500	1600	480	ug/Kg		12/27/18 16:05	10
cis-1,3-Dichloropropene	800	U M	2500	800	270	ug/Kg		12/27/18 16:05	10
trans-1,3-Dichloropropene	1600	U M Q	2500	1600	410	ug/Kg		12/27/18 16:05	10
Ethylbenzene	**10000**	**D Q**	2500	800	340	ug/Kg		12/27/18 16:05	10
2-Hexanone	6400	U M Q	10000	6400	2200	ug/Kg		12/27/18 16:05	10
Hexachlorobutadiene	1600	U Q	2500	1600	490	ug/Kg		12/27/18 16:05	10
Isopropylbenzene	**3500**	**D Q**	2500	800	290	ug/Kg		12/27/18 16:05	10
4-Isopropyltoluene	**4400**	**D Q**	2500	800	320	ug/Kg		12/27/18 16:05	10
Methylene Chloride	1600	U M	2500	1600	690	ug/Kg		12/27/18 16:05	10
4-Methyl-2-pentanone (MIBK)	6400	U M	10000	6400	2200	ug/Kg		12/27/18 16:05	10
Methyl tert-butyl ether	1600	U	2500	1600	500	ug/Kg		12/27/18 16:05	10
Naphthalene	**15000**	**D Q**	5000	800	380	ug/Kg		12/27/18 16:05	10
N-Propylbenzene	**7200**	**D Q**	2500	1600	410	ug/Kg		12/27/18 16:05	10
Styrene	800	U M Q	2500	800	260	ug/Kg		12/27/18 16:05	10
1,1,1,2-Tetrachloroethane	800	U M Q	2500	800	210	ug/Kg		12/27/18 16:05	10
1,1,2,2-Tetrachloroethane	800	U M Q	2500	800	290	ug/Kg		12/27/18 16:05	10
Tetrachloroethene	800	U Q	2500	800	270	ug/Kg		12/27/18 16:05	10
Toluene	**15000**	**D**	2500	800	390	ug/Kg		12/27/18 16:05	10
1,2,3-Trichlorobenzene	800	U M Q	2500	800	350	ug/Kg		12/27/18 16:05	10
1,1,1-Trichloroethane	400	U	2500	400	200	ug/Kg		12/27/18 16:05	10
1,1,2-Trichloroethane	800	U M	2500	800	270	ug/Kg		12/27/18 16:05	10
Trichloroethene	800	U	2500	800	230	ug/Kg		12/27/18 16:05	10
Trichlorofluoromethane	1600	U	5000	1600	500	ug/Kg		12/27/18 16:05	10
1,2,4-Trichlorobenzene	1600	U M Q	2500	1600	470	ug/Kg		12/27/18 16:05	10
1,2,3-Trichloropropane	1600	U M Q	2500	1600	470	ug/Kg		12/27/18 16:05	10
1,2,4-Trimethylbenzene	**35000**	**D Q**	2500	800	310	ug/Kg		12/27/18 16:05	10
1,3,5-Trimethylbenzene	**11000**	**D Q**	2500	800	390	ug/Kg		12/27/18 16:05	10
Vinyl chloride	800	U Q	5000	800	270	ug/Kg		12/27/18 16:05	10
o-Xylene	**13000**	**D Q**	1200	800	350	ug/Kg		12/27/18 16:05	10
m-Xylene & p-Xylene	**32000**	**D Q**	2500	1600	780	ug/Kg		12/27/18 16:05	10
2-Chlorotoluene	800	U M Q	2500	800	260	ug/Kg		12/27/18 16:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*187*	*D Q*	*85 - 116*	*12/14/18 09:53*	*12/27/18 16:05*	*10*
1,2-Dichloroethane-d4 (Surr)	*122*	*D*	*71 - 136*	*12/14/18 09:53*	*12/27/18 16:05*	*10*
4-Bromofluorobenzene (Surr)	*157*	*D Q*	*79 - 119*	*12/14/18 09:53*	*12/27/18 16:05*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141218-215
Date Collected: 12/14/18 09:53
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-2
Matrix: Solid

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*116*	*D*	*78 - 119*	*12/14/18 09:53*	*12/27/18 16:05*	*10*

Client Sample ID: V-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-4
Matrix: Solid
Percent Solids: 92.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**67000**	**D**	19000	17000	5200	ug/Kg	☼	12/27/18 14:30	10
Benzene	**4700**	**D**	3200	2100	590	ug/Kg	☼	12/27/18 14:30	10
Bromobenzene	520	U Q	3200	520	250	ug/Kg	☼	12/27/18 14:30	10
Bromochloromethane	2100	U	3200	2100	610	ug/Kg	☼	12/27/18 14:30	10
Bromodichloromethane	1000	U M	3200	1000	510	ug/Kg	☼	12/27/18 14:30	10
Bromoform	2100	U Q	3200	2100	2100	ug/Kg	☼	12/27/18 14:30	10
Bromomethane	2100	U	6500	2100	570	ug/Kg	☼	12/27/18 14:30	10
2-Butanone (MEK)	8300	U M	13000	8300	3800	ug/Kg	☼	12/27/18 14:30	10
n-Butylbenzene	**16000**	**D Q**	3200	1000	420	ug/Kg	☼	12/27/18 14:30	10
sec-Butylbenzene	**15000**	**D Q**	3200	1000	490	ug/Kg	☼	12/27/18 14:30	10
tert-Butylbenzene	1000	U M Q	3200	1000	360	ug/Kg	☼	12/27/18 14:30	10
Carbon disulfide	2100	U M	3200	2100	830	ug/Kg	☼	12/27/18 14:30	10
Carbon tetrachloride	520	U M	3200	520	220	ug/Kg	☼	12/27/18 14:30	10
Chlorobenzene	1000	U Q	3200	1000	390	ug/Kg	☼	12/27/18 14:30	10
Chloroethane	2100	U	6500	2100	570	ug/Kg	☼	12/27/18 14:30	10
Chloroform	2100	U	3200	2100	600	ug/Kg	☼	12/27/18 14:30	10
Chloromethane	2100	U	6500	2100	650	ug/Kg	☼	12/27/18 14:30	10
4-Chlorotoluene	1000	U M Q	3200	1000	300	ug/Kg	☼	12/27/18 14:30	10
Dibromochloromethane	1000	U M Q	3200	1000	430	ug/Kg	☼	12/27/18 14:30	10
1,2-Dibromo-3-Chloropropane	4200	U Q	6500	4200	1100	ug/Kg	☼	12/27/18 14:30	10
Dichlorodifluoromethane	1000	U Q	6500	1000	290	ug/Kg	☼	12/27/18 14:30	10
Dibromomethane	1000	U	3200	1000	390	ug/Kg	☼	12/27/18 14:30	10
Ethylene Dibromide	1000	U M Q	3200	1000	320	ug/Kg	☼	12/27/18 14:30	10
1,2-Dichlorobenzene	4200	U Q	6500	4200	1200	ug/Kg	☼	12/27/18 14:30	10
1,3-Dichlorobenzene	2100	U Q	3200	2100	530	ug/Kg	☼	12/27/18 14:30	10
1,4-Dichlorobenzene	1000	U Q	3200	1000	320	ug/Kg	☼	12/27/18 14:30	10
1,1-Dichloroethane	2100	U	3200	2100	660	ug/Kg	☼	12/27/18 14:30	10
1,2-Dichloroethane	1000	U M	3200	1000	320	ug/Kg	☼	12/27/18 14:30	10
1,1-Dichloroethene	2100	U	3200	2100	660	ug/Kg	☼	12/27/18 14:30	10
1,2-Dichloroethene, Total	1000	U	1600	1000	290	ug/Kg	☼	12/27/18 14:30	10
cis-1,2-Dichloroethene	1000	U	1600	1000	290	ug/Kg	☼	12/27/18 14:30	10
trans-1,2-Dichloroethene	2100	U	3200	2100	580	ug/Kg	☼	12/27/18 14:30	10
1,2-Dichloropropane	2100	U M	3200	2100	600	ug/Kg	☼	12/27/18 14:30	10
1,3-Dichloropropane	1000	U Q	3200	1000	360	ug/Kg	☼	12/27/18 14:30	10
2,2-Dichloropropane	1000	U	3200	1000	350	ug/Kg	☼	12/27/18 14:30	10
1,1-Dichloropropene	2100	U	3200	2100	620	ug/Kg	☼	12/27/18 14:30	10
cis-1,3-Dichloropropene	1000	U	3200	1000	350	ug/Kg	☼	12/27/18 14:30	10
trans-1,3-Dichloropropene	2100	U M Q	3200	2100	540	ug/Kg	☼	12/27/18 14:30	10
Ethylbenzene	**24000**	**D Q**	3200	1000	440	ug/Kg	☼	12/27/18 14:30	10
2-Hexanone	8300	U M Q	13000	8300	2800	ug/Kg	☼	12/27/18 14:30	10
Hexachlorobutadiene	2100	U Q	3200	2100	640	ug/Kg	☼	12/27/18 14:30	10
Isopropylbenzene	**6200**	**D Q**	3200	1000	380	ug/Kg	☼	12/27/18 14:30	10
4-Isopropyltoluene	**8200**	**D Q**	3200	1000	420	ug/Kg	☼	12/27/18 14:30	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141218-254 — **Lab Sample ID: 280-118290-4**
Date Collected: 12/14/18 14:22 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 92.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	2100	U M	3200	2100	900	ug/Kg	☼	12/27/18 14:30	10
4-Methyl-2-pentanone (MIBK)	8300	U M	13000	8300	2900	ug/Kg	☼	12/27/18 14:30	10
Methyl tert-butyl ether	2100	U	3200	2100	650	ug/Kg	☼	12/27/18 14:30	10
Naphthalene	**23000**	**D Q**	6500	1000	490	ug/Kg	☼	12/27/18 14:30	10
N-Propylbenzene	**13000**	**D Q**	3200	2100	530	ug/Kg	☼	12/27/18 14:30	10
Styrene	1000	U M Q	3200	1000	340	ug/Kg	☼	12/27/18 14:30	10
1,1,1,2-Tetrachloroethane	1000	U Q	3200	1000	270	ug/Kg	☼	12/27/18 14:30	10
1,1,2,2-Tetrachloroethane	1000	U M Q	3200	1000	380	ug/Kg	☼	12/27/18 14:30	10
Tetrachloroethene	1000	U Q	3200	1000	350	ug/Kg	☼	12/27/18 14:30	10
Toluene	**84000**	**D**	3200	1000	510	ug/Kg	☼	12/27/18 14:30	10
1,2,3-Trichlorobenzene	1000	U M Q	3200	1000	450	ug/Kg	☼	12/27/18 14:30	10
1,1,1-Trichloroethane	520	U	3200	520	260	ug/Kg	☼	12/27/18 14:30	10
1,1,2-Trichloroethane	1000	U M	3200	1000	350	ug/Kg	☼	12/27/18 14:30	10
Trichloroethene	1000	U	3200	1000	300	ug/Kg	☼	12/27/18 14:30	10
Trichlorofluoromethane	2100	U	6500	2100	650	ug/Kg	☼	12/27/18 14:30	10
1,2,4-Trichlorobenzene	2100	U M Q	3200	2100	610	ug/Kg	☼	12/27/18 14:30	10
1,2,3-Trichloropropane	2100	U M Q	3200	2100	610	ug/Kg	☼	12/27/18 14:30	10
1,2,4-Trimethylbenzene	**59000**	**D Q**	3200	1000	400	ug/Kg	☼	12/27/18 14:30	10
1,3,5-Trimethylbenzene	**18000**	**D Q**	3200	1000	510	ug/Kg	☼	12/27/18 14:30	10
Vinyl chloride	1000	U Q	6500	1000	350	ug/Kg	☼	12/27/18 14:30	10
o-Xylene	**25000**	**D Q**	1600	1000	450	ug/Kg	☼	12/27/18 14:30	10
m-Xylene & p-Xylene	**71000**	**D Q**	3200	2100	1000	ug/Kg	☼	12/27/18 14:30	10
2-Chlorotoluene	1000	U M Q	3200	1000	340	ug/Kg	☼	12/27/18 14:30	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*254*	*D Q*	*85 - 116*	*12/14/18 14:22*	*12/27/18 14:30*	*10*
1,2-Dichloroethane-d4 (Surr)	*127*	*D*	*71 - 136*	*12/14/18 14:22*	*12/27/18 14:30*	*10*
4-Bromofluorobenzene (Surr)	*0*	*D Q*	*79 - 119*	*12/14/18 14:22*	*12/27/18 14:30*	*10*
Dibromofluoromethane (Surr)	*104*	*D*	*78 - 119*	*12/14/18 14:22*	*12/27/18 14:30*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-V2-141218-215 — **Lab Sample ID: 280-118290-3**
Date Collected: 12/14/18 09:53 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2700**	**D Q**	300	270	81	mg/Kg	☼	12/27/18 18:43	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*4448*	*Q*	*77 - 123*	*12/14/18 09:53*	*12/27/18 18:43*	*200*

Client Sample ID: P-V2-141218-254 — **Lab Sample ID: 280-118290-5**
Date Collected: 12/14/18 14:22 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 95.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**5900**	**D Q**	420	390	110	mg/Kg	☼	12/27/18 19:07	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*9525*	*Q*	*77 - 123*	*12/14/18 14:22*	*12/27/18 19:07*	*250*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: TB-V2-141218-01
Date Collected: 12/14/18 14:00
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U H Q	25	25	10	ug/L		12/31/18 20:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*81*	*Q*	*82 - 110*		*12/31/18 20:24*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-V2-141218-01
Date Collected: 12/14/18 14:00
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/04/19 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*108*		*70 - 130*	*12/27/18 11:44*	*01/04/19 19:05*	*1*

Client Sample ID: V-V2-141218-215
Date Collected: 12/14/18 09:53
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-2
Matrix: Solid
Percent Solids: 97.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**21**	**D M Q**	2.0	0.78	0.31	ug/Kg	☼	01/15/19 18:30	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 18:30*	*20*

Client Sample ID: V-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-4
Matrix: Solid
Percent Solids: 92.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**330**	**D Q**	54	21	8.1	ug/Kg	☼	01/15/19 18:49	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 18:49*	*500*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V2-141218-215
Date Collected: 12/14/18 09:53
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-3
Matrix: Solid
Percent Solids: 96.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3900**	**J1 D**	40	20	6.7	mg/Kg	☼	01/04/19 19:01	5
Motor Oil (C20-C38)	120	U D	120	120	39	mg/Kg	☼	01/04/19 19:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*77*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 19:01*	*5*
n-Octacosane	*85*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 19:01*	*5*

Client Sample ID: P-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-5
Matrix: Solid
Percent Solids: 95.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**5400**	**D**	37	19	6.3	mg/Kg	☼	01/04/19 20:50	5

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-V2-141218-254 — **Lab Sample ID: 280-118290-5**
Date Collected: 12/14/18 14:22 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 95.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	110	U D	110	110	36	mg/Kg	☼	01/04/19 20:50	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*89*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 20:50*	*5*
n-Octacosane	*92*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 20:50*	*5*

General Chemistry

Client Sample ID: V-V2-141218-215 — **Lab Sample ID: 280-118290-2**
Date Collected: 12/14/18 09:53 — **Matrix: Solid**
Date Received: 12/15/18 09:05

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.0**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: P-V2-141218-215 — **Lab Sample ID: 280-118290-3**
Date Collected: 12/14/18 09:53 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.1**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: V-V2-141218-254 — **Lab Sample ID: 280-118290-4**
Date Collected: 12/14/18 14:22 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 92.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**7.5**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: P-V2-141218-254 — **Lab Sample ID: 280-118290-5**
Date Collected: 12/14/18 14:22 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 95.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.4**		0.1	0.05	0.1	%		12/18/18 11:32	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118290-2	V-V2-141218-215	187 D Q	122 D	157 D Q	116 D
280-118290-4	V-V2-141218-254	254 D Q	127 D	0 D Q	104 D
LCS 280-441739/2-A	Lab Control Sample	98	112	94	108
LCSD 280-441739/3-A	Lab Control Sample Dup	107	113	91	114
MB 280-441739/1-A	Method Blank	105	128	101	118

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118290-1	TB-V2-141218-01	93	111	99	92
LCS 280-442719/5	Lab Control Sample	101	113	104	101
MB 280-442719/9	Method Blank	95	101	95	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118290-3	P-V2-141218-215	4448 Q
280-118290-5	P-V2-141218-254	9525 Q
LCS 280-442646/1-A	Lab Control Sample	98
LCSD 280-442646/2-A	Lab Control Sample Dup	93
MB 280-442646/3-A	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-118290-1 - RA	TB-V2-141218-01	81 Q

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(55-130)
280-118290-2	V-V2-141218-215	0 D
280-118290-4	V-V2-141218-254	0 D
LCS 280-442668/1-A	Lab Control Sample	107
LCSD 280-442668/2-A	Lab Control Sample Dup	106
MB 280-442668/3-A	Method Blank	102

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-118290-1	TB-V2-141218-01	108
LCS 280-442645/2-A	Lab Control Sample	99
LCSD 280-442645/3-A	Lab Control Sample Dup	98
MB 280-442645/4-A	Method Blank	97

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-118290-3	P-V2-141218-215	77 D	85 D
280-118290-3 MS	P-V2-141218-215	85 D	92 D
280-118290-3 MS	P-V2-141218-215	77 D	101 D
280-118290-3 MSD	P-V2-141218-215	75 D	80 D
280-118290-3 MSD	P-V2-141218-215	75 D	96 D
280-118290-5	P-V2-141218-254	89 D	92 D
LCS 280-442077/2-A	Lab Control Sample	76	94
LCS 280-442077/3-A	Lab Control Sample	77	97

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
MB 280-442077/1-A	Method Blank	70	90								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/26/18 13:15	1
Benzene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/26/18 13:15	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/26/18 13:15	1
Bromoform	160	U	250	160	160	ug/Kg		12/26/18 13:15	1
Bromomethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/26/18 13:15	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/26/18 13:15	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/26/18 13:15	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/26/18 13:15	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Chloroethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
Chloroform	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
Chloromethane	160	U M	500	160	50	ug/Kg		12/26/18 13:15	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/26/18 13:15	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/26/18 13:15	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/26/18 13:15	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/26/18 13:15	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/26/18 13:15	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/26/18 13:15	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/26/18 13:15	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/26/18 13:15	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/26/18 13:15	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/26/18 13:15	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/26/18 13:15	1
Naphthalene	80	U	500	80	38	ug/Kg		12/26/18 13:15	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/26/18 13:15	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Toluene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/26/18 13:15	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/26/18 13:15	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/26/18 13:15	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/26/18 13:15	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/26/18 13:15	1
o-Xylene	80	U	130	80	35	ug/Kg		12/26/18 13:15	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/26/18 13:15	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*128*		*71 - 136*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	7430		ug/Kg		93	36 - 164
Benzene	2000	1850		ug/Kg		93	77 - 121
Bromobenzene	2000	1840		ug/Kg		92	78 - 121
Bromochloromethane	2000	2150		ug/Kg		107	78 - 125
Bromodichloromethane	2000	2110		ug/Kg		105	75 - 127
Bromoform	2000	2100		ug/Kg		105	67 - 132
Bromomethane	2000	1740		ug/Kg		87	53 - 143
2-Butanone (MEK)	8000	8150		ug/Kg		102	51 - 148
n-Butylbenzene	2000	1440		ug/Kg		72	70 - 128
sec-Butylbenzene	2000	1600		ug/Kg		80	73 - 126
tert-Butylbenzene	2000	1660		ug/Kg		83	73 - 125
Carbon disulfide	2000	1580		ug/Kg		79	63 - 132
Carbon tetrachloride	2000	1790		ug/Kg		89	70 - 135
Chlorobenzene	2000	1800		ug/Kg		90	79 - 120
Chloroethane	2000	1580		ug/Kg		79	59 - 139
Chloroform	2000	1920		ug/Kg		96	78 - 123
Chloromethane	2000	1330		ug/Kg		67	50 - 136
4-Chlorotoluene	2000	1690		ug/Kg		84	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2240		ug/Kg		112	74 - 126
1,2-Dibromo-3-Chloropropane	2000	2060		ug/Kg		103	61 - 132
Dichlorodifluoromethane	2000	1220		ug/Kg		61	29 - 149
Dibromomethane	2000	2190		ug/Kg		110	78 - 125
Ethylene Dibromide	2000	2190		ug/Kg		110	78 - 122
1,2-Dichlorobenzene	2000	1770		ug/Kg		88	78 - 121
1,3-Dichlorobenzene	2000	1660		ug/Kg		83	77 - 121
1,4-Dichlorobenzene	2000	1670		ug/Kg		84	75 - 120
1,1-Dichloroethane	2000	1840		ug/Kg		92	76 - 125
1,2-Dichloroethane	2000	2100		ug/Kg		105	73 - 128
1,1-Dichloroethene	2000	1710		ug/Kg		85	70 - 131
cis-1,2-Dichloroethene	2000	1890		ug/Kg		94	77 - 123
trans-1,2-Dichloroethene	2000	1850		ug/Kg		93	74 - 125
1,2-Dichloropropane	2000	2060		ug/Kg		103	76 - 123
1,3-Dichloropropane	2000	2070		ug/Kg		103	77 - 121
2,2-Dichloropropane	2000	1760		ug/Kg		88	67 - 133
1,1-Dichloropropene	2000	1800		ug/Kg		90	76 - 125
cis-1,3-Dichloropropene	2000	2230		ug/Kg		112	74 - 126
trans-1,3-Dichloropropene	2000	2280		ug/Kg		114	71 - 130
Ethylbenzene	2000	1690		ug/Kg		85	76 - 122
2-Hexanone	8000	9000		ug/Kg		113	53 - 145
Hexachlorobutadiene	2000	1450		ug/Kg		73	61 - 135
Isopropylbenzene	2000	1660		ug/Kg		83	68 - 134
4-Isopropyltoluene	2000	1560		ug/Kg		78	73 - 127
Methylene Chloride	2000	1760		ug/Kg		88	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	9560		ug/Kg		119	65 - 135
Methyl tert-butyl ether	2000	2250		ug/Kg		112	73 - 125
Naphthalene	2000	1890		ug/Kg		94	62 - 129
N-Propylbenzene	2000	1630		ug/Kg		81	73 - 125
Styrene	2000	1840		ug/Kg		92	76 - 124
1,1,1,2-Tetrachloroethane	2000	1970		ug/Kg		99	78 - 125
1,1,2,2-Tetrachloroethane	2000	2090		ug/Kg		104	70 - 124
Tetrachloroethene	2000	1750		ug/Kg		87	73 - 128
Toluene	2000	1870		ug/Kg		94	77 - 121
1,2,3-Trichlorobenzene	2000	1790		ug/Kg		90	66 - 130
1,1,1-Trichloroethane	2000	1800		ug/Kg		90	73 - 130
1,1,2-Trichloroethane	2000	2250		ug/Kg		113	78 - 121
Trichloroethene	2000	1840		ug/Kg		92	77 - 123
Trichlorofluoromethane	2000	1680		ug/Kg		84	62 - 140
1,2,4-Trichlorobenzene	2000	1670		ug/Kg		84	67 - 129
1,2,3-Trichloropropane	2000	2200		ug/Kg		110	73 - 125
1,2,4-Trimethylbenzene	2000	1620		ug/Kg		81	75 - 123
1,3,5-Trimethylbenzene	2000	1660		ug/Kg		83	73 - 124
Vinyl chloride	2000	1470		ug/Kg		74	56 - 135
o-Xylene	2000	1730		ug/Kg		87	77 - 123
m-Xylene & p-Xylene	2000	1660		ug/Kg		83	77 - 124
2-Chlorotoluene	2000	1700		ug/Kg		85	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*108*		*78 - 119*

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	8720		ug/Kg		109	36 - 164	16	20
Benzene	2000	1940		ug/Kg		97	77 - 121	5	20
Bromobenzene	2000	1830		ug/Kg		91	78 - 121	1	20
Bromochloromethane	2000	2300		ug/Kg		115	78 - 125	7	20
Bromodichloromethane	2000	2050		ug/Kg		102	75 - 127	3	20
Bromoform	2000	2130		ug/Kg		106	67 - 132	1	20
Bromomethane	2000	2100		ug/Kg		105	53 - 143	19	20
2-Butanone (MEK)	8000	8170		ug/Kg		102	51 - 148	0	20
n-Butylbenzene	2000	1570		ug/Kg		79	70 - 128	9	20
sec-Butylbenzene	2000	1720		ug/Kg		86	73 - 126	7	20
tert-Butylbenzene	2000	1670		ug/Kg		84	73 - 125	1	20
Carbon disulfide	2000	1900		ug/Kg		95	63 - 132	18	20
Carbon tetrachloride	2000	2110		ug/Kg		106	70 - 135	17	20
Chlorobenzene	2000	1860		ug/Kg		93	79 - 120	3	20
Chloroethane	2000	1900		ug/Kg		95	59 - 139	19	20
Chloroform	2000	2090		ug/Kg		105	78 - 123	9	20
Chloromethane	2000	1580		ug/Kg		79	50 - 136	17	20
4-Chlorotoluene	2000	1670		ug/Kg		84	72 - 124	1	20
Dibromochloromethane	2000	2330		ug/Kg		116	74 - 126	4	20
1,2-Dibromo-3-Chloropropane	2000	2350		ug/Kg		118	61 - 132	13	20
Dichlorodifluoromethane	2000	1540	Q	ug/Kg		77	29 - 149	23	20
Dibromomethane	2000	2080		ug/Kg		104	78 - 125	5	20
Ethylene Dibromide	2000	2010		ug/Kg		100	78 - 122	9	20
1,2-Dichlorobenzene	2000	1880		ug/Kg		94	78 - 121	6	20
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121	2	20
1,4-Dichlorobenzene	2000	1670		ug/Kg		83	75 - 120	0	20
1,1-Dichloroethane	2000	2070		ug/Kg		104	76 - 125	12	20
1,2-Dichloroethane	2000	2090		ug/Kg		105	73 - 128	0	20
1,1-Dichloroethene	2000	2000		ug/Kg		100	70 - 131	16	20
cis-1,2-Dichloroethene	2000	2050		ug/Kg		103	77 - 123	8	20
trans-1,2-Dichloroethene	2000	2130		ug/Kg		107	74 - 125	14	20
1,2-Dichloropropane	2000	2070		ug/Kg		103	76 - 123	0	20
1,3-Dichloropropane	2000	1960		ug/Kg		98	77 - 121	5	20
2,2-Dichloropropane	2000	2050		ug/Kg		103	67 - 133	15	20
1,1-Dichloropropene	2000	1930		ug/Kg		96	76 - 125	7	20
cis-1,3-Dichloropropene	2000	2070		ug/Kg		104	74 - 126	7	20
trans-1,3-Dichloropropene	2000	1790	Q	ug/Kg		89	71 - 130	24	20
Ethylbenzene	2000	1900		ug/Kg		95	76 - 122	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	9290		ug/Kg		116	53 - 145	3	20
Hexachlorobutadiene	2000	1490		ug/Kg		74	61 - 135	3	20
Isopropylbenzene	2000	1830		ug/Kg		91	68 - 134	10	20
4-Isopropyltoluene	2000	1680		ug/Kg		84	73 - 127	7	20
Methylene Chloride	2000	2010		ug/Kg		101	70 - 128	14	20
4-Methyl-2-pentanone (MIBK)	8000	9740		ug/Kg		122	65 - 135	2	20
Methyl tert-butyl ether	2000	2400		ug/Kg		120	73 - 125	6	20
Naphthalene	2000	2220		ug/Kg		111	62 - 129	16	20
N-Propylbenzene	2000	1770		ug/Kg		89	73 - 125	8	20
Styrene	2000	1890		ug/Kg		95	76 - 124	3	20
1,1,1,2-Tetrachloroethane	2000	2320		ug/Kg		116	78 - 125	16	20
1,1,2,2-Tetrachloroethane	2000	2170		ug/Kg		109	70 - 124	4	20
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128	10	20
Toluene	2000	1850		ug/Kg		93	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2100		ug/Kg		105	66 - 130	16	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	15	20
1,1,2-Trichloroethane	2000	2050		ug/Kg		102	78 - 121	10	20
Trichloroethene	2000	1870		ug/Kg		94	77 - 123	2	20
Trichlorofluoromethane	2000	2060		ug/Kg		103	62 - 140	20	20
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		96	67 - 129	14	20
1,2,3-Trichloropropane	2000	2250		ug/Kg		113	73 - 125	2	20
1,2,4-Trimethylbenzene	2000	1740		ug/Kg		87	75 - 123	7	20
1,3,5-Trimethylbenzene	2000	1770		ug/Kg		89	73 - 124	6	20
Vinyl chloride	2000	1820	Q	ug/Kg		91	56 - 135	21	20
o-Xylene	2000	2010		ug/Kg		100	77 - 123	15	20
m-Xylene & p-Xylene	2000	1870		ug/Kg		93	77 - 124	12	20
2-Chlorotoluene	2000	1810		ug/Kg		91	75 - 122	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/28/18 09:37	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 09:37	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 09:37	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/28/18 09:37	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 09:37	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 09:37	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/28/18 09:37	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/28/18 09:37	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 09:37	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 09:37	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 09:37	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 09:37	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 09:37	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 09:37	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 09:37	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 09:37	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 09:37	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,2,3-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 09:37	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 09:37	1
1,2,4-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 09:37	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/28/18 09:37	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 09:37	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/28/18 09:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/28/18 09:37*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*12/28/18 09:37*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/28/18 09:37*	*1*

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.1		ug/L		106	39 - 160
Benzene	5.00	5.43		ug/L		109	79 - 120
Bromobenzene	5.00	5.15		ug/L		103	80 - 120
Bromochloromethane	5.00	5.41		ug/L		108	78 - 123
Bromodichloromethane	5.00	5.60		ug/L		112	79 - 125
Bromoform	5.00	5.31		ug/L		106	66 - 130
Bromomethane	5.00	5.55		ug/L		111	53 - 141
2-Butanone (MEK)	20.0	23.2		ug/L		116	56 - 143
n-Butylbenzene	5.00	5.03		ug/L		101	75 - 128
sec-Butylbenzene	5.00	4.87		ug/L		97	77 - 126
tert-Butylbenzene	5.00	4.94		ug/L		99	78 - 124
Carbon disulfide	5.00	5.54		ug/L		111	64 - 133
Carbon tetrachloride	5.00	5.56		ug/L		111	72 - 136
Chlorobenzene	5.00	5.30		ug/L		106	82 - 118
Chloroethane	5.00	5.72		ug/L		114	60 - 138
Chloroform	5.00	5.63		ug/L		113	79 - 124
Chloromethane	5.00	5.85		ug/L		117	50 - 139
4-Chlorotoluene	5.00	5.26		ug/L		105	78 - 122
Dibromochloromethane	5.00	5.51		ug/L		110	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.92	J	ug/L		98	62 - 128
Dichlorodifluoromethane	5.00	5.58		ug/L		112	32 - 152
Dibromomethane	5.00	5.57		ug/L		111	79 - 123
Ethylene Dibromide	5.00	5.40		ug/L		108	77 - 121
1,2-Dichlorobenzene	5.00	5.20		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	5.14		ug/L		103	80 - 119
1,4-Dichlorobenzene	5.00	5.13		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.62		ug/L		112	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.98		ug/L		120	73 - 128
1,1-Dichloroethene	5.00	5.35		ug/L		107	71 - 131
cis-1,2-Dichloroethene	5.00	5.30		ug/L		106	78 - 123
trans-1,2-Dichloroethene	5.00	5.66		ug/L		113	75 - 124
1,2-Dichloropropane	5.00	5.73		ug/L		115	78 - 122
1,3-Dichloropropane	5.00	5.50		ug/L		110	80 - 119
2,2-Dichloropropane	5.00	5.45		ug/L		109	60 - 139
1,1-Dichloropropene	5.00	5.46		ug/L		109	79 - 125
cis-1,3-Dichloropropene	5.00	5.49		ug/L		110	75 - 124
trans-1,3-Dichloropropene	5.00	5.54		ug/L		111	73 - 127
Ethylbenzene	5.00	5.20		ug/L		104	79 - 121
2-Hexanone	20.0	22.9		ug/L		114	57 - 139
Hexachlorobutadiene	5.00	4.86		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.09		ug/L		102	72 - 131
4-Isopropyltoluene	5.00	5.06		ug/L		101	77 - 127
Methylene Chloride	5.00	5.22		ug/L		104	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	67 - 130
Methyl tert-butyl ether	5.00	5.61		ug/L		112	71 - 124
Naphthalene	5.00	5.18		ug/L		104	61 - 128
N-Propylbenzene	5.00	5.03		ug/L		101	76 - 126
Styrene	5.00	5.09		ug/L		102	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.27		ug/L		105	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.37		ug/L		107	71 - 121
Tetrachloroethene	5.00	4.92		ug/L		98	74 - 129
Toluene	5.00	5.34		ug/L		107	80 - 121
1,2,3-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 129
1,1,1-Trichloroethane	5.00	5.59		ug/L		112	74 - 131
1,1,2-Trichloroethane	5.00	5.65		ug/L		113	80 - 119
Trichloroethene	5.00	5.18		ug/L		104	79 - 123
Trichlorofluoromethane	5.00	6.03		ug/L		121	65 - 141
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 130
1,2,3-Trichloropropane	5.00	5.51		ug/L		110	73 - 122
1,2,4-Trimethylbenzene	5.00	5.04		ug/L		101	76 - 124
1,3,5-Trimethylbenzene	5.00	5.04		ug/L		101	75 - 124
Vinyl chloride	5.00	5.59		ug/L		112	58 - 137
o-Xylene	5.00	5.23		ug/L		105	78 - 122
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
2-Chlorotoluene	5.00	5.09		ug/L		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*113*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/27/18 15:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*	*12/27/18 11:52*	*12/27/18 15:33*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.43		mg/Kg		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.23		mg/Kg		99	79 - 122	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.3		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442645/4-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442645

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/27/18 17:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*97*		*70 - 130*	*12/27/18 11:44*	*12/27/18 17:59*	*1*

Lab Sample ID: LCS 280-442645/2-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442645

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.250	0.217		ug/L		87	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*99*		*70 - 130*

Lab Sample ID: LCSD 280-442645/3-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442645

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.211		ug/L		84	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*70 - 130*

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/15/19 17:32	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	102		55 - 130	12/27/18 14:22	01/15/19 17:32	1

Lab Sample ID: LCS 280-442668/1-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.770		ug/Kg		88	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	107		55 - 130

Lab Sample ID: LCSD 280-442668/2-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.783		ug/Kg		89	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	106		55 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.05	J	7.7	3.8	1.3	mg/Kg		01/04/19 14:15	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg		01/04/19 14:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	12/20/18 19:41	01/04/19 14:15	1
n-Octacosane	90		25 - 162	12/20/18 19:41	01/04/19 14:15	1

Lab Sample ID: LCS 280-442077/2-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	113		mg/Kg		85	38 - 132		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	76		45 - 130
n-Octacosane	94		25 - 162

Lab Sample ID: LCS 280-442077/3-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	271		mg/Kg		83	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*		*45 - 130*
n-Octacosane	*97*		*25 - 162*

Lab Sample ID: 280-118290-3 MS
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: P-V2-141218-215
Prep Type: Total/NA
Prep Batch: 442077

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]	3900	J1 D	131	4120	4 D	mg/Kg	☼	208	38 - 132		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*85*	*D*	*45 - 130*
n-Octacosane	*92*	*D*	*25 - 162*

Lab Sample ID: 280-118290-3 MS
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: P-V2-141218-215
Prep Type: Total/NA
Prep Batch: 442077

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)	120	U D	332	282	D	mg/Kg	☼	85	45 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*	*D*	*45 - 130*
n-Octacosane	*101*	*D*	*25 - 162*

Lab Sample ID: 280-118290-3 MSD
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: P-V2-141218-215
Prep Type: Total/NA
Prep Batch: 442077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	3900	J1 D	132	3590	4 D	mg/Kg	☼	-194	38 - 132	14	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*75*	*D*	*45 - 130*
n-Octacosane	*80*	*D*	*25 - 162*

Lab Sample ID: 280-118290-3 MSD
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: P-V2-141218-215
Prep Type: Total/NA
Prep Batch: 442077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	120	U D	316	264	D	mg/Kg	☼	84	45 - 130	7	30

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-118290-3 MSD
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: P-V2-141218-215
Prep Type: Total/NA
Prep Batch: 442077

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*75*	*D*	*45 - 130*
n-Octacosane	*96*	*D*	*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-118290-2 DU
Matrix: Solid
Analysis Batch: 441723

Client Sample ID: V-V2-141218-215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	3.0			3.0		%				2	20

GC/MS VOA

Prep Batch: 441739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-2	V-V2-141218-215	Total/NA	Solid	5030B	
280-118290-4	V-V2-141218-254	Total/NA	Solid	5035	
MB 280-441739/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	

Analysis Batch: 442530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-441739/1-A	Method Blank	Total/NA	Solid	8260B	441739

Analysis Batch: 442694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-2	V-V2-141218-215	Total/NA	Solid	8260B	441739
280-118290-4	V-V2-141218-254	Total/NA	Solid	8260B	441739
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	8260B	441739
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441739

Analysis Batch: 442719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-1	TB-V2-141218-01	Total/NA	Water	8260B	
MB 280-442719/9	Method Blank	Total/NA	Water	8260B	
LCS 280-442719/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 442639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-3	P-V2-141218-215	Total/NA	Solid	8015D GRO	442646
280-118290-5	P-V2-141218-254	Total/NA	Solid	8015D GRO	442646
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-3	P-V2-141218-215	Total/NA	Solid	5035	
280-118290-5	P-V2-141218-254	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-1 - RA	TB-V2-141218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 442077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-3	P-V2-141218-215	Total/NA	Solid	3546	
280-118290-5	P-V2-141218-254	Total/NA	Solid	3546	
MB 280-442077/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-118290-3 MS	P-V2-141218-215	Total/NA	Solid	3546	
280-118290-3 MS	P-V2-141218-215	Total/NA	Solid	3546	
280-118290-3 MSD	P-V2-141218-215	Total/NA	Solid	3546	
280-118290-3 MSD	P-V2-141218-215	Total/NA	Solid	3546	

Prep Batch: 442645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-1	TB-V2-141218-01	Total/NA	Water	8011	
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 442668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-2	V-V2-141218-215	Total/NA	Solid	8011	
280-118290-4	V-V2-141218-254	Total/NA	Solid	8011	
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 442681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	442645
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	442645
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	442645

Analysis Batch: 443225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-1	TB-V2-141218-01	Total/NA	Water	8011	442645

Analysis Batch: 443317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-3	P-V2-141218-215	Total/NA	Solid	8015D DRO	442077
280-118290-5	P-V2-141218-254	Total/NA	Solid	8015D DRO	442077
MB 280-442077/1-A	Method Blank	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
280-118290-3 MS	P-V2-141218-215	Total/NA	Solid	8015D DRO	442077
280-118290-3 MS	P-V2-141218-215	Total/NA	Solid	8015D DRO	442077
280-118290-3 MSD	P-V2-141218-215	Total/NA	Solid	8015D DRO	442077
280-118290-3 MSD	P-V2-141218-215	Total/NA	Solid	8015D DRO	442077

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-2	V-V2-141218-215	Total/NA	Solid	8011	442668
280-118290-4	V-V2-141218-254	Total/NA	Solid	8011	442668

GC Semi VOA (Continued)

Analysis Batch: 444292 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	442668
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	442668
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442668

General Chemistry

Analysis Batch: 441723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118290-2	V-V2-141218-215	Total/NA	Solid	Moisture	
280-118290-3	P-V2-141218-215	Total/NA	Solid	Moisture	
280-118290-4	V-V2-141218-254	Total/NA	Solid	Moisture	
280-118290-5	P-V2-141218-254	Total/NA	Solid	Moisture	
280-118290-2 DU	V-V2-141218-215	Total/NA	Solid	Moisture	

Client Sample ID: TB-V2-141218-01

Lab Sample ID: 280-118290-1

Date Collected: 12/14/18 14:00

Matrix: Water

Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442719	12/28/18 14:34	MD	TAL DEN
Total/NA	Analysis	8015D GRO	RA	1	5 mL	5 mL	442898	12/31/18 20:24	SU	TAL DEN
Total/NA	Prep	8011			34.7 mL	35 mL	442645	12/27/18 11:44	MJS	TAL DEN
Total/NA	Analysis	8011		1			443225	01/04/19 19:05	JLW	TAL DEN

Client Sample ID: V-V2-141218-215

Lab Sample ID: 280-118290-2

Date Collected: 12/14/18 09:53

Matrix: Solid

Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.003 g	1000 mL	441739	12/14/18 09:53	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 16:05	JLS	TAL DEN
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: V-V2-141218-215

Lab Sample ID: 280-118290-2

Date Collected: 12/14/18 09:53

Matrix: Solid

Date Received: 12/15/18 09:05

Percent Solids: 97.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8011			10.06 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		20			444292	01/15/19 18:30	JLW	TAL DEN

Client Sample ID: P-V2-141218-215

Lab Sample ID: 280-118290-3

Date Collected: 12/14/18 09:53

Matrix: Solid

Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: P-V2-141218-215

Lab Sample ID: 280-118290-3

Date Collected: 12/14/18 09:53

Matrix: Solid

Date Received: 12/15/18 09:05

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.252 g	5 mL	442646	12/14/18 09:53	SU	TAL DEN
Total/NA	Analysis	8015D GRO		200	0.1 mL	5 mL	442639	12/27/18 18:43	TEM	TAL DEN
Total/NA	Prep	3546			15.6 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 19:01	AMB1	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Client Sample ID: V-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: V-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-4
Matrix: Solid
Percent Solids: 92.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.169 g	1000 mL	441739	12/14/18 14:22	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 14:30	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		500			444292	01/15/19 18:49	JLW	TAL DEN

Client Sample ID: P-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: P-V2-141218-254
Date Collected: 12/14/18 14:22
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118290-5
Matrix: Solid
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.832 g	5 mL	442646	12/14/18 14:22	SU	TAL DEN
Total/NA	Analysis	8015D GRO		250	0.1 mL	5 mL	442639	12/27/18 19:07	TEM	TAL DEN
Total/NA	Prep	3546			16.9 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 20:50	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118290-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4933 3392 7612	COC No: COC1-V2-TA-20181219
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-V2-141218-01	12/14/18	1400	G	W	N	N						X	X		X	6	
V-V2-141218-215	12/14/18	0953	G	S	N	N	X	X	X							5	
P-V2-141218-215	12/14/18	0953	G	S	N	N				X	X					3	
V-V2-141218-254	12/14/18	1422	G	S	N	N	X	X	X							5	
P-V2-141218-254	12/14/18	1422	G	S	N	N				X	X					3	

JRL

280-118290 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: JOSHUA LIVINGSTON	Date/Time: 12/14/18 1600	Company EA	Received by:	Date/Time: 12/15/18 0905	Company TA DEN		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: -0.3 5 +1.0 by AP 12/15/18

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118290-1

Login Number: 118290
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118291-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/5/2019 4:33:22 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
H	Sample was prepped or analyzed beyond the specified holding time
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118291-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118291-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/15/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-V2-141218-270 (280-118291-2) and V-V2-141258-270 (280-118291-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/14/2018 and analyzed on 12/27/2018.

The following samples required a dilution due to the nature of the sample matrix: V-V2-141218-270 (280-118291-2) and V-V2-141258-270 (280-118291-4). Because of this dilution, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

Dichlorodifluoromethane, trans-1,3-Dichloropropene and Vinyl chloride exceeded the RPD limit for LCSD 280-441739/3-A. Refer to the QC report for details. The LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-V2-141218-02 (280-118291-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/28/2018.

The continuing calibration verification check (CCVC) associated with batch 280-442719 recovered above the upper control limit for 2-Butanone (50%) at 57.6%. The samples associated with this CCVC were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: TB-V2-141218-02 (280-118291-1) and (CCVC 280-442719/34).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Samples V-V2-141218-270 (280-118291-2) and V-V2-141258-270 (280-118291-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/27/2018 and analyzed on 01/15/2019.

The following sample was diluted due to the nature of the sample matrix: V-V2-141218-270 (280-118291-2). As such, surrogate

Job ID: 280-118291-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-V2-141218-270 (280-118291-3) and P-V2-141258-270 (280-118291-5) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/14/2018 and analyzed on 12/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-V2-141218-02 (280-118291-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/26/2018 and 12/31/2018.

Re-analysis of the following sample was performed outside of the analytical holding time due to failure of several quality control parameters in the initial analysis: TB-V2-141218-02 (280-118291-1). The calibration failed due to contaminated vials in the initial analysis. The re-analysis batch had acceptable calibration and QC; therefore, as instructed by the client, the re-analysis has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-V2-141218-270 (280-118291-3) and P-V2-141258-270 (280-118291-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/03/2019 and analyzed on 01/07/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V2-141218-270 (280-118291-3), P-V2-141258-270 (280-118291-5), (LCS 280-443201/2-B), (LCS 280-443201/3-B), (MB 280-443201/1-B), (280-118291-A-5-F MS), (280-118291-A-5-H MS), (280-118291-A-5-G MSD) and (280-118291-A-5-I MSD). This is for preparation batch 280-443201 and analytical batch 280-443450.

Samples P-V2-141218-270 (280-118291-3), P-V2-141258-270 (280-118291-5), (280-118291-A-5 MS) and (280-118291-A-5 MSD) were re-extracted due to a large loss of analytes observed in previous extraction - the tube vented. It was re-prepared outside of holding time due to analyst error. The client was notified on January 3, 2019, and instructed the laboratory to re-extract the samples outside of the holding time, flag and narrate the deficiency.

The initial aliquot and surrogate aliquot used for extraction of the following samples were split between three extraction vessels with the routine volume of solvent added to each vessel: P-V2-141218-270 (280-118291-3), P-V2-141258-270 (280-118291-5), (280-118291-A-5 MS) and (280-118291-A-5 MSD). After the extraction, the extracts from all vessels were combined and concentrated. This was done due to first attempt at extraction in one tube causing the tube to vent. preparation batch 280-443201

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V2-141218-270 (280-118291-2), P-V2-141218-270 (280-118291-3), V-V2-141258-270 (280-118291-4) and P-V2-141258-270 (280-118291-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/18/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-V2-141218-02 — Lab Sample ID: 280-118291-1

No Detections.

Client Sample ID: V-V2-141218-270 — Lab Sample ID: 280-118291-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	76000	D	20000	17000	5300	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	690	J D	6600	1100	500	ug/Kg	10	☼	8260B	Total/NA
Toluene	1700	J D	3300	1100	510	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	0.60	J D Q	1.3	0.48	0.19	ug/Kg	10	☼	8011	Total/NA

Client Sample ID: P-V2-141218-270 — Lab Sample ID: 280-118291-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	8.2		1.9	1.7	0.51	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	8.8	J H	9.9	4.9	1.7	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-V2-141258-270 — Lab Sample ID: 280-118291-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	260	J	340	220	61	ug/Kg	1	☼	8260B	Total/NA
Bromobenzene	39	J	340	55	26	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	7300		1400	870	400	ug/Kg	1	☼	8260B	Total/NA
tert-Butylbenzene	39	J	340	110	38	ug/Kg	1	☼	8260B	Total/NA
Carbon tetrachloride	26	J	340	55	23	ug/Kg	1	☼	8260B	Total/NA
4-Chlorotoluene	31	J	340	110	31	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	46	J	340	110	34	ug/Kg	1	☼	8260B	Total/NA
1,4-Dichlorobenzene	34	J	340	110	34	ug/Kg	1	☼	8260B	Total/NA
1,2-Dichloroethene, Total	30	J	170	110	30	ug/Kg	1	☼	8260B	Total/NA
cis-1,2-Dichloroethene	30	J	170	110	30	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	60	J	340	110	46	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	340	J	1400	870	310	ug/Kg	1	☼	8260B	Total/NA
Toluene	690		340	110	53	ug/Kg	1	☼	8260B	Total/NA
1,2,3-Trichlorobenzene	55	J	340	110	48	ug/Kg	1	☼	8260B	Total/NA
1,1,2-Trichloroethane	43	J	340	110	37	ug/Kg	1	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	48	J	340	110	42	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	57	J	170	110	48	ug/Kg	1	☼	8260B	Total/NA
Acetone - DL	78000	D	20000	17000	5500	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	0.46		0.12	0.047	0.019	ug/Kg	1	☼	8011	Total/NA

Client Sample ID: P-V2-141258-270 — Lab Sample ID: 280-118291-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	6.5		2.0	1.8	0.54	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	7.5	J H	9.9	5.0	1.7	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118291-1	TB-V2-141218-02	Water	12/14/18 16:00	12/15/18 09:05
280-118291-2	V-V2-141218-270	Solid	12/14/18 16:13	12/15/18 09:05
280-118291-3	P-V2-141218-270	Solid	12/14/18 16:13	12/15/18 09:05
280-118291-4	V-V2-141258-270	Solid	12/14/18 16:13	12/15/18 09:05
280-118291-5	P-V2-141258-270	Solid	12/14/18 16:13	12/15/18 09:05

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V2-141218-02
Date Collected: 12/14/18 16:00
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/28/18 11:43	1
Benzene	0.40	U M	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 11:43	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 11:43	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 11:43	1
2-Butanone (MEK)	4.0	U Q	6.0	4.0	2.0	ug/L		12/28/18 11:43	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 11:43	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Carbon disulfide	1.6	U M	2.0	1.6	0.45	ug/L		12/28/18 11:43	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 11:43	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/28/18 11:43	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/28/18 11:43	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 11:43	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 11:43	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 11:43	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 11:43	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 11:43	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 11:43	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 11:43	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 11:43	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 11:43	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 11:43	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 11:43	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 11:43	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 11:43	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 11:43	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 11:43	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 11:43	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 11:43	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 11:43	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 11:43	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 11:43	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 11:43	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 11:43	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 11:43	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 11:43	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 11:43	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V2-141218-02 — **Lab Sample ID: 280-118291-1**
Date Collected: 12/14/18 16:00 — **Matrix: Water**
Date Received: 12/15/18 09:05

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 11:43	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 11:43	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 11:43	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 11:43	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 11:43	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 11:43	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 11:43	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 11:43	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 11:43	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 11:43	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/28/18 11:43	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 11:43	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 11:43	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 11:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*89 - 112*		*12/28/18 11:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*81 - 118*		*12/28/18 11:43*	*1*
4-Bromofluorobenzene (Surr)	*93*		*85 - 114*		*12/28/18 11:43*	*1*
Dibromofluoromethane (Surr)	*90*		*80 - 119*		*12/28/18 11:43*	*1*

Client Sample ID: V-V2-141218-270 — **Lab Sample ID: 280-118291-2**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**76000**	**D**	20000	17000	5300	ug/Kg	☼	12/27/18 14:48	10
Benzene	2100	U	3300	2100	590	ug/Kg	☼	12/27/18 14:48	10
Bromobenzene	530	U	3300	530	250	ug/Kg	☼	12/27/18 14:48	10
Bromochloromethane	2100	U	3300	2100	620	ug/Kg	☼	12/27/18 14:48	10
Bromodichloromethane	1100	U	3300	1100	520	ug/Kg	☼	12/27/18 14:48	10
Bromoform	2100	U	3300	2100	2100	ug/Kg	☼	12/27/18 14:48	10
Bromomethane	2100	U	6600	2100	580	ug/Kg	☼	12/27/18 14:48	10
2-Butanone (MEK)	8400	U M	13000	8400	3900	ug/Kg	☼	12/27/18 14:48	10
n-Butylbenzene	1100	U	3300	1100	420	ug/Kg	☼	12/27/18 14:48	10
sec-Butylbenzene	1100	U	3300	1100	500	ug/Kg	☼	12/27/18 14:48	10
tert-Butylbenzene	1100	U	3300	1100	370	ug/Kg	☼	12/27/18 14:48	10
Carbon disulfide	2100	U	3300	2100	840	ug/Kg	☼	12/27/18 14:48	10
Carbon tetrachloride	530	U	3300	530	220	ug/Kg	☼	12/27/18 14:48	10
Chlorobenzene	1100	U	3300	1100	390	ug/Kg	☼	12/27/18 14:48	10
Chloroethane	2100	U	6600	2100	580	ug/Kg	☼	12/27/18 14:48	10
Chloroform	2100	U	3300	2100	600	ug/Kg	☼	12/27/18 14:48	10
Chloromethane	2100	U M	6600	2100	660	ug/Kg	☼	12/27/18 14:48	10
4-Chlorotoluene	1100	U	3300	1100	300	ug/Kg	☼	12/27/18 14:48	10
Dibromochloromethane	1100	U	3300	1100	430	ug/Kg	☼	12/27/18 14:48	10
1,2-Dibromo-3-Chloropropane	4200	U	6600	4200	1100	ug/Kg	☼	12/27/18 14:48	10
Dichlorodifluoromethane	1100	U Q	6600	1100	290	ug/Kg	☼	12/27/18 14:48	10
Dibromomethane	1100	U	3300	1100	390	ug/Kg	☼	12/27/18 14:48	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141218-270 — **Lab Sample ID: 280-118291-2**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	1100	U	3300	1100	330	ug/Kg	☼	12/27/18 14:48	10
1,2-Dichlorobenzene	4200	U	6600	4200	1200	ug/Kg	☼	12/27/18 14:48	10
1,3-Dichlorobenzene	2100	U	3300	2100	530	ug/Kg	☼	12/27/18 14:48	10
1,4-Dichlorobenzene	1100	U	3300	1100	330	ug/Kg	☼	12/27/18 14:48	10
1,1-Dichloroethane	2100	U	3300	2100	660	ug/Kg	☼	12/27/18 14:48	10
1,2-Dichloroethane	1100	U	3300	1100	330	ug/Kg	☼	12/27/18 14:48	10
1,1-Dichloroethene	2100	U	3300	2100	660	ug/Kg	☼	12/27/18 14:48	10
1,2-Dichloroethene, Total	1100	U	1600	1100	290	ug/Kg	☼	12/27/18 14:48	10
cis-1,2-Dichloroethene	1100	U	1600	1100	290	ug/Kg	☼	12/27/18 14:48	10
trans-1,2-Dichloroethene	2100	U	3300	2100	590	ug/Kg	☼	12/27/18 14:48	10
1,2-Dichloropropane	2100	U M	3300	2100	610	ug/Kg	☼	12/27/18 14:48	10
1,3-Dichloropropane	1100	U	3300	1100	370	ug/Kg	☼	12/27/18 14:48	10
2,2-Dichloropropane	1100	U	3300	1100	350	ug/Kg	☼	12/27/18 14:48	10
1,1-Dichloropropene	2100	U	3300	2100	630	ug/Kg	☼	12/27/18 14:48	10
cis-1,3-Dichloropropene	1100	U M	3300	1100	350	ug/Kg	☼	12/27/18 14:48	10
trans-1,3-Dichloropropene	2100	U Q	3300	2100	540	ug/Kg	☼	12/27/18 14:48	10
Ethylbenzene	1100	U	3300	1100	450	ug/Kg	☼	12/27/18 14:48	10
2-Hexanone	8400	U	13000	8400	2800	ug/Kg	☼	12/27/18 14:48	10
Hexachlorobutadiene	2100	U	3300	2100	640	ug/Kg	☼	12/27/18 14:48	10
Isopropylbenzene	1100	U	3300	1100	380	ug/Kg	☼	12/27/18 14:48	10
4-Isopropyltoluene	1100	U M	3300	1100	420	ug/Kg	☼	12/27/18 14:48	10
Methylene Chloride	2100	U	3300	2100	910	ug/Kg	☼	12/27/18 14:48	10
4-Methyl-2-pentanone (MIBK)	8400	U	13000	8400	3000	ug/Kg	☼	12/27/18 14:48	10
Methyl tert-butyl ether	2100	U	3300	2100	660	ug/Kg	☼	12/27/18 14:48	10
Naphthalene	**690**	**J D**	6600	1100	500	ug/Kg	☼	12/27/18 14:48	10
N-Propylbenzene	2100	U	3300	2100	540	ug/Kg	☼	12/27/18 14:48	10
Styrene	1100	U	3300	1100	340	ug/Kg	☼	12/27/18 14:48	10
1,1,1,2-Tetrachloroethane	1100	U	3300	1100	280	ug/Kg	☼	12/27/18 14:48	10
1,1,2,2-Tetrachloroethane	1100	U	3300	1100	380	ug/Kg	☼	12/27/18 14:48	10
Tetrachloroethene	1100	U	3300	1100	350	ug/Kg	☼	12/27/18 14:48	10
Toluene	**1700**	**J D**	3300	1100	510	ug/Kg	☼	12/27/18 14:48	10
1,2,3-Trichlorobenzene	1100	U	3300	1100	460	ug/Kg	☼	12/27/18 14:48	10
1,1,1-Trichloroethane	530	U	3300	530	260	ug/Kg	☼	12/27/18 14:48	10
1,1,2-Trichloroethane	1100	U M	3300	1100	350	ug/Kg	☼	12/27/18 14:48	10
Trichloroethene	1100	U	3300	1100	300	ug/Kg	☼	12/27/18 14:48	10
Trichlorofluoromethane	2100	U	6600	2100	660	ug/Kg	☼	12/27/18 14:48	10
1,2,4-Trichlorobenzene	2100	U	3300	2100	610	ug/Kg	☼	12/27/18 14:48	10
1,2,3-Trichloropropane	2100	U	3300	2100	620	ug/Kg	☼	12/27/18 14:48	10
1,2,4-Trimethylbenzene	1100	U	3300	1100	410	ug/Kg	☼	12/27/18 14:48	10
1,3,5-Trimethylbenzene	1100	U	3300	1100	510	ug/Kg	☼	12/27/18 14:48	10
Vinyl chloride	1100	U Q	6600	1100	350	ug/Kg	☼	12/27/18 14:48	10
o-Xylene	1100	U	1600	1100	460	ug/Kg	☼	12/27/18 14:48	10
m-Xylene & p-Xylene	2100	U	3300	2100	1000	ug/Kg	☼	12/27/18 14:48	10
2-Chlorotoluene	1100	U	3300	1100	340	ug/Kg	☼	12/27/18 14:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*	*D*	*85 - 116*	*12/14/18 16:13*	*12/27/18 14:48*	*10*
1,2-Dichloroethane-d4 (Surr)	*107*	*D*	*71 - 136*	*12/14/18 16:13*	*12/27/18 14:48*	*10*
4-Bromofluorobenzene (Surr)	*87*	*D*	*79 - 119*	*12/14/18 16:13*	*12/27/18 14:48*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141218-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-2
Matrix: Solid
Percent Solids: 79.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	108	D	78 - 119	12/14/18 16:13	12/27/18 14:48	10

Client Sample ID: V-V2-141258-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-4
Matrix: Solid
Percent Solids: 80.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	**260**	**J**	340	220	61	ug/Kg	☼	12/27/18 17:40	1
Bromobenzene	**39**	**J**	340	55	26	ug/Kg	☼	12/27/18 17:40	1
Bromochloromethane	220	U	340	220	64	ug/Kg	☼	12/27/18 17:40	1
Bromodichloromethane	110	U	340	110	54	ug/Kg	☼	12/27/18 17:40	1
Bromoform	220	U	340	220	220	ug/Kg	☼	12/27/18 17:40	1
Bromomethane	220	U	680	220	60	ug/Kg	☼	12/27/18 17:40	1
2-Butanone (MEK)	**7300**		1400	870	400	ug/Kg	☼	12/27/18 17:40	1
n-Butylbenzene	110	U	340	110	44	ug/Kg	☼	12/27/18 17:40	1
sec-Butylbenzene	110	U	340	110	52	ug/Kg	☼	12/27/18 17:40	1
tert-Butylbenzene	**39**	**J**	340	110	38	ug/Kg	☼	12/27/18 17:40	1
Carbon disulfide	220	U	340	220	87	ug/Kg	☼	12/27/18 17:40	1
Carbon tetrachloride	**26**	**J**	340	55	23	ug/Kg	☼	12/27/18 17:40	1
Chlorobenzene	110	U M	340	110	41	ug/Kg	☼	12/27/18 17:40	1
Chloroethane	220	U	680	220	60	ug/Kg	☼	12/27/18 17:40	1
Chloroform	220	U	340	220	63	ug/Kg	☼	12/27/18 17:40	1
Chloromethane	220	U	680	220	68	ug/Kg	☼	12/27/18 17:40	1
4-Chlorotoluene	**31**	**J**	340	110	31	ug/Kg	☼	12/27/18 17:40	1
Dibromochloromethane	110	U	340	110	45	ug/Kg	☼	12/27/18 17:40	1
1,2-Dibromo-3-Chloropropane	440	U	680	440	120	ug/Kg	☼	12/27/18 17:40	1
Dichlorodifluoromethane	110	U Q	680	110	30	ug/Kg	☼	12/27/18 17:40	1
Dibromomethane	110	U	340	110	41	ug/Kg	☼	12/27/18 17:40	1
Ethylene Dibromide	**46**	**J**	340	110	34	ug/Kg	☼	12/27/18 17:40	1
1,2-Dichlorobenzene	440	U	680	440	130	ug/Kg	☼	12/27/18 17:40	1
1,3-Dichlorobenzene	220	U	340	220	55	ug/Kg	☼	12/27/18 17:40	1
1,4-Dichlorobenzene	**34**	**J**	340	110	34	ug/Kg	☼	12/27/18 17:40	1
1,1-Dichloroethane	220	U	340	220	69	ug/Kg	☼	12/27/18 17:40	1
1,2-Dichloroethane	110	U	340	110	34	ug/Kg	☼	12/27/18 17:40	1
1,1-Dichloroethene	220	U	340	220	69	ug/Kg	☼	12/27/18 17:40	1
1,2-Dichloroethene, Total	**30**	**J**	170	110	30	ug/Kg	☼	12/27/18 17:40	1
cis-1,2-Dichloroethene	**30**	**J**	170	110	30	ug/Kg	☼	12/27/18 17:40	1
trans-1,2-Dichloroethene	220	U	340	220	61	ug/Kg	☼	12/27/18 17:40	1
1,2-Dichloropropane	220	U	340	220	63	ug/Kg	☼	12/27/18 17:40	1
1,3-Dichloropropane	110	U	340	110	38	ug/Kg	☼	12/27/18 17:40	1
2,2-Dichloropropane	110	U	340	110	37	ug/Kg	☼	12/27/18 17:40	1
1,1-Dichloropropene	220	U	340	220	66	ug/Kg	☼	12/27/18 17:40	1
cis-1,3-Dichloropropene	110	U	340	110	37	ug/Kg	☼	12/27/18 17:40	1
trans-1,3-Dichloropropene	220	U Q	340	220	56	ug/Kg	☼	12/27/18 17:40	1
Ethylbenzene	**60**	**J**	340	110	46	ug/Kg	☼	12/27/18 17:40	1
2-Hexanone	870	U	1400	870	300	ug/Kg	☼	12/27/18 17:40	1
Hexachlorobutadiene	220	U	340	220	67	ug/Kg	☼	12/27/18 17:40	1
Isopropylbenzene	110	U	340	110	40	ug/Kg	☼	12/27/18 17:40	1
4-Isopropyltoluene	110	U	340	110	44	ug/Kg	☼	12/27/18 17:40	1
Methylene Chloride	220	U	340	220	94	ug/Kg	☼	12/27/18 17:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-141258-270 — **Lab Sample ID: 280-118291-4**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Methyl-2-pentanone (MIBK)	**340**	**J**	1400	870	310	ug/Kg	☼	12/27/18 17:40	1
Methyl tert-butyl ether	220	U	340	220	68	ug/Kg	☼	12/27/18 17:40	1
Naphthalene	110	U	680	110	52	ug/Kg	☼	12/27/18 17:40	1
N-Propylbenzene	220	U	340	220	56	ug/Kg	☼	12/27/18 17:40	1
Styrene	110	U M	340	110	35	ug/Kg	☼	12/27/18 17:40	1
1,1,1,2-Tetrachloroethane	110	U	340	110	29	ug/Kg	☼	12/27/18 17:40	1
1,1,2,2-Tetrachloroethane	110	U	340	110	40	ug/Kg	☼	12/27/18 17:40	1
Tetrachloroethene	110	U	340	110	37	ug/Kg	☼	12/27/18 17:40	1
Toluene	**690**		340	110	53	ug/Kg	☼	12/27/18 17:40	1
1,2,3-Trichlorobenzene	**55**	**J**	340	110	48	ug/Kg	☼	12/27/18 17:40	1
1,1,1-Trichloroethane	55	U	340	55	27	ug/Kg	☼	12/27/18 17:40	1
1,1,2-Trichloroethane	**43**	**J**	340	110	37	ug/Kg	☼	12/27/18 17:40	1
Trichloroethene	110	U	340	110	31	ug/Kg	☼	12/27/18 17:40	1
Trichlorofluoromethane	220	U	680	220	68	ug/Kg	☼	12/27/18 17:40	1
1,2,4-Trichlorobenzene	220	U	340	220	64	ug/Kg	☼	12/27/18 17:40	1
1,2,3-Trichloropropane	220	U	340	220	64	ug/Kg	☼	12/27/18 17:40	1
1,2,4-Trimethylbenzene	**48**	**J**	340	110	42	ug/Kg	☼	12/27/18 17:40	1
1,3,5-Trimethylbenzene	110	U	340	110	53	ug/Kg	☼	12/27/18 17:40	1
Vinyl chloride	110	U Q	680	110	37	ug/Kg	☼	12/27/18 17:40	1
o-Xylene	**57**	**J**	170	110	48	ug/Kg	☼	12/27/18 17:40	1
m-Xylene & p-Xylene	220	U	340	220	110	ug/Kg	☼	12/27/18 17:40	1
2-Chlorotoluene	110	U	340	110	35	ug/Kg	☼	12/27/18 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*85 - 116*	*12/14/18 16:13*	*12/27/18 17:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*12/14/18 16:13*	*12/27/18 17:40*	*1*
4-Bromofluorobenzene (Surr)	*84*		*79 - 119*	*12/14/18 16:13*	*12/27/18 17:40*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 119*	*12/14/18 16:13*	*12/27/18 17:40*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-V2-141258-270 — **Lab Sample ID: 280-118291-4**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**78000**	**D**	20000	17000	5500	ug/Kg	☼	12/27/18 12:28	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*87*	*D*	*85 - 116*	*12/14/18 16:13*	*12/27/18 12:28*	*10*
1,2-Dichloroethane-d4 (Surr)	*92*	*D*	*71 - 136*	*12/14/18 16:13*	*12/27/18 12:28*	*10*
4-Bromofluorobenzene (Surr)	*82*	*D*	*79 - 119*	*12/14/18 16:13*	*12/27/18 12:28*	*10*
Dibromofluoromethane (Surr)	*87*	*D*	*78 - 119*	*12/14/18 16:13*	*12/27/18 12:28*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-V2-141218-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-3
Matrix: Solid
Percent Solids: 80.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	8.2		1.9	1.7	0.51	mg/Kg	☼	12/27/18 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*	*12/14/18 16:13*	*12/27/18 19:31*	*1*

Client Sample ID: P-V2-141258-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-5
Matrix: Solid
Percent Solids: 79.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	6.5		2.0	1.8	0.54	mg/Kg	☼	12/27/18 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*111*		*77 - 123*	*12/14/18 16:13*	*12/27/18 19:55*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: TB-V2-141218-02
Date Collected: 12/14/18 16:00
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U H	25	25	10	ug/L		12/31/18 20:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*83*		*82 - 110*		*12/31/18 20:48*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-V2-141218-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-2
Matrix: Solid
Percent Solids: 79.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.60	J D Q	1.3	0.48	0.19	ug/Kg	☼	01/15/19 19:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*M D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 19:09*	*10*

Client Sample ID: V-V2-141258-270
Date Collected: 12/14/18 16:13
Date Received: 12/15/18 09:05

Lab Sample ID: 280-118291-4
Matrix: Solid
Percent Solids: 80.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.46		0.12	0.047	0.019	ug/Kg	☼	01/15/19 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*107*	*M*	*55 - 130*	*12/27/18 14:22*	*01/15/19 19:47*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V2-141218-270 — **Lab Sample ID: 280-118291-3**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**8.8**	**J H**	9.9	4.9	1.7	mg/Kg	☼	01/07/19 18:43	1
Motor Oil (C20-C38)	29	U H	30	29	9.6	mg/Kg	☼	01/07/19 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*45 - 130*	*01/03/19 18:43*	*01/07/19 18:43*	*1*
n-Octacosane	*88*		*25 - 162*	*01/03/19 18:43*	*01/07/19 18:43*	*1*

Client Sample ID: P-V2-141258-270 — **Lab Sample ID: 280-118291-5**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**7.5**	**J H**	9.9	5.0	1.7	mg/Kg	☼	01/07/19 17:01	1
Motor Oil (C20-C38)	29	U H	30	29	9.7	mg/Kg	☼	01/07/19 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*45 - 130*	*01/03/19 18:43*	*01/07/19 17:01*	*1*
n-Octacosane	*80*		*25 - 162*	*01/03/19 18:43*	*01/07/19 17:01*	*1*

General Chemistry

Client Sample ID: V-V2-141218-270 — **Lab Sample ID: 280-118291-2**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**20.8**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: P-V2-141218-270 — **Lab Sample ID: 280-118291-3**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**19.9**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: V-V2-141258-270 — **Lab Sample ID: 280-118291-4**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**19.6**		0.1	0.05	0.1	%		12/18/18 11:32	1

Client Sample ID: P-V2-141258-270 — **Lab Sample ID: 280-118291-5**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**20.3**		0.1	0.05	0.1	%		12/18/18 11:32	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118291-2	V-V2-141218-270	99 D	107 D	87 D	108 D
280-118291-4	V-V2-141258-270	86	90	84	88
280-118291-4 - DL	V-V2-141258-270	87 D	92 D	82 D	87 D
LCS 280-441739/2-A	Lab Control Sample	98	112	94	108
LCSD 280-441739/3-A	Lab Control Sample Dup	107	113	91	114
MB 280-441739/1-A	Method Blank	105	128	101	118

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118291-1	TB-V2-141218-02	92	92	93	90
LCS 280-442719/5	Lab Control Sample	101	113	104	101
MB 280-442719/9	Method Blank	95	101	95	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118291-3	P-V2-141218-270	99
280-118291-5	P-V2-141258-270	111
LCS 280-442646/1-A	Lab Control Sample	98
LCSD 280-442646/2-A	Lab Control Sample Dup	93
MB 280-442646/3-A	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118291-1 - RA	TB-V2-141218-02	83
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118291-2	V-V2-141218-270	0 M D
280-118291-4	V-V2-141258-270	107 M
LCS 280-442668/1-A	Lab Control Sample	107
LCSD 280-442668/2-A	Lab Control Sample Dup	106
MB 280-442668/3-A	Method Blank	102

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-118291-3	P-V2-141218-270	79	88
280-118291-5	P-V2-141258-270	74	80
280-118291-5 MS	P-V2-141258-270	83	89
280-118291-5 MS	P-V2-141258-270	68	78
280-118291-5 MSD	P-V2-141258-270	60	63
280-118291-5 MSD	P-V2-141258-270	73	84
LCS 280-443201/2-B	Lab Control Sample	69	74
LCS 280-443201/3-B	Lab Control Sample	99	111
MB 280-443201/1-B	Method Blank	64	69

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/26/18 13:15	1
Benzene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/26/18 13:15	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/26/18 13:15	1
Bromoform	160	U	250	160	160	ug/Kg		12/26/18 13:15	1
Bromomethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/26/18 13:15	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/26/18 13:15	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/26/18 13:15	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/26/18 13:15	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Chloroethane	160	U	500	160	44	ug/Kg		12/26/18 13:15	1
Chloroform	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
Chloromethane	160	U M	500	160	50	ug/Kg		12/26/18 13:15	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/26/18 13:15	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/26/18 13:15	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/26/18 13:15	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/26/18 13:15	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/26/18 13:15	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/26/18 13:15	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/26/18 13:15	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/26/18 13:15	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/26/18 13:15	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/26/18 13:15	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/26/18 13:15	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/26/18 13:15	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/26/18 13:15	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/26/18 13:15	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/26/18 13:15	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/26/18 13:15	1
Methylene Chloride	160	U	250	160	69	ug/Kg		12/26/18 13:15	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/26/18 13:15	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/26/18 13:15	1
Naphthalene	80	U	500	80	38	ug/Kg		12/26/18 13:15	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/26/18 13:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-441739/1-A
Matrix: Solid
Analysis Batch: 442530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441739

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/26/18 13:15	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/26/18 13:15	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Toluene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/26/18 13:15	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/26/18 13:15	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/26/18 13:15	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/26/18 13:15	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/26/18 13:15	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/26/18 13:15	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/26/18 13:15	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/26/18 13:15	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/26/18 13:15	1
o-Xylene	80	U	130	80	35	ug/Kg		12/26/18 13:15	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/26/18 13:15	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/26/18 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*85 - 116*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*128*		*71 - 136*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 119*	*12/18/18 13:21*	*12/26/18 13:15*	*1*

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	7430		ug/Kg		93	36 - 164
Benzene	2000	1850		ug/Kg		93	77 - 121
Bromobenzene	2000	1840		ug/Kg		92	78 - 121
Bromochloromethane	2000	2150		ug/Kg		107	78 - 125
Bromodichloromethane	2000	2110		ug/Kg		105	75 - 127
Bromoform	2000	2100		ug/Kg		105	67 - 132
Bromomethane	2000	1740		ug/Kg		87	53 - 143
2-Butanone (MEK)	8000	8150		ug/Kg		102	51 - 148
n-Butylbenzene	2000	1440		ug/Kg		72	70 - 128
sec-Butylbenzene	2000	1600		ug/Kg		80	73 - 126
tert-Butylbenzene	2000	1660		ug/Kg		83	73 - 125
Carbon disulfide	2000	1580		ug/Kg		79	63 - 132
Carbon tetrachloride	2000	1790		ug/Kg		89	70 - 135
Chlorobenzene	2000	1800		ug/Kg		90	79 - 120
Chloroethane	2000	1580		ug/Kg		79	59 - 139
Chloroform	2000	1920		ug/Kg		96	78 - 123
Chloromethane	2000	1330		ug/Kg		67	50 - 136
4-Chlorotoluene	2000	1690		ug/Kg		84	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2240		ug/Kg		112	74 - 126
1,2-Dibromo-3-Chloropropane	2000	2060		ug/Kg		103	61 - 132
Dichlorodifluoromethane	2000	1220		ug/Kg		61	29 - 149
Dibromomethane	2000	2190		ug/Kg		110	78 - 125
Ethylene Dibromide	2000	2190		ug/Kg		110	78 - 122
1,2-Dichlorobenzene	2000	1770		ug/Kg		88	78 - 121
1,3-Dichlorobenzene	2000	1660		ug/Kg		83	77 - 121
1,4-Dichlorobenzene	2000	1670		ug/Kg		84	75 - 120
1,1-Dichloroethane	2000	1840		ug/Kg		92	76 - 125
1,2-Dichloroethane	2000	2100		ug/Kg		105	73 - 128
1,1-Dichloroethene	2000	1710		ug/Kg		85	70 - 131
cis-1,2-Dichloroethene	2000	1890		ug/Kg		94	77 - 123
trans-1,2-Dichloroethene	2000	1850		ug/Kg		93	74 - 125
1,2-Dichloropropane	2000	2060		ug/Kg		103	76 - 123
1,3-Dichloropropane	2000	2070		ug/Kg		103	77 - 121
2,2-Dichloropropane	2000	1760		ug/Kg		88	67 - 133
1,1-Dichloropropene	2000	1800		ug/Kg		90	76 - 125
cis-1,3-Dichloropropene	2000	2230		ug/Kg		112	74 - 126
trans-1,3-Dichloropropene	2000	2280		ug/Kg		114	71 - 130
Ethylbenzene	2000	1690		ug/Kg		85	76 - 122
2-Hexanone	8000	9000		ug/Kg		113	53 - 145
Hexachlorobutadiene	2000	1450		ug/Kg		73	61 - 135
Isopropylbenzene	2000	1660		ug/Kg		83	68 - 134
4-Isopropyltoluene	2000	1560		ug/Kg		78	73 - 127
Methylene Chloride	2000	1760		ug/Kg		88	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	9560		ug/Kg		119	65 - 135
Methyl tert-butyl ether	2000	2250		ug/Kg		112	73 - 125
Naphthalene	2000	1890		ug/Kg		94	62 - 129
N-Propylbenzene	2000	1630		ug/Kg		81	73 - 125
Styrene	2000	1840		ug/Kg		92	76 - 124
1,1,1,2-Tetrachloroethane	2000	1970		ug/Kg		99	78 - 125
1,1,2,2-Tetrachloroethane	2000	2090		ug/Kg		104	70 - 124
Tetrachloroethene	2000	1750		ug/Kg		87	73 - 128
Toluene	2000	1870		ug/Kg		94	77 - 121
1,2,3-Trichlorobenzene	2000	1790		ug/Kg		90	66 - 130
1,1,1-Trichloroethane	2000	1800		ug/Kg		90	73 - 130
1,1,2-Trichloroethane	2000	2250		ug/Kg		113	78 - 121
Trichloroethene	2000	1840		ug/Kg		92	77 - 123
Trichlorofluoromethane	2000	1680		ug/Kg		84	62 - 140
1,2,4-Trichlorobenzene	2000	1670		ug/Kg		84	67 - 129
1,2,3-Trichloropropane	2000	2200		ug/Kg		110	73 - 125
1,2,4-Trimethylbenzene	2000	1620		ug/Kg		81	75 - 123
1,3,5-Trimethylbenzene	2000	1660		ug/Kg		83	73 - 124
Vinyl chloride	2000	1470		ug/Kg		74	56 - 135
o-Xylene	2000	1730		ug/Kg		87	77 - 123
m-Xylene & p-Xylene	2000	1660		ug/Kg		83	77 - 124
2-Chlorotoluene	2000	1700		ug/Kg		85	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-441739/2-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441739

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*108*		*78 - 119*

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	8720		ug/Kg		109	36 - 164	16	20
Benzene	2000	1940		ug/Kg		97	77 - 121	5	20
Bromobenzene	2000	1830		ug/Kg		91	78 - 121	1	20
Bromochloromethane	2000	2300		ug/Kg		115	78 - 125	7	20
Bromodichloromethane	2000	2050		ug/Kg		102	75 - 127	3	20
Bromoform	2000	2130		ug/Kg		106	67 - 132	1	20
Bromomethane	2000	2100		ug/Kg		105	53 - 143	19	20
2-Butanone (MEK)	8000	8170		ug/Kg		102	51 - 148	0	20
n-Butylbenzene	2000	1570		ug/Kg		79	70 - 128	9	20
sec-Butylbenzene	2000	1720		ug/Kg		86	73 - 126	7	20
tert-Butylbenzene	2000	1670		ug/Kg		84	73 - 125	1	20
Carbon disulfide	2000	1900		ug/Kg		95	63 - 132	18	20
Carbon tetrachloride	2000	2110		ug/Kg		106	70 - 135	17	20
Chlorobenzene	2000	1860		ug/Kg		93	79 - 120	3	20
Chloroethane	2000	1900		ug/Kg		95	59 - 139	19	20
Chloroform	2000	2090		ug/Kg		105	78 - 123	9	20
Chloromethane	2000	1580		ug/Kg		79	50 - 136	17	20
4-Chlorotoluene	2000	1670		ug/Kg		84	72 - 124	1	20
Dibromochloromethane	2000	2330		ug/Kg		116	74 - 126	4	20
1,2-Dibromo-3-Chloropropane	2000	2350		ug/Kg		118	61 - 132	13	20
Dichlorodifluoromethane	2000	1540	Q	ug/Kg		77	29 - 149	23	20
Dibromomethane	2000	2080		ug/Kg		104	78 - 125	5	20
Ethylene Dibromide	2000	2010		ug/Kg		100	78 - 122	9	20
1,2-Dichlorobenzene	2000	1880		ug/Kg		94	78 - 121	6	20
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121	2	20
1,4-Dichlorobenzene	2000	1670		ug/Kg		83	75 - 120	0	20
1,1-Dichloroethane	2000	2070		ug/Kg		104	76 - 125	12	20
1,2-Dichloroethane	2000	2090		ug/Kg		105	73 - 128	0	20
1,1-Dichloroethene	2000	2000		ug/Kg		100	70 - 131	16	20
cis-1,2-Dichloroethene	2000	2050		ug/Kg		103	77 - 123	8	20
trans-1,2-Dichloroethene	2000	2130		ug/Kg		107	74 - 125	14	20
1,2-Dichloropropane	2000	2070		ug/Kg		103	76 - 123	0	20
1,3-Dichloropropane	2000	1960		ug/Kg		98	77 - 121	5	20
2,2-Dichloropropane	2000	2050		ug/Kg		103	67 - 133	15	20
1,1-Dichloropropene	2000	1930		ug/Kg		96	76 - 125	7	20
cis-1,3-Dichloropropene	2000	2070		ug/Kg		104	74 - 126	7	20
trans-1,3-Dichloropropene	2000	1790	Q	ug/Kg		89	71 - 130	24	20
Ethylbenzene	2000	1900		ug/Kg		95	76 - 122	12	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-441739/3-A
Matrix: Solid
Analysis Batch: 442694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441739

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	9290		ug/Kg		116	53 - 145	3	20
Hexachlorobutadiene	2000	1490		ug/Kg		74	61 - 135	3	20
Isopropylbenzene	2000	1830		ug/Kg		91	68 - 134	10	20
4-Isopropyltoluene	2000	1680		ug/Kg		84	73 - 127	7	20
Methylene Chloride	2000	2010		ug/Kg		101	70 - 128	14	20
4-Methyl-2-pentanone (MIBK)	8000	9740		ug/Kg		122	65 - 135	2	20
Methyl tert-butyl ether	2000	2400		ug/Kg		120	73 - 125	6	20
Naphthalene	2000	2220		ug/Kg		111	62 - 129	16	20
N-Propylbenzene	2000	1770		ug/Kg		89	73 - 125	8	20
Styrene	2000	1890		ug/Kg		95	76 - 124	3	20
1,1,1,2-Tetrachloroethane	2000	2320		ug/Kg		116	78 - 125	16	20
1,1,2,2-Tetrachloroethane	2000	2170		ug/Kg		109	70 - 124	4	20
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128	10	20
Toluene	2000	1850		ug/Kg		93	77 - 121	1	20
1,2,3-Trichlorobenzene	2000	2100		ug/Kg		105	66 - 130	16	20
1,1,1-Trichloroethane	2000	2080		ug/Kg		104	73 - 130	15	20
1,1,2-Trichloroethane	2000	2050		ug/Kg		102	78 - 121	10	20
Trichloroethene	2000	1870		ug/Kg		94	77 - 123	2	20
Trichlorofluoromethane	2000	2060		ug/Kg		103	62 - 140	20	20
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		96	67 - 129	14	20
1,2,3-Trichloropropane	2000	2250		ug/Kg		113	73 - 125	2	20
1,2,4-Trimethylbenzene	2000	1740		ug/Kg		87	75 - 123	7	20
1,3,5-Trimethylbenzene	2000	1770		ug/Kg		89	73 - 124	6	20
Vinyl chloride	2000	1820	Q	ug/Kg		91	56 - 135	21	20
o-Xylene	2000	2010		ug/Kg		100	77 - 123	15	20
m-Xylene & p-Xylene	2000	1870		ug/Kg		93	77 - 124	12	20
2-Chlorotoluene	2000	1810		ug/Kg		91	75 - 122	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/28/18 09:37	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 09:37	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 09:37	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/28/18 09:37	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 09:37	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 09:37	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/28/18 09:37	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/28/18 09:37	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 09:37	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 09:37	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 09:37	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 09:37	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 09:37	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 09:37	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 09:37	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 09:37	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 09:37	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,2,3-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 09:37	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 09:37	1
1,2,4-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 09:37	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/28/18 09:37	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 09:37	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/28/18 09:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/28/18 09:37*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*12/28/18 09:37*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/28/18 09:37*	*1*

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	21.1		ug/L		106	39 - 160
Benzene	5.00	5.43		ug/L		109	79 - 120
Bromobenzene	5.00	5.15		ug/L		103	80 - 120
Bromochloromethane	5.00	5.41		ug/L		108	78 - 123
Bromodichloromethane	5.00	5.60		ug/L		112	79 - 125
Bromoform	5.00	5.31		ug/L		106	66 - 130
Bromomethane	5.00	5.55		ug/L		111	53 - 141
2-Butanone (MEK)	20.0	23.2		ug/L		116	56 - 143
n-Butylbenzene	5.00	5.03		ug/L		101	75 - 128
sec-Butylbenzene	5.00	4.87		ug/L		97	77 - 126
tert-Butylbenzene	5.00	4.94		ug/L		99	78 - 124
Carbon disulfide	5.00	5.54		ug/L		111	64 - 133
Carbon tetrachloride	5.00	5.56		ug/L		111	72 - 136
Chlorobenzene	5.00	5.30		ug/L		106	82 - 118
Chloroethane	5.00	5.72		ug/L		114	60 - 138
Chloroform	5.00	5.63		ug/L		113	79 - 124
Chloromethane	5.00	5.85		ug/L		117	50 - 139
4-Chlorotoluene	5.00	5.26		ug/L		105	78 - 122
Dibromochloromethane	5.00	5.51		ug/L		110	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.92	J	ug/L		98	62 - 128
Dichlorodifluoromethane	5.00	5.58		ug/L		112	32 - 152
Dibromomethane	5.00	5.57		ug/L		111	79 - 123
Ethylene Dibromide	5.00	5.40		ug/L		108	77 - 121
1,2-Dichlorobenzene	5.00	5.20		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	5.14		ug/L		103	80 - 119
1,4-Dichlorobenzene	5.00	5.13		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.62		ug/L		112	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.98		ug/L		120	73 - 128
1,1-Dichloroethene	5.00	5.35		ug/L		107	71 - 131
cis-1,2-Dichloroethene	5.00	5.30		ug/L		106	78 - 123
trans-1,2-Dichloroethene	5.00	5.66		ug/L		113	75 - 124
1,2-Dichloropropane	5.00	5.73		ug/L		115	78 - 122
1,3-Dichloropropane	5.00	5.50		ug/L		110	80 - 119
2,2-Dichloropropane	5.00	5.45		ug/L		109	60 - 139
1,1-Dichloropropene	5.00	5.46		ug/L		109	79 - 125
cis-1,3-Dichloropropene	5.00	5.49		ug/L		110	75 - 124
trans-1,3-Dichloropropene	5.00	5.54		ug/L		111	73 - 127
Ethylbenzene	5.00	5.20		ug/L		104	79 - 121
2-Hexanone	20.0	22.9		ug/L		114	57 - 139
Hexachlorobutadiene	5.00	4.86		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.09		ug/L		102	72 - 131
4-Isopropyltoluene	5.00	5.06		ug/L		101	77 - 127
Methylene Chloride	5.00	5.22		ug/L		104	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	67 - 130
Methyl tert-butyl ether	5.00	5.61		ug/L		112	71 - 124
Naphthalene	5.00	5.18		ug/L		104	61 - 128
N-Propylbenzene	5.00	5.03		ug/L		101	76 - 126
Styrene	5.00	5.09		ug/L		102	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.27		ug/L		105	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.37		ug/L		107	71 - 121
Tetrachloroethene	5.00	4.92		ug/L		98	74 - 129
Toluene	5.00	5.34		ug/L		107	80 - 121
1,2,3-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 129
1,1,1-Trichloroethane	5.00	5.59		ug/L		112	74 - 131
1,1,2-Trichloroethane	5.00	5.65		ug/L		113	80 - 119
Trichloroethene	5.00	5.18		ug/L		104	79 - 123
Trichlorofluoromethane	5.00	6.03		ug/L		121	65 - 141
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 130
1,2,3-Trichloropropane	5.00	5.51		ug/L		110	73 - 122
1,2,4-Trimethylbenzene	5.00	5.04		ug/L		101	76 - 124
1,3,5-Trimethylbenzene	5.00	5.04		ug/L		101	75 - 124
Vinyl chloride	5.00	5.59		ug/L		112	58 - 137
o-Xylene	5.00	5.23		ug/L		105	78 - 122
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
2-Chlorotoluene	5.00	5.09		ug/L		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*113*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/27/18 15:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*	*12/27/18 11:52*	*12/27/18 15:33*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.43		mg/Kg		103	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442639

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.23		mg/Kg		99	79 - 122	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*93*		*77 - 123*

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.3		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/15/19 17:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*55 - 130*	*12/27/18 14:22*	*01/15/19 17:32*	*1*

Lab Sample ID: LCS 280-442668/1-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide			0.875	0.770		ug/Kg		88	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*107*		*55 - 130*

Lab Sample ID: LCSD 280-442668/2-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442668

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.783		ug/Kg		89	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*106*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-443201/1-B
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 443201

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	7.9	3.9	1.3	mg/Kg		01/07/19 16:00	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg		01/07/19 16:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	64		45 - 130	01/03/19 18:43	01/07/19 16:00	1
n-Octacosane	69		25 - 162	01/03/19 18:43	01/07/19 16:00	1

Lab Sample ID: LCS 280-443201/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 443450 — **Prep Batch: 443201**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	130	94.5		mg/Kg		73	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	69		45 - 130
n-Octacosane	74		25 - 162

Lab Sample ID: LCS 280-443201/3-B — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 443450 — **Prep Batch: 443201**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	340		mg/Kg		102	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	99		45 - 130
n-Octacosane	111		25 - 162

Lab Sample ID: 280-118291-5 MS — **Client Sample ID: P-V2-141258-270**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 443450 — **Prep Batch: 443201**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	7.5	J H	160	146		mg/Kg	☼	87	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	83		45 - 130
n-Octacosane	89		25 - 162

Lab Sample ID: 280-118291-5 MS — **Client Sample ID: P-V2-141258-270**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 443450 — **Prep Batch: 443201**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	29	U H	396	297		mg/Kg	☼	75	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	68		45 - 130
n-Octacosane	78		25 - 162

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-118291-5 MSD
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: P-V2-141258-270
Prep Type: Total/NA
Prep Batch: 443201

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	7.5	J H	164	98.8		mg/Kg	☼	56	38 - 132	38	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*60*		*45 - 130*
n-Octacosane	*63*		*25 - 162*

Lab Sample ID: 280-118291-5 MSD
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: P-V2-141258-270
Prep Type: Total/NA
Prep Batch: 443201

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	29	U H	409	320		mg/Kg	☼	78	45 - 130	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*45 - 130*
n-Octacosane	*84*		*25 - 162*

GC/MS VOA

Prep Batch: 441739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-2	V-V2-141218-270	Total/NA	Solid	5035	
280-118291-4 - DL	V-V2-141258-270	Total/NA	Solid	5035	
280-118291-4	V-V2-141258-270	Total/NA	Solid	5035	
MB 280-441739/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-441739/1-A	Method Blank	Total/NA	Solid	8260B	441739

Analysis Batch: 442694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-2	V-V2-141218-270	Total/NA	Solid	8260B	441739
280-118291-4 - DL	V-V2-141258-270	Total/NA	Solid	8260B	441739
280-118291-4	V-V2-141258-270	Total/NA	Solid	8260B	441739
LCS 280-441739/2-A	Lab Control Sample	Total/NA	Solid	8260B	441739
LCSD 280-441739/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	441739

Analysis Batch: 442719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-1	TB-V2-141218-02	Total/NA	Water	8260B	
MB 280-442719/9	Method Blank	Total/NA	Water	8260B	
LCS 280-442719/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 442639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-3	P-V2-141218-270	Total/NA	Solid	8015D GRO	442646
280-118291-5	P-V2-141258-270	Total/NA	Solid	8015D GRO	442646
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-3	P-V2-141218-270	Total/NA	Solid	5035	
280-118291-5	P-V2-141258-270	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-1 - RA	TB-V2-141218-02	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

GC Semi VOA

Prep Batch: 442668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-2	V-V2-141218-270	Total/NA	Solid	8011	
280-118291-4	V-V2-141258-270	Total/NA	Solid	8011	
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 443201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-3	P-V2-141218-270	Total/NA	Solid	3546	
280-118291-5	P-V2-141258-270	Total/NA	Solid	3546	
MB 280-443201/1-B	Method Blank	Total/NA	Solid	3546	
LCS 280-443201/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-443201/3-B	Lab Control Sample	Total/NA	Solid	3546	
280-118291-5 MS	P-V2-141258-270	Total/NA	Solid	3546	
280-118291-5 MS	P-V2-141258-270	Total/NA	Solid	3546	
280-118291-5 MSD	P-V2-141258-270	Total/NA	Solid	3546	
280-118291-5 MSD	P-V2-141258-270	Total/NA	Solid	3546	

Analysis Batch: 443450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-3	P-V2-141218-270	Total/NA	Solid	8015D DRO	443201
280-118291-5	P-V2-141258-270	Total/NA	Solid	8015D DRO	443201
MB 280-443201/1-B	Method Blank	Total/NA	Solid	8015D DRO	443201
LCS 280-443201/2-B	Lab Control Sample	Total/NA	Solid	8015D DRO	443201
LCS 280-443201/3-B	Lab Control Sample	Total/NA	Solid	8015D DRO	443201
280-118291-5 MS	P-V2-141258-270	Total/NA	Solid	8015D DRO	443201
280-118291-5 MS	P-V2-141258-270	Total/NA	Solid	8015D DRO	443201
280-118291-5 MSD	P-V2-141258-270	Total/NA	Solid	8015D DRO	443201
280-118291-5 MSD	P-V2-141258-270	Total/NA	Solid	8015D DRO	443201

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-2	V-V2-141218-270	Total/NA	Solid	8011	442668
280-118291-4	V-V2-141258-270	Total/NA	Solid	8011	442668
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	442668
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	442668
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442668

General Chemistry

Analysis Batch: 441723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118291-2	V-V2-141218-270	Total/NA	Solid	Moisture	
280-118291-3	P-V2-141218-270	Total/NA	Solid	Moisture	
280-118291-4	V-V2-141258-270	Total/NA	Solid	Moisture	
280-118291-5	P-V2-141258-270	Total/NA	Solid	Moisture	

Client Sample ID: TB-V2-141218-02

Lab Sample ID: 280-118291-1
Date Collected: 12/14/18 16:00
Matrix: Water
Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442719	12/28/18 11:43	MD	TAL DEN
Total/NA	Analysis	8015D GRO	RA	1	5 mL	5 mL	442898	12/31/18 20:48	SU	TAL DEN

Client Sample ID: V-V2-141218-270

Lab Sample ID: 280-118291-2
Date Collected: 12/14/18 16:13
Matrix: Solid
Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: V-V2-141218-270

Lab Sample ID: 280-118291-2
Date Collected: 12/14/18 16:13
Matrix: Solid
Date Received: 12/15/18 09:05
Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.81 g	1000 mL	441739	12/14/18 16:13	JLS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442694	12/27/18 14:48	JLS	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		10			444292	01/15/19 19:09	JLW	TAL DEN

Client Sample ID: P-V2-141218-270

Lab Sample ID: 280-118291-3
Date Collected: 12/14/18 16:13
Matrix: Solid
Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: P-V2-141218-270

Lab Sample ID: 280-118291-3
Date Collected: 12/14/18 16:13
Matrix: Solid
Date Received: 12/15/18 09:05
Percent Solids: 80.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.695 g	5 mL	442646	12/14/18 16:13	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	442639	12/27/18 19:31	TEM	TAL DEN
Total/NA	Prep	3546			15.2 g	1 mL	443201	01/03/19 18:43	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443450	01/07/19 18:43	AMB1	TAL DEN

Client Sample ID: V-V2-141258-270 — **Lab Sample ID: 280-118291-4**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: V-V2-141258-270 — **Lab Sample ID: 280-118291-4**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 80.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.569 g	1000 mL	441739	12/14/18 16:13	JLS	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	442694	12/27/18 12:28	JLS	TAL DEN
Total/NA	Prep	5035			4.569 g	1000 mL	441739	12/14/18 16:13	JLS	TAL DEN
Total/NA	Analysis	8260B		1	20 mL	20 mL	442694	12/27/18 17:40	JLS	TAL DEN
Total/NA	Prep	8011			10.05 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		1			444292	01/15/19 19:47	JLW	TAL DEN

Client Sample ID: P-V2-141258-270 — **Lab Sample ID: 280-118291-5**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441723	12/18/18 11:32	LMD	TAL DEN

Client Sample ID: P-V2-141258-270 — **Lab Sample ID: 280-118291-5**
Date Collected: 12/14/18 16:13 — **Matrix: Solid**
Date Received: 12/15/18 09:05 — **Percent Solids: 79.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.422 g	5 mL	442646	12/14/18 16:13	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	442639	12/27/18 19:55	TEM	TAL DEN
Total/NA	Prep	3546			15.2 g	1 mL	443201	01/03/19 18:43	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443450	01/07/19 17:01	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118291-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Lane Andress	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3393 0961	COC No: COC2-V2-TA-201812 14
Client Contact: Pamela Moss	Phone: 505-266-2225	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	
City: Greenwood Village	TAT Requested (days): Per PO	
State, Zip: CO, 80111		
Phone: 303-590-9143(Tel)	PO #: 16065	
Email: pmoss@eaest.com	WO #: 62735DM02.1017	
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071	
Site: Kirtland BFF	SSOW#:	

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Wewater, Sowsolid, Owwaste/oil, BT=Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
TB-V2-~~141218-02~~ 141218-02	12/14/18	1600	G	W	N	N						X			X		
V-V2-~~141218~~ 141218-270		1613		S	N	N	X	X	X								
P-V2-141218-270				S	N	N				X	X						
V-V2-141258-270				S	N	N	X	X	X								Dup
P-V2-141258-270				S	N	N				X	X						Dup

280-118291 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Lane Andress	Date/Time: 12/14/18 1800	Company EA	Received by:	Date/Time: 12/15/18 0905	Company TA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: FO.3 5 +1.0 by AP 12/15/18

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118291-1

Login Number: 118291
List Number: 1
Creator: Paul, Amanda E

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118336-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/22/2019 9:30:49 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.
H	Sample was prepped or analyzed beyond the specified holding time

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
Q	One or more quality control criteria failed.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118336-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118336-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/18/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-V1-161218-061 (280-118336-2), V-V1-161218-101 (280-118336-4), V-V1-161218-115 (280-118336-6) and V-V1-171218-147 (280-118336-8) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/16/2018 and 12/17/2018 and analyzed on 12/27/2018.

Samples V-V1-161218-061 (280-118336-2)[10X], V-V1-161218-101 (280-118336-4)[10X], V-V1-161218-115 (280-118336-6)[10X] and V-V1-171218-147 (280-118336-8)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

1,2-Dichloroethane-d4 (Surr), 4-Bromofluorobenzene (Surr), Dibromofluoromethane (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for V-V1-161218-061 (280-118336-2). 4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria low for V-V1-161218-101 (280-118336-4). 1,2-Dichloroethane-d4 (Surr), Dibromofluoromethane (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high. 1,2-Dichloroethane-d4 (Surr), 4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for V-V1-161218-115 (280-118336-6). 1,2-Dichloroethane-d4 (Surr) and Dibromofluoromethane (Surr) failed the surrogate recovery criteria low for V-V1-171218-147 (280-118336-8). Toluene-d8 (Surr) failed the surrogate recovery criteria high. Refer to the QC report for details. Because of the required dilutions, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

2-Butanone (MEK) and Bromobenzene exceeded the RPD limit for LCSD 280-442179/3-A. Refer to the QC report for details. The LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-V1-171218-01 (280-118336-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/07/2019 and 12/31/2018.

Toluene-d8 (Surr) failed the surrogate recovery criteria low for TB-V1-171218-01 (280-118336-1) at 82% (limits 89-112%). Refer to the QC report for details. Re-analysis in batch 443477 was performed outside of holding time with acceptable QC and similar results. As

Job ID: 280-118336-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

requested by the client, the in hold data have been qualified and reported.

The laboratory control sample (LCS) for analytical batch 280-442892 recovered outside control limits for the following analytes: Methyl tert-butyl ether (limits 71%-124%) at 125%. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been qualified and reported.

The initial calibration verification (ICV) result for batch 280-442892 was above the upper control limit for Dichlorodifluoromethane (20%) at 20.8%. Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-V1-161218-061 (280-118336-2), V-V1-161218-101 (280-118336-4), V-V1-161218-115 (280-118336-6) and V-V1-171218-147 (280-118336-8) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/27/2018 and 12/30/2018 and analyzed on 01/14/2019 and 01/15/2019.

Samples V-V1-161218-061 (280-118336-2)[20X], V-V1-161218-101 (280-118336-4)[100X], V-V1-161218-115 (280-118336-6)[100X], V-V1-171218-147 (280-118336-8)[50X], (280-118336-B-6-B MS) and (280-118336-B-6-C MSD) required dilution prior to analysis due to abundance of target analytes. As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Ethylene Dibromide failed the recovery criteria low for the MS of sample V-V1-161218-115 (280-118336-6) in batch 280-444201. Ethylene Dibromide failed the recovery criteria high for the MSD of sample V-V1-161218-115 (280-118336-6) in batch 280-444201. Ethylene Dibromide exceeded the RPD limit. Due to the high concentration of Ethylene Dibromide, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 280-442668 and analytical batch 280-444201 could not be evaluated for accuracy and precision. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount; therefore, control limits are not applicable. Refer to the QC report for details. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-V1-171218-01 (280-118336-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/30/2018 and analyzed on 01/08/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-V1-161218-061 (280-118336-3), P-V1-161218-101 (280-118336-5), P-V1-161218-115 (280-118336-7) and P-V1-171218-147 (280-118336-9) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/16/2018 and 12/17/2018 and analyzed on 01/02/2019, 01/03/2019 and 12/30/2018.

Reanalysis of the following samples was performed outside of the analytical holding time due to failure of quality control (CCVRT) parameters in the initial analysis in original analytical batch 442742: P-V1-161218-061 (280-118336-3), P-V1-161218-115 (280-118336-7), and P-V1-171218-147 (280-118336-9). Samples were reanalyzed 2-3 days after the holding time had expired. The reanalysis data have been qualified and reported.

Samples P-V1-161218-061 (280-118336-3)[200X], P-V1-161218-101 (280-118336-5)[200X], P-V1-161218-115 (280-118336-7)[200X] and P-V1-171218-147 (280-118336-9)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-161218-101 (280-118336-5). a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-161218-115 (280-118336-7). a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-171218-147 (280-118336-9). Refer to the QC report for details. Because of the required dilutions, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

Job ID: 280-118336-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-161218-061 (280-118336-3) due to matrix interference. Re-extraction and/or re-analysis was performed with concurring results. The re-analysis has been reported.

The continuing calibration verification (CCV) associated with batch 280-442742 recovered above the upper control limit for Gasoline Range Organics (GRO)-C6-C10. The samples associated with this CCV were detects for the affected analytes; therefore, the samples have been reanalyzed and diluted properly. The reanalysis data have been qualified and reported, as instructed by the client. The following samples are associated: P-V1-161218-061 (280-118336-3), P-V1-161218-101 (280-118336-5), P-V1-161218-115 (280-118336-7) and P-V1-171218-147 (280-118336-9).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-V1-171218-01 (280-118336-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/31/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-V1-161218-061 (280-118336-3), P-V1-161218-101 (280-118336-5), P-V1-161218-115 (280-118336-7) and P-V1-171218-147 (280-118336-9) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/20/2018 and analyzed on 01/04/2019.

Samples P-V1-161218-061 (280-118336-3)[10X], P-V1-161218-101 (280-118336-5)[10X], P-V1-161218-115 (280-118336-7)[10X] and P-V1-171218-147 (280-118336-9)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V1-161218-061 (280-118336-3), P-V1-161218-101 (280-118336-5), P-V1-161218-115 (280-118336-7), P-V1-171218-147 (280-118336-9), (LCS 280-442077/2-A), (LCS 280-442077/3-A), (MB 280-442077/1-A), (280-118290-A-3-A), (280-118290-A-3-B MS), (280-118290-A-3-D MS), (280-118290-A-3-C MSD) and (280-118290-A-3-E MSD). This is for preparation batch 280-442077 and analytical batch 280-443317.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442077/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable since the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V1-161218-061 (280-118336-2), P-V1-161218-061 (280-118336-3), V-V1-161218-101 (280-118336-4), P-V1-161218-101 (280-118336-5), V-V1-161218-115 (280-118336-6), P-V1-161218-115 (280-118336-7), V-V1-171218-147 (280-118336-8) and P-V1-171218-147 (280-118336-9) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Client Sample ID: TB-V1-171218-01 — Lab Sample ID: 280-118336-1

No Detections.

Client Sample ID: V-V1-161218-061 — Lab Sample ID: 280-118336-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	88000	D Q	26000	22000	6900	ug/Kg	10	☼	8260B	Total/NA
Benzene	15000	D Q	4300	2800	780	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	67000	D Q	4300	1400	550	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	66000	D Q	4300	1400	660	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	46000	D Q	4300	1400	590	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	16000	D Q	4300	1400	500	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	23000	D Q	4300	1400	550	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	58000	D Q	8600	1400	660	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	45000	D Q	4300	2800	710	ug/Kg	10	☼	8260B	Total/NA
Toluene	47000	D Q	4300	1400	670	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	160000	D Q	4300	1400	540	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	46000	D Q	4300	1400	670	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	30000	D Q	2200	1400	600	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	58000	D Q	4300	2800	1300	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	17	D Q	2.1	0.80	0.32	ug/Kg	20	☼	8011	Total/NA

Client Sample ID: P-V1-161218-061 — Lab Sample ID: 280-118336-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - RA	6900	D H Q	290	270	79	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	13000	D	76	38	13	mg/Kg	10	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-161218-101 — Lab Sample ID: 280-118336-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	53000	D Q	24000	20000	6300	ug/Kg	10	☼	8260B	Total/NA
Benzene	31000	D Q	3900	2500	710	ug/Kg	10	☼	8260B	Total/NA
2-Butanone (MEK)	87000	D Q	16000	10000	4700	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	57000	D Q	3900	1300	500	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	50000	D Q	3900	1300	600	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	50000	D Q	3900	1300	540	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	15000	D Q	3900	1300	460	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	25000	D Q	3900	1300	500	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	48000	D Q	7900	1300	600	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	37000	D Q	3900	2500	650	ug/Kg	10	☼	8260B	Total/NA
Toluene	130000	D Q	3900	1300	620	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	160000	D Q	3900	1300	490	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	45000	D Q	3900	1300	620	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	42000	D Q	2000	1300	550	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	100000	D Q	3900	2500	1200	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	100	D Q	10	3.9	1.5	ug/Kg	100	☼	8011	Total/NA

Client Sample ID: P-V1-161218-101 — Lab Sample ID: 280-118336-5

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: P-V1-161218-101 (Continued) — Lab Sample ID: 280-118336-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	7300	D Q	310	290	85	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	15000	D	74	37	13	mg/Kg	10	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-161218-115 — Lab Sample ID: 280-118336-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	200000	D	19000	16000	5100	ug/Kg	10	☼	8260B	Total/NA
Benzene	27000	D Q	3200	2000	570	ug/Kg	10	☼	8260B	Total/NA
2-Butanone (MEK)	120000	D Q	13000	8100	3700	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	51000	D Q	3200	1000	410	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	41000	D Q	3200	1000	480	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	39000	D Q	3200	1000	430	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	12000	D Q	3200	1000	370	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	19000	D Q	3200	1000	410	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	55000	D Q	6400	1000	480	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	31000	D Q	3200	2000	520	ug/Kg	10	☼	8260B	Total/NA
Toluene	97000	D Q	3200	1000	500	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	120000	D Q	3200	1000	390	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	32000	D Q	3200	1000	500	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	27000	D Q	1600	1000	440	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	63000	D Q	3200	2000	990	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	140	J1 D Q	12	4.4	1.7	ug/Kg	100	☼	8011	Total/NA

Client Sample ID: P-V1-161218-115 — Lab Sample ID: 280-118336-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - RA	5100	H D Q	340	310	93	mg/Kg	200	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	19000	D	83	42	14	mg/Kg	10	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-171218-147 — Lab Sample ID: 280-118336-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Benzene	12000	D Q	3600	2300	660	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	20000	D	3600	1200	460	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	18000	D	3600	1200	550	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	21000	D Q	3600	1200	490	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	6300	D	3600	1200	420	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	7700	D	3600	1200	460	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	21000	D	7300	1200	550	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	14000	D	3600	2300	600	ug/Kg	10	☼	8260B	Total/NA
Toluene	61000	D Q	3600	1200	570	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	53000	D	3600	1200	450	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	16000	D	3600	1200	570	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	18000	D Q	1800	1200	510	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	45000	D Q	3600	2300	1100	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	50	D M Q	5.2	2.0	0.78	ug/Kg	50	☼	8011	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Client Sample ID: P-V1-171218-147

Lab Sample ID: 280-118336-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - RA	5900	H D Q	390	360	110	mg/Kg	250	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	7900	D	39	20	6.6	mg/Kg	5	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118336-1	TB-V1-171218-01	Water	12/17/18 16:00	12/18/18 10:54
280-118336-2	V-V1-161218-061	Solid	12/16/18 09:51	12/18/18 10:54
280-118336-3	P-V1-161218-061	Solid	12/16/18 09:51	12/18/18 10:54
280-118336-4	V-V1-161218-101	Solid	12/16/18 14:30	12/18/18 10:54
280-118336-5	P-V1-161218-101	Solid	12/16/18 14:30	12/18/18 10:54
280-118336-6	V-V1-161218-115	Solid	12/16/18 15:48	12/18/18 10:54
280-118336-7	P-V1-161218-115	Solid	12/16/18 15:48	12/18/18 10:54
280-118336-8	V-V1-171218-147	Solid	12/17/18 15:47	12/18/18 10:54
280-118336-9	P-V1-171218-147	Solid	12/17/18 15:47	12/18/18 10:54

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V1-171218-01
Date Collected: 12/17/18 16:00
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/31/18 16:19	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/31/18 16:19	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
Bromoform	0.40	U Q	1.0	0.40	0.19	ug/L		12/31/18 16:19	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/31/18 16:19	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/31/18 16:19	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/31/18 16:19	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/31/18 16:19	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/31/18 16:19	1
Chlorobenzene	0.40	U Q	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/31/18 16:19	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/31/18 16:19	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 16:19	1
Dibromochloromethane	0.40	U Q	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/31/18 16:19	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		12/31/18 16:19	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
Ethylene Dibromide	0.40	U Q	1.0	0.40	0.18	ug/L		12/31/18 16:19	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 16:19	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 16:19	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 16:19	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 16:19	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/31/18 16:19	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/31/18 16:19	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 16:19	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 16:19	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 16:19	1
1,3-Dichloropropane	0.80	U Q	1.0	0.80	0.22	ug/L		12/31/18 16:19	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 16:19	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 16:19	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 16:19	1
Ethylbenzene	0.40	U Q M	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
2-Hexanone	4.0	U Q	5.0	4.0	1.7	ug/L		12/31/18 16:19	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/31/18 16:19	1
Isopropylbenzene	0.40	U M	1.0	0.40	0.19	ug/L		12/31/18 16:19	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 16:19	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/31/18 16:19	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/31/18 16:19	1
Methyl tert-butyl ether	0.80	U Q	5.0	0.80	0.25	ug/L		12/31/18 16:19	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 16:19	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Styrene	0.40	U Q	1.0	0.40	0.17	ug/L		12/31/18 16:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V1-171218-01
Date Collected: 12/17/18 16:00
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U Q	1.0	0.80	0.21	ug/L		12/31/18 16:19	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 16:19	1
Tetrachloroethene	0.40	U Q	1.0	0.40	0.20	ug/L		12/31/18 16:19	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 16:19	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/31/18 16:19	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/31/18 16:19	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 16:19	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/31/18 16:19	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 16:19	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:19	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/31/18 16:19	1
o-Xylene	0.40	U Q	1.0	0.40	0.19	ug/L		12/31/18 16:19	1
m-Xylene & p-Xylene	0.80	U Q	2.0	0.80	0.34	ug/L		12/31/18 16:19	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*82*	*Q*	*89 - 112*		*12/31/18 16:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*81 - 118*		*12/31/18 16:19*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*12/31/18 16:19*	*1*
Dibromofluoromethane (Surr)	*112*		*80 - 119*		*12/31/18 16:19*	*1*

Client Sample ID: V-V1-161218-061
Date Collected: 12/16/18 09:51
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-2
Matrix: Solid
Percent Solids: 94.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**88000**	**D Q**	26000	22000	6900	ug/Kg	☼	12/27/18 13:09	10
Benzene	**15000**	**D Q**	4300	2800	780	ug/Kg	☼	12/27/18 13:09	10
Bromobenzene	690	U Q	4300	690	330	ug/Kg	☼	12/27/18 13:09	10
Bromochloromethane	2800	U Q	4300	2800	810	ug/Kg	☼	12/27/18 13:09	10
Bromodichloromethane	1400	U Q	4300	1400	680	ug/Kg	☼	12/27/18 13:09	10
Bromoform	2800	U Q	4300	2800	2800	ug/Kg	☼	12/27/18 13:09	10
Bromomethane	2800	U Q	8600	2800	760	ug/Kg	☼	12/27/18 13:09	10
2-Butanone (MEK)	11000	U M Q	17000	11000	5100	ug/Kg	☼	12/27/18 13:09	10
n-Butylbenzene	**67000**	**D Q**	4300	1400	550	ug/Kg	☼	12/27/18 13:09	10
sec-Butylbenzene	**66000**	**D Q**	4300	1400	660	ug/Kg	☼	12/27/18 13:09	10
tert-Butylbenzene	1400	U M Q	4300	1400	480	ug/Kg	☼	12/27/18 13:09	10
Carbon disulfide	2800	U M Q	4300	2800	1100	ug/Kg	☼	12/27/18 13:09	10
Carbon tetrachloride	690	U Q	4300	690	290	ug/Kg	☼	12/27/18 13:09	10
Chlorobenzene	1400	U Q	4300	1400	520	ug/Kg	☼	12/27/18 13:09	10
Chloroethane	2800	U Q	8600	2800	760	ug/Kg	☼	12/27/18 13:09	10
Chloroform	2800	U Q	4300	2800	790	ug/Kg	☼	12/27/18 13:09	10
Chloromethane	2800	U Q	8600	2800	860	ug/Kg	☼	12/27/18 13:09	10
4-Chlorotoluene	1400	U M Q	4300	1400	400	ug/Kg	☼	12/27/18 13:09	10
Dibromochloromethane	1400	U Q	4300	1400	570	ug/Kg	☼	12/27/18 13:09	10
1,2-Dibromo-3-Chloropropane	5500	U Q	8600	5500	1500	ug/Kg	☼	12/27/18 13:09	10
Dichlorodifluoromethane	1400	U Q	8600	1400	380	ug/Kg	☼	12/27/18 13:09	10
Dibromomethane	1400	U Q	4300	1400	520	ug/Kg	☼	12/27/18 13:09	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-161218-061 — **Lab Sample ID: 280-118336-2**
Date Collected: 12/16/18 09:51 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 94.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	1400	U Q	4300	1400	430	ug/Kg	☼	12/27/18 13:09	10
1,2-Dichlorobenzene	5500	U Q	8600	5500	1600	ug/Kg	☼	12/27/18 13:09	10
1,3-Dichlorobenzene	2800	U Q	4300	2800	700	ug/Kg	☼	12/27/18 13:09	10
1,4-Dichlorobenzene	1400	U Q	4300	1400	430	ug/Kg	☼	12/27/18 13:09	10
1,1-Dichloroethane	2800	U Q	4300	2800	870	ug/Kg	☼	12/27/18 13:09	10
1,2-Dichloroethane	1400	U M Q	4300	1400	430	ug/Kg	☼	12/27/18 13:09	10
1,1-Dichloroethene	2800	U Q	4300	2800	870	ug/Kg	☼	12/27/18 13:09	10
1,2-Dichloroethene, Total	1400	U	2200	1400	380	ug/Kg	☼	12/27/18 13:09	10
cis-1,2-Dichloroethene	1400	U Q	2200	1400	380	ug/Kg	☼	12/27/18 13:09	10
trans-1,2-Dichloroethene	2800	U Q	4300	2800	770	ug/Kg	☼	12/27/18 13:09	10
1,2-Dichloropropane	2800	U M Q	4300	2800	800	ug/Kg	☼	12/27/18 13:09	10
1,3-Dichloropropane	1400	U Q	4300	1400	480	ug/Kg	☼	12/27/18 13:09	10
2,2-Dichloropropane	1400	U Q	4300	1400	470	ug/Kg	☼	12/27/18 13:09	10
1,1-Dichloropropene	2800	U Q	4300	2800	830	ug/Kg	☼	12/27/18 13:09	10
cis-1,3-Dichloropropene	1400	U M Q	4300	1400	470	ug/Kg	☼	12/27/18 13:09	10
trans-1,3-Dichloropropene	2800	U M Q	4300	2800	710	ug/Kg	☼	12/27/18 13:09	10
Ethylbenzene	**46000**	**D Q**	4300	1400	590	ug/Kg	☼	12/27/18 13:09	10
2-Hexanone	11000	U M Q	17000	11000	3700	ug/Kg	☼	12/27/18 13:09	10
Hexachlorobutadiene	2800	U Q	4300	2800	850	ug/Kg	☼	12/27/18 13:09	10
Isopropylbenzene	**16000**	**D Q**	4300	1400	500	ug/Kg	☼	12/27/18 13:09	10
4-Isopropyltoluene	**23000**	**D Q**	4300	1400	550	ug/Kg	☼	12/27/18 13:09	10
Methylene Chloride	2800	U Q	4300	2800	1200	ug/Kg	☼	12/27/18 13:09	10
4-Methyl-2-pentanone (MIBK)	11000	U M Q	17000	11000	3900	ug/Kg	☼	12/27/18 13:09	10
Methyl tert-butyl ether	2800	U Q	4300	2800	860	ug/Kg	☼	12/27/18 13:09	10
Naphthalene	**58000**	**D Q**	8600	1400	660	ug/Kg	☼	12/27/18 13:09	10
N-Propylbenzene	**45000**	**D Q**	4300	2800	710	ug/Kg	☼	12/27/18 13:09	10
Styrene	1400	U M Q	4300	1400	450	ug/Kg	☼	12/27/18 13:09	10
1,1,1,2-Tetrachloroethane	1400	U Q	4300	1400	360	ug/Kg	☼	12/27/18 13:09	10
1,1,2,2-Tetrachloroethane	1400	U M Q	4300	1400	500	ug/Kg	☼	12/27/18 13:09	10
Tetrachloroethene	1400	U Q	4300	1400	470	ug/Kg	☼	12/27/18 13:09	10
Toluene	**47000**	**D Q**	4300	1400	670	ug/Kg	☼	12/27/18 13:09	10
1,2,3-Trichlorobenzene	1400	U Q	4300	1400	600	ug/Kg	☼	12/27/18 13:09	10
1,1,1-Trichloroethane	690	U Q	4300	690	350	ug/Kg	☼	12/27/18 13:09	10
1,1,2-Trichloroethane	1400	U M Q	4300	1400	470	ug/Kg	☼	12/27/18 13:09	10
Trichloroethene	1400	U Q	4300	1400	400	ug/Kg	☼	12/27/18 13:09	10
Trichlorofluoromethane	2800	U Q	8600	2800	860	ug/Kg	☼	12/27/18 13:09	10
1,2,4-Trichlorobenzene	2800	U Q	4300	2800	810	ug/Kg	☼	12/27/18 13:09	10
1,2,3-Trichloropropane	2800	U M Q	4300	2800	810	ug/Kg	☼	12/27/18 13:09	10
1,2,4-Trimethylbenzene	**160000**	**D Q**	4300	1400	540	ug/Kg	☼	12/27/18 13:09	10
1,3,5-Trimethylbenzene	**46000**	**D Q**	4300	1400	670	ug/Kg	☼	12/27/18 13:09	10
Vinyl chloride	1400	U Q	8600	1400	470	ug/Kg	☼	12/27/18 13:09	10
o-Xylene	**30000**	**D Q**	2200	1400	600	ug/Kg	☼	12/27/18 13:09	10
m-Xylene & p-Xylene	**58000**	**D Q**	4300	2800	1300	ug/Kg	☼	12/27/18 13:09	10
2-Chlorotoluene	1400	U M Q	4300	1400	450	ug/Kg	☼	12/27/18 13:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*226*	*Q D*	*85 - 116*	*12/16/18 09:51*	*12/27/18 13:09*	*10*
1,2-Dichloroethane-d4 (Surr)	*189*	*Q D*	*71 - 136*	*12/16/18 09:51*	*12/27/18 13:09*	*10*
4-Bromofluorobenzene (Surr)	*241*	*Q D*	*79 - 119*	*12/16/18 09:51*	*12/27/18 13:09*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-161218-061
Date Collected: 12/16/18 09:51
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-2
Matrix: Solid
Percent Solids: 94.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	180	Q D	78 - 119	12/16/18 09:51	12/27/18 13:09	10

Client Sample ID: V-V1-161218-101
Date Collected: 12/16/18 14:30
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-4
Matrix: Solid
Percent Solids: 96.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**53000**	**D Q**	24000	20000	6300	ug/Kg	☼	12/27/18 14:09	10
Benzene	**31000**	**D Q**	3900	2500	710	ug/Kg	☼	12/27/18 14:09	10
Bromobenzene	630	U Q	3900	630	300	ug/Kg	☼	12/27/18 14:09	10
Bromochloromethane	2500	U Q	3900	2500	740	ug/Kg	☼	12/27/18 14:09	10
Bromodichloromethane	1300	U Q	3900	1300	620	ug/Kg	☼	12/27/18 14:09	10
Bromoform	2500	U Q	3900	2500	2500	ug/Kg	☼	12/27/18 14:09	10
Bromomethane	2500	U Q	7900	2500	690	ug/Kg	☼	12/27/18 14:09	10
2-Butanone (MEK)	**87000**	**D Q**	16000	10000	4700	ug/Kg	☼	12/27/18 14:09	10
n-Butylbenzene	**57000**	**D Q**	3900	1300	500	ug/Kg	☼	12/27/18 14:09	10
sec-Butylbenzene	**50000**	**D Q**	3900	1300	600	ug/Kg	☼	12/27/18 14:09	10
tert-Butylbenzene	1300	U M Q	3900	1300	440	ug/Kg	☼	12/27/18 14:09	10
Carbon disulfide	2500	U M Q	3900	2500	1000	ug/Kg	☼	12/27/18 14:09	10
Carbon tetrachloride	630	U Q	3900	630	270	ug/Kg	☼	12/27/18 14:09	10
Chlorobenzene	1300	U Q	3900	1300	470	ug/Kg	☼	12/27/18 14:09	10
Chloroethane	2500	U Q	7900	2500	690	ug/Kg	☼	12/27/18 14:09	10
Chloroform	2500	U Q	3900	2500	730	ug/Kg	☼	12/27/18 14:09	10
Chloromethane	2500	U Q	7900	2500	790	ug/Kg	☼	12/27/18 14:09	10
4-Chlorotoluene	1300	U M Q	3900	1300	360	ug/Kg	☼	12/27/18 14:09	10
Dibromochloromethane	1300	U Q	3900	1300	520	ug/Kg	☼	12/27/18 14:09	10
1,2-Dibromo-3-Chloropropane	5000	U Q	7900	5000	1400	ug/Kg	☼	12/27/18 14:09	10
Dichlorodifluoromethane	1300	U Q	7900	1300	350	ug/Kg	☼	12/27/18 14:09	10
Dibromomethane	1300	U Q	3900	1300	470	ug/Kg	☼	12/27/18 14:09	10
Ethylene Dibromide	1300	U M Q	3900	1300	390	ug/Kg	☼	12/27/18 14:09	10
1,2-Dichlorobenzene	5000	U M Q	7900	5000	1500	ug/Kg	☼	12/27/18 14:09	10
1,3-Dichlorobenzene	2500	U M Q	3900	2500	640	ug/Kg	☼	12/27/18 14:09	10
1,4-Dichlorobenzene	1300	U M Q	3900	1300	390	ug/Kg	☼	12/27/18 14:09	10
1,1-Dichloroethane	2500	U Q	3900	2500	800	ug/Kg	☼	12/27/18 14:09	10
1,2-Dichloroethane	1300	U M Q	3900	1300	390	ug/Kg	☼	12/27/18 14:09	10
1,1-Dichloroethene	2500	U Q	3900	2500	800	ug/Kg	☼	12/27/18 14:09	10
1,2-Dichloroethene, Total	1300	U	2000	1300	350	ug/Kg	☼	12/27/18 14:09	10
cis-1,2-Dichloroethene	1300	U Q	2000	1300	350	ug/Kg	☼	12/27/18 14:09	10
trans-1,2-Dichloroethene	2500	U Q	3900	2500	710	ug/Kg	☼	12/27/18 14:09	10
1,2-Dichloropropane	2500	U M Q	3900	2500	730	ug/Kg	☼	12/27/18 14:09	10
1,3-Dichloropropane	1300	U Q	3900	1300	440	ug/Kg	☼	12/27/18 14:09	10
2,2-Dichloropropane	1300	U Q	3900	1300	430	ug/Kg	☼	12/27/18 14:09	10
1,1-Dichloropropene	2500	U Q	3900	2500	760	ug/Kg	☼	12/27/18 14:09	10
cis-1,3-Dichloropropene	1300	U Q	3900	1300	430	ug/Kg	☼	12/27/18 14:09	10
trans-1,3-Dichloropropene	2500	U M Q	3900	2500	650	ug/Kg	☼	12/27/18 14:09	10
Ethylbenzene	**50000**	**D Q**	3900	1300	540	ug/Kg	☼	12/27/18 14:09	10
2-Hexanone	10000	U M Q	16000	10000	3400	ug/Kg	☼	12/27/18 14:09	10
Hexachlorobutadiene	2500	U Q	3900	2500	770	ug/Kg	☼	12/27/18 14:09	10
Isopropylbenzene	**15000**	**D Q**	3900	1300	460	ug/Kg	☼	12/27/18 14:09	10
4-Isopropyltoluene	**25000**	**D Q**	3900	1300	500	ug/Kg	☼	12/27/18 14:09	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-161218-101
Date Collected: 12/16/18 14:30
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-4
Matrix: Solid
Percent Solids: 96.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	2500	U M Q	3900	2500	1100	ug/Kg	☼	12/27/18 14:09	10
4-Methyl-2-pentanone (MIBK)	10000	U M Q	16000	10000	3600	ug/Kg	☼	12/27/18 14:09	10
Methyl tert-butyl ether	2500	U Q	3900	2500	790	ug/Kg	☼	12/27/18 14:09	10
Naphthalene	**48000**	**D Q**	7900	1300	600	ug/Kg	☼	12/27/18 14:09	10
N-Propylbenzene	**37000**	**D Q**	3900	2500	650	ug/Kg	☼	12/27/18 14:09	10
Styrene	1300	U M Q	3900	1300	410	ug/Kg	☼	12/27/18 14:09	10
1,1,1,2-Tetrachloroethane	1300	U Q	3900	1300	330	ug/Kg	☼	12/27/18 14:09	10
1,1,2,2-Tetrachloroethane	1300	U M Q	3900	1300	460	ug/Kg	☼	12/27/18 14:09	10
Tetrachloroethene	1300	U Q	3900	1300	430	ug/Kg	☼	12/27/18 14:09	10
Toluene	**130000**	**D Q**	3900	1300	620	ug/Kg	☼	12/27/18 14:09	10
1,2,3-Trichlorobenzene	1300	U M Q	3900	1300	550	ug/Kg	☼	12/27/18 14:09	10
1,1,1-Trichloroethane	630	U Q	3900	630	320	ug/Kg	☼	12/27/18 14:09	10
1,1,2-Trichloroethane	1300	U M Q	3900	1300	430	ug/Kg	☼	12/27/18 14:09	10
Trichloroethene	1300	U Q	3900	1300	360	ug/Kg	☼	12/27/18 14:09	10
Trichlorofluoromethane	2500	U Q	7900	2500	790	ug/Kg	☼	12/27/18 14:09	10
1,2,4-Trichlorobenzene	2500	U M Q	3900	2500	740	ug/Kg	☼	12/27/18 14:09	10
1,2,3-Trichloropropane	2500	U M Q	3900	2500	740	ug/Kg	☼	12/27/18 14:09	10
1,2,4-Trimethylbenzene	**160000**	**D Q**	3900	1300	490	ug/Kg	☼	12/27/18 14:09	10
1,3,5-Trimethylbenzene	**45000**	**D Q**	3900	1300	620	ug/Kg	☼	12/27/18 14:09	10
Vinyl chloride	1300	U M Q	7900	1300	430	ug/Kg	☼	12/27/18 14:09	10
o-Xylene	**42000**	**D Q**	2000	1300	550	ug/Kg	☼	12/27/18 14:09	10
m-Xylene & p-Xylene	**100000**	**D Q**	3900	2500	1200	ug/Kg	☼	12/27/18 14:09	10
2-Chlorotoluene	1300	U M Q	3900	1300	410	ug/Kg	☼	12/27/18 14:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*293*	*Q D*	*85 - 116*	*12/16/18 14:30*	*12/27/18 14:09*	*10*
1,2-Dichloroethane-d4 (Surr)	*175*	*Q D*	*71 - 136*	*12/16/18 14:30*	*12/27/18 14:09*	*10*
4-Bromofluorobenzene (Surr)	*0*	*Q D*	*79 - 119*	*12/16/18 14:30*	*12/27/18 14:09*	*10*
Dibromofluoromethane (Surr)	*139*	*Q D*	*78 - 119*	*12/16/18 14:30*	*12/27/18 14:09*	*10*

Client Sample ID: V-V1-161218-115
Date Collected: 12/16/18 15:48
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-6
Matrix: Solid
Percent Solids: 86.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**200000**	**D**	19000	16000	5100	ug/Kg	☼	12/27/18 17:59	10
Benzene	**27000**	**D Q**	3200	2000	570	ug/Kg	☼	12/27/18 17:59	10
Bromobenzene	510	U Q	3200	510	240	ug/Kg	☼	12/27/18 17:59	10
Bromochloromethane	2000	U	3200	2000	600	ug/Kg	☼	12/27/18 17:59	10
Bromodichloromethane	1000	U M Q	3200	1000	500	ug/Kg	☼	12/27/18 17:59	10
Bromoform	2000	U Q	3200	2000	2000	ug/Kg	☼	12/27/18 17:59	10
Bromomethane	2000	U	6400	2000	560	ug/Kg	☼	12/27/18 17:59	10
2-Butanone (MEK)	**120000**	**D Q**	13000	8100	3700	ug/Kg	☼	12/27/18 17:59	10
n-Butylbenzene	**51000**	**D Q**	3200	1000	410	ug/Kg	☼	12/27/18 17:59	10
sec-Butylbenzene	**41000**	**D Q**	3200	1000	480	ug/Kg	☼	12/27/18 17:59	10
tert-Butylbenzene	1000	U M Q	3200	1000	360	ug/Kg	☼	12/27/18 17:59	10
Carbon disulfide	2000	U M	3200	2000	810	ug/Kg	☼	12/27/18 17:59	10
Carbon tetrachloride	510	U Q	3200	510	220	ug/Kg	☼	12/27/18 17:59	10
Chlorobenzene	1000	U Q	3200	1000	380	ug/Kg	☼	12/27/18 17:59	10
Chloroethane	2000	U	6400	2000	560	ug/Kg	☼	12/27/18 17:59	10
Chloroform	2000	U	3200	2000	580	ug/Kg	☼	12/27/18 17:59	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-161218-115
Date Collected: 12/16/18 15:48
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-6
Matrix: Solid
Percent Solids: 86.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Chloromethane	2000	U	6400	2000	640	ug/Kg	☼	12/27/18 17:59	10
4-Chlorotoluene	1000	U M Q	3200	1000	290	ug/Kg	☼	12/27/18 17:59	10
Dibromochloromethane	1000	U Q	3200	1000	420	ug/Kg	☼	12/27/18 17:59	10
1,2-Dibromo-3-Chloropropane	4100	U Q	6400	4100	1100	ug/Kg	☼	12/27/18 17:59	10
Dichlorodifluoromethane	1000	U	6400	1000	280	ug/Kg	☼	12/27/18 17:59	10
Dibromomethane	1000	U Q	3200	1000	380	ug/Kg	☼	12/27/18 17:59	10
Ethylene Dibromide	1000	U M Q	3200	1000	320	ug/Kg	☼	12/27/18 17:59	10
1,2-Dichlorobenzene	4100	U Q	6400	4100	1200	ug/Kg	☼	12/27/18 17:59	10
1,3-Dichlorobenzene	2000	U Q	3200	2000	520	ug/Kg	☼	12/27/18 17:59	10
1,4-Dichlorobenzene	1000	U Q	3200	1000	320	ug/Kg	☼	12/27/18 17:59	10
1,1-Dichloroethane	2000	U	3200	2000	640	ug/Kg	☼	12/27/18 17:59	10
1,2-Dichloroethane	1000	U M Q	3200	1000	320	ug/Kg	☼	12/27/18 17:59	10
1,1-Dichloroethene	2000	U	3200	2000	640	ug/Kg	☼	12/27/18 17:59	10
1,2-Dichloroethene, Total	1000	U	1600	1000	280	ug/Kg	☼	12/27/18 17:59	10
cis-1,2-Dichloroethene	1000	U	1600	1000	280	ug/Kg	☼	12/27/18 17:59	10
trans-1,2-Dichloroethene	2000	U	3200	2000	570	ug/Kg	☼	12/27/18 17:59	10
1,2-Dichloropropane	2000	U M Q	3200	2000	590	ug/Kg	☼	12/27/18 17:59	10
1,3-Dichloropropane	1000	U Q	3200	1000	360	ug/Kg	☼	12/27/18 17:59	10
2,2-Dichloropropane	1000	U	3200	1000	340	ug/Kg	☼	12/27/18 17:59	10
1,1-Dichloropropene	2000	U Q	3200	2000	610	ug/Kg	☼	12/27/18 17:59	10
cis-1,3-Dichloropropene	1000	U Q	3200	1000	340	ug/Kg	☼	12/27/18 17:59	10
trans-1,3-Dichloropropene	2000	U M Q	3200	2000	530	ug/Kg	☼	12/27/18 17:59	10
Ethylbenzene	**39000**	**D Q**	3200	1000	430	ug/Kg	☼	12/27/18 17:59	10
2-Hexanone	8100	U M Q	13000	8100	2800	ug/Kg	☼	12/27/18 17:59	10
Hexachlorobutadiene	2000	U Q	3200	2000	620	ug/Kg	☼	12/27/18 17:59	10
Isopropylbenzene	**12000**	**D Q**	3200	1000	370	ug/Kg	☼	12/27/18 17:59	10
4-Isopropyltoluene	**19000**	**D Q**	3200	1000	410	ug/Kg	☼	12/27/18 17:59	10
Methylene Chloride	2000	U M	3200	2000	880	ug/Kg	☼	12/27/18 17:59	10
4-Methyl-2-pentanone (MIBK)	8100	U M Q	13000	8100	2900	ug/Kg	☼	12/27/18 17:59	10
Methyl tert-butyl ether	2000	U	3200	2000	640	ug/Kg	☼	12/27/18 17:59	10
Naphthalene	**55000**	**D Q**	6400	1000	480	ug/Kg	☼	12/27/18 17:59	10
N-Propylbenzene	**31000**	**D Q**	3200	2000	520	ug/Kg	☼	12/27/18 17:59	10
Styrene	1000	U M Q	3200	1000	330	ug/Kg	☼	12/27/18 17:59	10
1,1,1,2-Tetrachloroethane	1000	U Q	3200	1000	270	ug/Kg	☼	12/27/18 17:59	10
1,1,2,2-Tetrachloroethane	1000	U M Q	3200	1000	370	ug/Kg	☼	12/27/18 17:59	10
Tetrachloroethene	1000	U Q	3200	1000	340	ug/Kg	☼	12/27/18 17:59	10
Toluene	**97000**	**D Q**	3200	1000	500	ug/Kg	☼	12/27/18 17:59	10
1,2,3-Trichlorobenzene	1000	U Q	3200	1000	440	ug/Kg	☼	12/27/18 17:59	10
1,1,1-Trichloroethane	510	U	3200	510	250	ug/Kg	☼	12/27/18 17:59	10
1,1,2-Trichloroethane	1000	U M Q	3200	1000	340	ug/Kg	☼	12/27/18 17:59	10
Trichloroethene	1000	U Q	3200	1000	290	ug/Kg	☼	12/27/18 17:59	10
Trichlorofluoromethane	2000	U	6400	2000	640	ug/Kg	☼	12/27/18 17:59	10
1,2,4-Trichlorobenzene	2000	U Q	3200	2000	590	ug/Kg	☼	12/27/18 17:59	10
1,2,3-Trichloropropane	2000	U M Q	3200	2000	600	ug/Kg	☼	12/27/18 17:59	10
1,2,4-Trimethylbenzene	**120000**	**D Q**	3200	1000	390	ug/Kg	☼	12/27/18 17:59	10
1,3,5-Trimethylbenzene	**32000**	**D Q**	3200	1000	500	ug/Kg	☼	12/27/18 17:59	10
Vinyl chloride	1000	U	6400	1000	340	ug/Kg	☼	12/27/18 17:59	10
o-Xylene	**27000**	**D Q**	1600	1000	440	ug/Kg	☼	12/27/18 17:59	10
m-Xylene & p-Xylene	**63000**	**D Q**	3200	2000	990	ug/Kg	☼	12/27/18 17:59	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-161218-115 — **Lab Sample ID: 280-118336-6**
Date Collected: 12/16/18 15:48 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 86.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1000	U M Q	3200	1000	330	ug/Kg	☼	12/27/18 17:59	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*218*	*Q D*	*85 - 116*	*12/16/18 15:48*	*12/27/18 17:59*	*10*
1,2-Dichloroethane-d4 (Surr)	*146*	*Q D*	*71 - 136*	*12/16/18 15:48*	*12/27/18 17:59*	*10*
4-Bromofluorobenzene (Surr)	*171*	*Q D*	*79 - 119*	*12/16/18 15:48*	*12/27/18 17:59*	*10*
Dibromofluoromethane (Surr)	*101*	*D*	*78 - 119*	*12/16/18 15:48*	*12/27/18 17:59*	*10*

Client Sample ID: V-V1-171218-147 — **Lab Sample ID: 280-118336-8**
Date Collected: 12/17/18 15:47 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	19000	U M Q	22000	19000	5800	ug/Kg	☼	12/27/18 18:18	10
Benzene	**12000**	**D Q**	3600	2300	660	ug/Kg	☼	12/27/18 18:18	10
Bromobenzene	580	U Q	3600	580	280	ug/Kg	☼	12/27/18 18:18	10
Bromochloromethane	2300	U Q	3600	2300	680	ug/Kg	☼	12/27/18 18:18	10
Bromodichloromethane	1200	U M Q	3600	1200	580	ug/Kg	☼	12/27/18 18:18	10
Bromoform	2300	U Q	3600	2300	2300	ug/Kg	☼	12/27/18 18:18	10
Bromomethane	2300	U Q	7300	2300	640	ug/Kg	☼	12/27/18 18:18	10
2-Butanone (MEK)	9300	U Q	15000	9300	4300	ug/Kg	☼	12/27/18 18:18	10
n-Butylbenzene	**20000**	**D**	3600	1200	460	ug/Kg	☼	12/27/18 18:18	10
sec-Butylbenzene	**18000**	**D**	3600	1200	550	ug/Kg	☼	12/27/18 18:18	10
tert-Butylbenzene	1200	U M	3600	1200	410	ug/Kg	☼	12/27/18 18:18	10
Carbon disulfide	2300	U M Q	3600	2300	930	ug/Kg	☼	12/27/18 18:18	10
Carbon tetrachloride	580	U M Q	3600	580	250	ug/Kg	☼	12/27/18 18:18	10
Chlorobenzene	1200	U Q	3600	1200	440	ug/Kg	☼	12/27/18 18:18	10
Chloroethane	2300	U Q	7300	2300	640	ug/Kg	☼	12/27/18 18:18	10
Chloroform	2300	U Q	3600	2300	670	ug/Kg	☼	12/27/18 18:18	10
Chloromethane	2300	U M Q	7300	2300	730	ug/Kg	☼	12/27/18 18:18	10
4-Chlorotoluene	1200	U M	3600	1200	330	ug/Kg	☼	12/27/18 18:18	10
Dibromochloromethane	1200	U M Q	3600	1200	480	ug/Kg	☼	12/27/18 18:18	10
1,2-Dibromo-3-Chloropropane	4600	U	7300	4600	1200	ug/Kg	☼	12/27/18 18:18	10
Dichlorodifluoromethane	1200	U Q	7300	1200	320	ug/Kg	☼	12/27/18 18:18	10
Dibromomethane	1200	U M Q	3600	1200	440	ug/Kg	☼	12/27/18 18:18	10
Ethylene Dibromide	1200	U Q	3600	1200	360	ug/Kg	☼	12/27/18 18:18	10
1,2-Dichlorobenzene	4600	U	7300	4600	1400	ug/Kg	☼	12/27/18 18:18	10
1,3-Dichlorobenzene	2300	U	3600	2300	590	ug/Kg	☼	12/27/18 18:18	10
1,4-Dichlorobenzene	1200	U	3600	1200	360	ug/Kg	☼	12/27/18 18:18	10
1,1-Dichloroethane	2300	U M Q	3600	2300	730	ug/Kg	☼	12/27/18 18:18	10
1,2-Dichloroethane	1200	U M Q	3600	1200	360	ug/Kg	☼	12/27/18 18:18	10
1,1-Dichloroethene	2300	U Q	3600	2300	730	ug/Kg	☼	12/27/18 18:18	10
1,2-Dichloroethene, Total	1200	U	1800	1200	320	ug/Kg	☼	12/27/18 18:18	10
cis-1,2-Dichloroethene	1200	U Q	1800	1200	320	ug/Kg	☼	12/27/18 18:18	10
trans-1,2-Dichloroethene	2300	U Q	3600	2300	650	ug/Kg	☼	12/27/18 18:18	10
1,2-Dichloropropane	2300	U M Q	3600	2300	670	ug/Kg	☼	12/27/18 18:18	10
1,3-Dichloropropane	1200	U Q	3600	1200	410	ug/Kg	☼	12/27/18 18:18	10
2,2-Dichloropropane	1200	U Q	3600	1200	390	ug/Kg	☼	12/27/18 18:18	10
1,1-Dichloropropene	2300	U Q	3600	2300	700	ug/Kg	☼	12/27/18 18:18	10
cis-1,3-Dichloropropene	1200	U M Q	3600	1200	390	ug/Kg	☼	12/27/18 18:18	10
trans-1,3-Dichloropropene	2300	U M Q	3600	2300	600	ug/Kg	☼	12/27/18 18:18	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-171218-147
Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-8
Matrix: Solid
Percent Solids: 96.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylbenzene	**21000**	**D Q**	3600	1200	490	ug/Kg	☼	12/27/18 18:18	10
2-Hexanone	9300	U M Q	15000	9300	3200	ug/Kg	☼	12/27/18 18:18	10
Hexachlorobutadiene	2300	U	3600	2300	710	ug/Kg	☼	12/27/18 18:18	10
Isopropylbenzene	**6300**	**D**	3600	1200	420	ug/Kg	☼	12/27/18 18:18	10
4-Isopropyltoluene	**7700**	**D**	3600	1200	460	ug/Kg	☼	12/27/18 18:18	10
Methylene Chloride	2300	U M Q	3600	2300	1000	ug/Kg	☼	12/27/18 18:18	10
4-Methyl-2-pentanone (MIBK)	9300	U M Q	15000	9300	3300	ug/Kg	☼	12/27/18 18:18	10
Methyl tert-butyl ether	2300	U Q	3600	2300	730	ug/Kg	☼	12/27/18 18:18	10
Naphthalene	**21000**	**D**	7300	1200	550	ug/Kg	☼	12/27/18 18:18	10
N-Propylbenzene	**14000**	**D**	3600	2300	600	ug/Kg	☼	12/27/18 18:18	10
Styrene	1200	U M Q	3600	1200	380	ug/Kg	☼	12/27/18 18:18	10
1,1,1,2-Tetrachloroethane	1200	U M Q	3600	1200	310	ug/Kg	☼	12/27/18 18:18	10
1,1,2,2-Tetrachloroethane	1200	U M	3600	1200	420	ug/Kg	☼	12/27/18 18:18	10
Tetrachloroethene	1200	U Q	3600	1200	390	ug/Kg	☼	12/27/18 18:18	10
Toluene	**61000**	**D Q**	3600	1200	570	ug/Kg	☼	12/27/18 18:18	10
1,2,3-Trichlorobenzene	1200	U M	3600	1200	510	ug/Kg	☼	12/27/18 18:18	10
1,1,1-Trichloroethane	580	U Q	3600	580	290	ug/Kg	☼	12/27/18 18:18	10
1,1,2-Trichloroethane	1200	U M Q	3600	1200	390	ug/Kg	☼	12/27/18 18:18	10
Trichloroethene	1200	U Q	3600	1200	330	ug/Kg	☼	12/27/18 18:18	10
Trichlorofluoromethane	2300	U Q	7300	2300	730	ug/Kg	☼	12/27/18 18:18	10
1,2,4-Trichlorobenzene	2300	U	3600	2300	680	ug/Kg	☼	12/27/18 18:18	10
1,2,3-Trichloropropane	2300	U M	3600	2300	680	ug/Kg	☼	12/27/18 18:18	10
1,2,4-Trimethylbenzene	**53000**	**D**	3600	1200	450	ug/Kg	☼	12/27/18 18:18	10
1,3,5-Trimethylbenzene	**16000**	**D**	3600	1200	570	ug/Kg	☼	12/27/18 18:18	10
Vinyl chloride	1200	U Q	7300	1200	390	ug/Kg	☼	12/27/18 18:18	10
o-Xylene	**18000**	**D Q**	1800	1200	510	ug/Kg	☼	12/27/18 18:18	10
m-Xylene & p-Xylene	**45000**	**D Q**	3600	2300	1100	ug/Kg	☼	12/27/18 18:18	10
2-Chlorotoluene	1200	U M	3600	1200	380	ug/Kg	☼	12/27/18 18:18	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*142*	*Q D*	*85 - 116*	*12/17/18 15:47*	*12/27/18 18:18*	*10*
1,2-Dichloroethane-d4 (Surr)	*60*	*Q D*	*71 - 136*	*12/17/18 15:47*	*12/27/18 18:18*	*10*
4-Bromofluorobenzene (Surr)	*96*	*D*	*79 - 119*	*12/17/18 15:47*	*12/27/18 18:18*	*10*
Dibromofluoromethane (Surr)	*48*	*Q D*	*78 - 119*	*12/17/18 15:47*	*12/27/18 18:18*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-V1-171218-01
Date Collected: 12/17/18 16:00
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*12/31/18 11:35*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - DL

Client Sample ID: P-V1-161218-101
Date Collected: 12/16/18 14:30
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-5
Matrix: Solid
Percent Solids: 96.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	7300	D Q	310	290	85	mg/Kg	☼	12/30/18 14:20	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	11517	Q	77 - 123	12/16/18 14:30	12/30/18 14:20	200

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: P-V1-161218-061
Date Collected: 12/16/18 09:51
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-3
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	6900	D H Q	290	270	79	mg/Kg	☼	01/03/19 17:02	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	4524	Q	77 - 123	12/16/18 09:51	01/03/19 17:02	200

Client Sample ID: P-V1-161218-115
Date Collected: 12/16/18 15:48
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-7
Matrix: Solid
Percent Solids: 85.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	5100	H D Q	340	310	93	mg/Kg	☼	01/02/19 17:07	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	7092	Q	77 - 123	12/16/18 15:48	01/02/19 17:07	200

Client Sample ID: P-V1-171218-147
Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-9
Matrix: Solid
Percent Solids: 96.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	5900	H D Q	390	360	110	mg/Kg	☼	01/02/19 16:43	250

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	8052	Q	77 - 123	12/17/18 15:47	01/02/19 16:43	250

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-V1-171218-01
Date Collected: 12/17/18 16:00
Date Received: 12/18/18 10:54
Lab Sample ID: 280-118336-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		01/08/19 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	97		70 - 130	12/30/18 10:16	01/08/19 14:18	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-V1-161218-061 — **Lab Sample ID: 280-118336-2**
Date Collected: 12/16/18 09:51 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 94.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	17	D Q	2.1	0.80	0.32	ug/Kg	☼	01/15/19 04:30	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*1315*	*D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 04:30*	*20*

Client Sample ID: V-V1-161218-101 — **Lab Sample ID: 280-118336-4**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	100	D Q	10	3.9	1.5	ug/Kg	☼	01/15/19 04:49	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 04:49*	*100*

Client Sample ID: V-V1-161218-115 — **Lab Sample ID: 280-118336-6**
Date Collected: 12/16/18 15:48 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 86.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	140	J1 D Q	12	4.4	1.7	ug/Kg	☼	01/15/19 05:09	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*1738*	*D*	*55 - 130*	*12/27/18 14:22*	*01/15/19 05:09*	*100*

Client Sample ID: V-V1-171218-147 — **Lab Sample ID: 280-118336-8**
Date Collected: 12/17/18 15:47 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	50	D M Q	5.2	2.0	0.78	ug/Kg	☼	01/14/19 18:31	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*M D*	*55 - 130*	*12/30/18 12:34*	*01/14/19 18:31*	*50*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V1-161218-061 — **Lab Sample ID: 280-118336-3**
Date Collected: 12/16/18 09:51 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 94.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	13000	D	76	38	13	mg/Kg	☼	01/04/19 22:17	10
Motor Oil (C20-C38)	220	U D	230	220	74	mg/Kg	☼	01/04/19 22:17	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*76*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 22:17*	*10*
n-Octacosane	*90*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 22:17*	*10*

Client Sample ID: P-V1-161218-101 — **Lab Sample ID: 280-118336-5**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	15000	D	74	37	13	mg/Kg	☼	01/04/19 22:38	10
Motor Oil (C20-C38)	220	U D	220	220	73	mg/Kg	☼	01/04/19 22:38	10

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	85	D	45 - 130	12/20/18 19:41	01/04/19 22:38	10
n-Octacosane	78	D	25 - 162	12/20/18 19:41	01/04/19 22:38	10

Client Sample ID: P-V1-161218-115 — **Lab Sample ID: 280-118336-7**
Date Collected: 12/16/18 15:48 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 85.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	19000	D	83	42	14	mg/Kg	☼	01/04/19 23:00	10
Motor Oil (C20-C38)	240	U D	250	240	81	mg/Kg	☼	01/04/19 23:00	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	79	D	45 - 130	12/20/18 19:41	01/04/19 23:00	10
n-Octacosane	78	D	25 - 162	12/20/18 19:41	01/04/19 23:00	10

Client Sample ID: P-V1-171218-147 — **Lab Sample ID: 280-118336-9**
Date Collected: 12/17/18 15:47 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	7900	D	39	20	6.6	mg/Kg	☼	01/04/19 23:22	5
Motor Oil (C20-C38)	110	U D	120	110	38	mg/Kg	☼	01/04/19 23:22	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	78	D	45 - 130	12/20/18 19:41	01/04/19 23:22	5
n-Octacosane	85	D	25 - 162	12/20/18 19:41	01/04/19 23:22	5

General Chemistry

Client Sample ID: V-V1-161218-061 — **Lab Sample ID: 280-118336-2**
Date Collected: 12/16/18 09:51 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 94.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	5.7		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: P-V1-161218-061 — **Lab Sample ID: 280-118336-3**
Date Collected: 12/16/18 09:51 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 94.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	5.3		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: V-V1-161218-101 — **Lab Sample ID: 280-118336-4**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.1		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: P-V1-161218-101 — **Lab Sample ID: 280-118336-5**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.5		0.1	0.05	0.1	%		12/19/18 16:47	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

General Chemistry

Client Sample ID: V-V1-161218-115
Date Collected: 12/16/18 15:48
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-6
Matrix: Solid
Percent Solids: 86.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.7		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: P-V1-161218-115
Date Collected: 12/16/18 15:48
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-7
Matrix: Solid
Percent Solids: 85.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	14.3		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: V-V1-171218-147
Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-8
Matrix: Solid
Percent Solids: 96.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.9		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: P-V1-171218-147
Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-9
Matrix: Solid
Percent Solids: 96.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.9		0.1	0.05	0.1	%		12/19/18 16:47	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118336-2	V-V1-161218-061	226 Q D	189 Q D	241 Q D	180 Q D
280-118336-4	V-V1-161218-101	293 Q D	175 Q D	0 Q D	139 Q D
280-118336-6	V-V1-161218-115	218 Q D	146 Q D	171 Q D	101 D
280-118336-8	V-V1-171218-147	142 Q D	60 Q D	96 D	48 Q D
LCS 280-442179/2-A	Lab Control Sample	100	118	98	114
LCSD 280-442179/3-A	Lab Control Sample Dup	99	122	92	114
MB 280-442179/1-A	Method Blank	114	120	106	119

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118336-1	TB-V1-171218-01	82 Q	110	94	112
LCS 280-442892/5	Lab Control Sample	107	117	106	118
MB 280-442892/7	Method Blank	100	109	101	116

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118336-3 - RA	P-V1-161218-061	4524 Q
280-118336-5 - DL	P-V1-161218-101	11517 Q
280-118336-7 - RA	P-V1-161218-115	7092 Q
280-118336-9 - RA	P-V1-171218-147	8052 Q
LCS 280-442646/1-A	Lab Control Sample	94
LCS 280-443157/17	Lab Control Sample	96
LCSD 280-442646/2-A	Lab Control Sample Dup	98
LCSD 280-443157/18	Lab Control Sample Dup	97
MB 280-442646/3-A	Method Blank	95
MB 280-443157/19	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118336-1	TB-V1-171218-01	94
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118336-2	V-V1-161218-061	1315 D
280-118336-4	V-V1-161218-101	0 D
280-118336-6	V-V1-161218-115	1738 D
280-118336-6 MS	V-V1-161218-115	0 D
280-118336-6 MSD	V-V1-161218-115	0 D
280-118336-8	V-V1-171218-147	0 M D
LCS 280-442668/1-A	Lab Control Sample	107
LCS 280-442875/1-A	Lab Control Sample	110
LCSD 280-442668/2-A	Lab Control Sample Dup	106
LCSD 280-442875/2-A	Lab Control Sample Dup	103
MB 280-442668/3-A	Method Blank	102
MB 280-442875/3-A	Method Blank	112

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-118336-1	TB-V1-171218-01	97
LCS 280-442866/1-A	Lab Control Sample	87
LCSD 280-442866/2-A	Lab Control Sample Dup	87
MB 280-442866/3-A	Method Blank	93

Surrogate Legend

12DBP = 1,2-Dibromopropane

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-118336-3	P-V1-161218-061	76 D	90 D								
280-118336-5	P-V1-161218-101	85 D	78 D								
280-118336-7	P-V1-161218-115	79 D	78 D								
280-118336-9	P-V1-171218-147	78 D	85 D								
LCS 280-442077/2-A	Lab Control Sample	76	94								
LCS 280-442077/3-A	Lab Control Sample	77	97								
MB 280-442077/1-A	Method Blank	70	90								

Surrogate Legend

OTPH = o-Terphenyl (Surr)

OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-442179/1-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442179

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U M	1500	1300	400	ug/Kg		12/27/18 11:33	1
Benzene	160	U	250	160	45	ug/Kg		12/27/18 11:33	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/27/18 11:33	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/27/18 11:33	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/27/18 11:33	1
Bromoform	160	U	250	160	160	ug/Kg		12/27/18 11:33	1
Bromomethane	160	U	500	160	44	ug/Kg		12/27/18 11:33	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/27/18 11:33	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/27/18 11:33	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/27/18 11:33	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/27/18 11:33	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/27/18 11:33	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/27/18 11:33	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/27/18 11:33	1
Chloroethane	160	U	500	160	44	ug/Kg		12/27/18 11:33	1
Chloroform	160	U	250	160	46	ug/Kg		12/27/18 11:33	1
Chloromethane	160	U	500	160	50	ug/Kg		12/27/18 11:33	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/27/18 11:33	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/27/18 11:33	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/27/18 11:33	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/27/18 11:33	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/27/18 11:33	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/27/18 11:33	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/27/18 11:33	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/27/18 11:33	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/27/18 11:33	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/27/18 11:33	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/27/18 11:33	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/27/18 11:33	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/27/18 11:33	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/27/18 11:33	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/27/18 11:33	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/27/18 11:33	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/27/18 11:33	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/27/18 11:33	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/27/18 11:33	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/27/18 11:33	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/27/18 11:33	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/27/18 11:33	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/27/18 11:33	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/27/18 11:33	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/27/18 11:33	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/27/18 11:33	1
Methylene Chloride	160	U M	250	160	69	ug/Kg		12/27/18 11:33	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/27/18 11:33	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/27/18 11:33	1
Naphthalene	80	U	500	80	38	ug/Kg		12/27/18 11:33	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/27/18 11:33	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442179/1-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442179

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/27/18 11:33	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/27/18 11:33	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/27/18 11:33	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/27/18 11:33	1
Toluene	80	U	250	80	39	ug/Kg		12/27/18 11:33	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/27/18 11:33	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/27/18 11:33	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/27/18 11:33	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/27/18 11:33	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/27/18 11:33	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/27/18 11:33	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/27/18 11:33	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/27/18 11:33	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/27/18 11:33	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/27/18 11:33	1
o-Xylene	80	U	130	80	35	ug/Kg		12/27/18 11:33	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/27/18 11:33	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/27/18 11:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*114*		*85 - 116*	*12/21/18 09:44*	*12/27/18 11:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*120*		*71 - 136*	*12/21/18 09:44*	*12/27/18 11:33*	*1*
4-Bromofluorobenzene (Surr)	*106*		*79 - 119*	*12/21/18 09:44*	*12/27/18 11:33*	*1*
Dibromofluoromethane (Surr)	*119*		*78 - 119*	*12/21/18 09:44*	*12/27/18 11:33*	*1*

Lab Sample ID: LCS 280-442179/2-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442179

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	8080		ug/Kg		101	36 - 164
Benzene	2000	1880		ug/Kg		94	77 - 121
Bromobenzene	2000	2280		ug/Kg		114	78 - 121
Bromochloromethane	2000	2220		ug/Kg		111	78 - 125
Bromodichloromethane	2000	2110		ug/Kg		106	75 - 127
Bromoform	2000	2090		ug/Kg		104	67 - 132
Bromomethane	2000	1810		ug/Kg		91	53 - 143
2-Butanone (MEK)	8000	11200		ug/Kg		140	51 - 148
n-Butylbenzene	2000	1600		ug/Kg		80	70 - 128
sec-Butylbenzene	2000	1730		ug/Kg		86	73 - 126
tert-Butylbenzene	2000	1730		ug/Kg		87	73 - 125
Carbon disulfide	2000	1690		ug/Kg		85	63 - 132
Carbon tetrachloride	2000	1880		ug/Kg		94	70 - 135
Chlorobenzene	2000	1810		ug/Kg		91	79 - 120
Chloroethane	2000	1790		ug/Kg		89	59 - 139
Chloroform	2000	1980		ug/Kg		99	78 - 123
Chloromethane	2000	1460		ug/Kg		73	50 - 136
4-Chlorotoluene	2000	1750		ug/Kg		87	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442179/2-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442179

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	2260		ug/Kg		113	74 - 126
1,2-Dibromo-3-Chloropropane	2000	2290		ug/Kg		115	61 - 132
Dichlorodifluoromethane	2000	1330		ug/Kg		66	29 - 149
Dibromomethane	2000	2210		ug/Kg		110	78 - 125
Ethylene Dibromide	2000	2160		ug/Kg		108	78 - 122
1,2-Dichlorobenzene	2000	1830		ug/Kg		92	78 - 121
1,3-Dichlorobenzene	2000	1730		ug/Kg		86	77 - 121
1,4-Dichlorobenzene	2000	1720		ug/Kg		86	75 - 120
1,1-Dichloroethane	2000	1930		ug/Kg		97	76 - 125
1,2-Dichloroethane	2000	2110		ug/Kg		105	73 - 128
1,1-Dichloroethene	2000	1840		ug/Kg		92	70 - 131
cis-1,2-Dichloroethene	2000	1950		ug/Kg		97	77 - 123
trans-1,2-Dichloroethene	2000	1990		ug/Kg		99	74 - 125
1,2-Dichloropropane	2000	2290		ug/Kg		114	76 - 123
1,3-Dichloropropane	2000	1980		ug/Kg		99	77 - 121
2,2-Dichloropropane	2000	1900		ug/Kg		95	67 - 133
1,1-Dichloropropene	2000	1850		ug/Kg		93	76 - 125
cis-1,3-Dichloropropene	2000	2170		ug/Kg		108	74 - 126
trans-1,3-Dichloropropene	2000	2170		ug/Kg		109	71 - 130
Ethylbenzene	2000	1740		ug/Kg		87	76 - 122
2-Hexanone	8000	8990		ug/Kg		112	53 - 145
Hexachlorobutadiene	2000	1630		ug/Kg		81	61 - 135
Isopropylbenzene	2000	1730		ug/Kg		87	68 - 134
4-Isopropyltoluene	2000	1690		ug/Kg		84	73 - 127
Methylene Chloride	2000	1890		ug/Kg		95	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	9640		ug/Kg		121	65 - 135
Methyl tert-butyl ether	2000	2350		ug/Kg		117	73 - 125
Naphthalene	2000	2100		ug/Kg		105	62 - 129
N-Propylbenzene	2000	1740		ug/Kg		87	73 - 125
Styrene	2000	1870		ug/Kg		93	76 - 124
1,1,1,2-Tetrachloroethane	2000	2120		ug/Kg		106	78 - 125
1,1,2,2-Tetrachloroethane	2000	2100		ug/Kg		105	70 - 124
Tetrachloroethene	2000	1790		ug/Kg		89	73 - 128
Toluene	2000	1890		ug/Kg		95	77 - 121
1,2,3-Trichlorobenzene	2000	1950		ug/Kg		98	66 - 130
1,1,1-Trichloroethane	2000	1880		ug/Kg		94	73 - 130
1,1,2-Trichloroethane	2000	2210		ug/Kg		111	78 - 121
Trichloroethene	2000	1880		ug/Kg		94	77 - 123
Trichlorofluoromethane	2000	1800		ug/Kg		90	62 - 140
1,2,4-Trichlorobenzene	2000	1830		ug/Kg		92	67 - 129
1,2,3-Trichloropropane	2000	2300		ug/Kg		115	73 - 125
1,2,4-Trimethylbenzene	2000	1720		ug/Kg		86	75 - 123
1,3,5-Trimethylbenzene	2000	1760		ug/Kg		88	73 - 124
Vinyl chloride	2000	1590		ug/Kg		80	56 - 135
o-Xylene	2000	1800		ug/Kg		90	77 - 123
m-Xylene & p-Xylene	2000	1740		ug/Kg		87	77 - 124
2-Chlorotoluene	2000	1720		ug/Kg		86	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442179/2-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442179

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*118*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: LCSD 280-442179/3-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442179

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	8000	9260		ug/Kg		116	36 - 164	14	20
Benzene	2000	1880		ug/Kg		94	77 - 121	0	20
Bromobenzene	2000	1810	Q	ug/Kg		90	78 - 121	23	20
Bromochloromethane	2000	2320		ug/Kg		116	78 - 125	4	20
Bromodichloromethane	2000	2160		ug/Kg		108	75 - 127	2	20
Bromoform	2000	2200		ug/Kg		110	67 - 132	5	20
Bromomethane	2000	1930		ug/Kg		97	53 - 143	6	20
2-Butanone (MEK)	8000	9000	Q	ug/Kg		112	51 - 148	21	20
n-Butylbenzene	2000	1500		ug/Kg		75	70 - 128	6	20
sec-Butylbenzene	2000	1630		ug/Kg		82	73 - 126	6	20
tert-Butylbenzene	2000	1610		ug/Kg		80	73 - 125	8	20
Carbon disulfide	2000	1800		ug/Kg		90	63 - 132	6	20
Carbon tetrachloride	2000	1980		ug/Kg		99	70 - 135	5	20
Chlorobenzene	2000	1820		ug/Kg		91	79 - 120	0	20
Chloroethane	2000	1710		ug/Kg		86	59 - 139	4	20
Chloroform	2000	2030		ug/Kg		102	78 - 123	3	20
Chloromethane	2000	1510		ug/Kg		75	50 - 136	3	20
4-Chlorotoluene	2000	1660		ug/Kg		83	72 - 124	5	20
Dibromochloromethane	2000	2280		ug/Kg		114	74 - 126	1	20
1,2-Dibromo-3-Chloropropane	2000	2360		ug/Kg		118	61 - 132	3	20
Dichlorodifluoromethane	2000	1460		ug/Kg		73	29 - 149	10	20
Dibromomethane	2000	2280		ug/Kg		114	78 - 125	3	20
Ethylene Dibromide	2000	2160		ug/Kg		108	78 - 122	0	20
1,2-Dichlorobenzene	2000	1810		ug/Kg		91	78 - 121	1	20
1,3-Dichlorobenzene	2000	1650		ug/Kg		83	77 - 121	4	20
1,4-Dichlorobenzene	2000	1640		ug/Kg		82	75 - 120	5	20
1,1-Dichloroethane	2000	2000		ug/Kg		100	76 - 125	3	20
1,2-Dichloroethane	2000	2150		ug/Kg		107	73 - 128	2	20
1,1-Dichloroethene	2000	1930		ug/Kg		97	70 - 131	5	20
cis-1,2-Dichloroethene	2000	2040		ug/Kg		102	77 - 123	5	20
trans-1,2-Dichloroethene	2000	2020		ug/Kg		101	74 - 125	2	20
1,2-Dichloropropane	2000	2070		ug/Kg		103	76 - 123	10	20
1,3-Dichloropropane	2000	2050		ug/Kg		103	77 - 121	3	20
2,2-Dichloropropane	2000	2000		ug/Kg		100	67 - 133	5	20
1,1-Dichloropropene	2000	1840		ug/Kg		92	76 - 125	1	20
cis-1,3-Dichloropropene	2000	2120		ug/Kg		106	74 - 126	2	20
trans-1,3-Dichloropropene	2000	2150		ug/Kg		108	71 - 130	1	20
Ethylbenzene	2000	1760		ug/Kg		88	76 - 122	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-442179/3-A
Matrix: Solid
Analysis Batch: 442592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442179

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	9440		ug/Kg		118	53 - 145	5	20
Hexachlorobutadiene	2000	1520		ug/Kg		76	61 - 135	6	20
Isopropylbenzene	2000	1670		ug/Kg		83	68 - 134	4	20
4-Isopropyltoluene	2000	1590		ug/Kg		80	73 - 127	6	20
Methylene Chloride	2000	1980		ug/Kg		99	70 - 128	4	20
4-Methyl-2-pentanone (MIBK)	8000	10000		ug/Kg		125	65 - 135	4	20
Methyl tert-butyl ether	2000	2490		ug/Kg		124	73 - 125	6	20
Naphthalene	2000	2200		ug/Kg		110	62 - 129	5	20
N-Propylbenzene	2000	1660		ug/Kg		83	73 - 125	5	20
Styrene	2000	1860		ug/Kg		93	76 - 124	0	20
1,1,1,2-Tetrachloroethane	2000	2130		ug/Kg		107	78 - 125	0	20
1,1,2,2-Tetrachloroethane	2000	2210		ug/Kg		110	70 - 124	5	20
Tetrachloroethene	2000	1750		ug/Kg		87	73 - 128	2	20
Toluene	2000	1860		ug/Kg		93	77 - 121	2	20
1,2,3-Trichlorobenzene	2000	2000		ug/Kg		100	66 - 130	3	20
1,1,1-Trichloroethane	2000	2000		ug/Kg		100	73 - 130	6	20
1,1,2-Trichloroethane	2000	2270		ug/Kg		114	78 - 121	3	20
Trichloroethene	2000	1840		ug/Kg		92	77 - 123	2	20
Trichlorofluoromethane	2000	1980		ug/Kg		99	62 - 140	9	20
1,2,4-Trichlorobenzene	2000	1830		ug/Kg		92	67 - 129	0	20
1,2,3-Trichloropropane	2000	2220		ug/Kg		111	73 - 125	4	20
1,2,4-Trimethylbenzene	2000	1650		ug/Kg		82	75 - 123	4	20
1,3,5-Trimethylbenzene	2000	1670		ug/Kg		83	73 - 124	5	20
Vinyl chloride	2000	1670		ug/Kg		84	56 - 135	5	20
o-Xylene	2000	1860		ug/Kg		93	77 - 123	3	20
m-Xylene & p-Xylene	2000	1750		ug/Kg		87	77 - 124	0	20
2-Chlorotoluene	2000	1690		ug/Kg		84	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*122*		*71 - 136*
4-Bromofluorobenzene (Surr)	*92*		*79 - 119*
Dibromofluoromethane (Surr)	*114*		*78 - 119*

Lab Sample ID: MB 280-442892/7
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/31/18 08:06	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/31/18 08:06	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/31/18 08:06	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/31/18 08:06	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/31/18 08:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442892/7
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/31/18 08:06	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/31/18 08:06	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/31/18 08:06	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/31/18 08:06	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/31/18 08:06	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/31/18 08:06	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 08:06	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 08:06	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/31/18 08:06	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/31/18 08:06	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/31/18 08:06	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/31/18 08:06	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 08:06	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/31/18 08:06	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/31/18 08:06	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/31/18 08:06	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 08:06	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/31/18 08:06	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442892/7
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/31/18 08:06	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/31/18 08:06	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/31/18 08:06	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/31/18 08:06	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*12/31/18 08:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*81 - 118*		*12/31/18 08:06*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/31/18 08:06*	*1*
Dibromofluoromethane (Surr)	*116*		*80 - 119*		*12/31/18 08:06*	*1*

Lab Sample ID: LCS 280-442892/5
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	22.8		ug/L		114	39 - 160
Benzene	5.00	5.74		ug/L		115	79 - 120
Bromobenzene	5.00	5.20		ug/L		104	80 - 120
Bromochloromethane	5.00	5.95		ug/L		119	78 - 123
Bromodichloromethane	5.00	5.80		ug/L		116	79 - 125
Bromoform	5.00	6.01		ug/L		120	66 - 130
Bromomethane	5.00	4.93		ug/L		99	53 - 141
2-Butanone (MEK)	20.0	21.8		ug/L		109	56 - 143
n-Butylbenzene	5.00	5.57		ug/L		111	75 - 128
sec-Butylbenzene	5.00	5.42		ug/L		108	77 - 126
tert-Butylbenzene	5.00	5.32		ug/L		106	78 - 124
Carbon disulfide	5.00	6.33		ug/L		127	64 - 133
Carbon tetrachloride	5.00	5.89		ug/L		118	72 - 136
Chlorobenzene	5.00	5.22		ug/L		104	82 - 118
Chloroethane	5.00	5.71		ug/L		114	60 - 138
Chloroform	5.00	5.82		ug/L		116	79 - 124
Chloromethane	5.00	5.43		ug/L		109	50 - 139
4-Chlorotoluene	5.00	5.35		ug/L		107	78 - 122
Dibromochloromethane	5.00	5.94		ug/L		119	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.47		ug/L		109	62 - 128
Dichlorodifluoromethane	5.00	6.07		ug/L		121	32 - 152
Dibromomethane	5.00	5.60		ug/L		112	79 - 123
Ethylene Dibromide	5.00	5.51		ug/L		110	77 - 121
1,2-Dichlorobenzene	5.00	5.25		ug/L		105	80 - 119
1,3-Dichlorobenzene	5.00	5.04		ug/L		101	80 - 119
1,4-Dichlorobenzene	5.00	5.01		ug/L		100	79 - 118
1,1-Dichloroethane	5.00	5.93		ug/L		119	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442892/5
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.87		ug/L		117	73 - 128
1,1-Dichloroethene	5.00	6.22		ug/L		124	71 - 131
cis-1,2-Dichloroethene	5.00	5.90		ug/L		118	78 - 123
trans-1,2-Dichloroethene	5.00	6.12		ug/L		122	75 - 124
1,2-Dichloropropane	5.00	5.74		ug/L		115	78 - 122
1,3-Dichloropropane	5.00	5.36		ug/L		107	80 - 119
2,2-Dichloropropane	5.00	5.50		ug/L		110	60 - 139
1,1-Dichloropropene	5.00	6.13		ug/L		123	79 - 125
cis-1,3-Dichloropropene	5.00	5.87		ug/L		117	75 - 124
trans-1,3-Dichloropropene	5.00	5.44		ug/L		109	73 - 127
Ethylbenzene	5.00	5.43		ug/L		109	79 - 121
2-Hexanone	20.0	23.7		ug/L		118	57 - 139
Hexachlorobutadiene	5.00	5.10		ug/L		102	66 - 134
Isopropylbenzene	5.00	5.68		ug/L		114	72 - 131
4-Isopropyltoluene	5.00	5.83		ug/L		117	77 - 127
Methylene Chloride	5.00	5.64		ug/L		113	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	26.1		ug/L		130	67 - 130
Methyl tert-butyl ether	5.00	6.25	Q	ug/L		125	71 - 124
Naphthalene	5.00	5.23		ug/L		105	61 - 128
N-Propylbenzene	5.00	5.44		ug/L		109	76 - 126
Styrene	5.00	5.44		ug/L		109	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.48		ug/L		110	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.44		ug/L		109	71 - 121
Tetrachloroethene	5.00	5.32		ug/L		106	74 - 129
Toluene	5.00	5.73		ug/L		115	80 - 121
1,2,3-Trichlorobenzene	5.00	4.99		ug/L		100	69 - 129
1,1,1-Trichloroethane	5.00	5.98		ug/L		120	74 - 131
1,1,2-Trichloroethane	5.00	5.66		ug/L		113	80 - 119
Trichloroethene	5.00	5.91		ug/L		118	79 - 123
Trichlorofluoromethane	5.00	5.70		ug/L		114	65 - 141
1,2,4-Trichlorobenzene	5.00	4.93		ug/L		99	69 - 130
1,2,3-Trichloropropane	5.00	5.58		ug/L		112	73 - 122
1,2,4-Trimethylbenzene	5.00	5.54		ug/L		111	76 - 124
1,3,5-Trimethylbenzene	5.00	5.55		ug/L		111	75 - 124
Vinyl chloride	5.00	5.41		ug/L		108	58 - 137
o-Xylene	5.00	5.56		ug/L		111	78 - 122
m-Xylene & p-Xylene	5.00	5.57		ug/L		111	80 - 121
2-Chlorotoluene	5.00	5.39		ug/L		108	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*
4-Bromofluorobenzene (Surr)	*106*		*85 - 114*
Dibromofluoromethane (Surr)	*118*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/28/18 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*12/27/18 11:52*	*12/28/18 11:55*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.38		mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.40		mg/Kg		103	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	82.3		ug/L		105	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: MB 280-443157/19
Matrix: Solid
Analysis Batch: 443157

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	0.022	U	0.024	0.022	0.0065	mg/Kg		01/03/19 12:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*		*01/03/19 12:58*	*1*

Lab Sample ID: LCS 280-443157/17
Matrix: Solid
Analysis Batch: 443157

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			0.0784	0.0809		mg/Kg		103	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*

Lab Sample ID: LCSD 280-443157/18
Matrix: Solid
Analysis Batch: 443157

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			0.0784	0.0812		mg/Kg		103	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/15/19 17:32	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	102		55 - 130	12/27/18 14:22	01/15/19 17:32	1

Lab Sample ID: LCS 280-442668/1-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.770		ug/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	107		55 - 130

Lab Sample ID: LCSD 280-442668/2-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.783		ug/Kg		89	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	106		55 - 130

Lab Sample ID: 280-118336-6 MS
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: V-V1-161218-115
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	140	J1 D Q	1.02	58.5	4 D Q	ug/Kg	☼	-8237	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dibromopropane	0	D	55 - 130

Lab Sample ID: 280-118336-6 MSD
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: V-V1-161218-115
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	140	J1 D Q	1.02	163	4 D J1 Q	ug/Kg	☼	2011	70 - 130	94	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dibromopropane	0	D	55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442866/3-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442866

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 13:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*93*		*70 - 130*	*12/30/18 10:16*	*01/08/19 13:58*	*1*

Lab Sample ID: LCS 280-442866/1-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442866

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.217		ug/L		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*87*		*70 - 130*

Lab Sample ID: LCSD 280-442866/2-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442866

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.216		ug/L		86	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*87*		*70 - 130*

Lab Sample ID: MB 280-442875/3-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442875

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/14/19 18:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*112*		*55 - 130*	*12/30/18 12:34*	*01/14/19 18:12*	*1*

Lab Sample ID: LCS 280-442875/1-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442875

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.785		ug/Kg		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-442875/2-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442875

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.796		ug/Kg		91	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*103*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.05	J	7.7	3.8	1.3	mg/Kg		01/04/19 14:15	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg		01/04/19 14:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*12/20/18 19:41*	*01/04/19 14:15*	*1*
n-Octacosane	*90*		*25 - 162*	*12/20/18 19:41*	*01/04/19 14:15*	*1*

Lab Sample ID: LCS 280-442077/2-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	113		mg/Kg		85	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*94*		*25 - 162*

Lab Sample ID: LCS 280-442077/3-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	271		mg/Kg		83	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*		*45 - 130*
n-Octacosane	*97*		*25 - 162*

GC/MS VOA

Prep Batch: 442179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-2	V-V1-161218-061	Total/NA	Solid	5035	
280-118336-4	V-V1-161218-101	Total/NA	Solid	5035	
280-118336-6	V-V1-161218-115	Total/NA	Solid	5035	
280-118336-8	V-V1-171218-147	Total/NA	Solid	5035	
MB 280-442179/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442179/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442179/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-2	V-V1-161218-061	Total/NA	Solid	8260B	442179
280-118336-4	V-V1-161218-101	Total/NA	Solid	8260B	442179
280-118336-6	V-V1-161218-115	Total/NA	Solid	8260B	442179
280-118336-8	V-V1-171218-147	Total/NA	Solid	8260B	442179
MB 280-442179/1-A	Method Blank	Total/NA	Solid	8260B	442179
LCS 280-442179/2-A	Lab Control Sample	Total/NA	Solid	8260B	442179
LCSD 280-442179/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	442179

Analysis Batch: 442892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-1	TB-V1-171218-01	Total/NA	Water	8260B	
MB 280-442892/7	Method Blank	Total/NA	Water	8260B	
LCS 280-442892/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-3 - RA	P-V1-161218-061	Total/NA	Solid	5035	
280-118336-5 - DL	P-V1-161218-101	Total/NA	Solid	5035	
280-118336-7 - RA	P-V1-161218-115	Total/NA	Solid	5035	
280-118336-9 - RA	P-V1-171218-147	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-5 - DL	P-V1-161218-101	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-1	TB-V1-171218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	

GC VOA (Continued)

Analysis Batch: 442898 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

Analysis Batch: 443049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-7 - RA	P-V1-161218-115	Total/NA	Solid	8015D GRO	442646
280-118336-9 - RA	P-V1-171218-147	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 443157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-3 - RA	P-V1-161218-061	Total/NA	Solid	8015D GRO	442646
MB 280-443157/19	Method Blank	Total/NA	Solid	8015D GRO	
LCS 280-443157/17	Lab Control Sample	Total/NA	Solid	8015D GRO	
LCSD 280-443157/18	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	

GC Semi VOA

Prep Batch: 442077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-3	P-V1-161218-061	Total/NA	Solid	3546	
280-118336-5	P-V1-161218-101	Total/NA	Solid	3546	
280-118336-7	P-V1-161218-115	Total/NA	Solid	3546	
280-118336-9	P-V1-171218-147	Total/NA	Solid	3546	
MB 280-442077/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 442668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-2	V-V1-161218-061	Total/NA	Solid	8011	
280-118336-4	V-V1-161218-101	Total/NA	Solid	8011	
280-118336-6	V-V1-161218-115	Total/NA	Solid	8011	
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-118336-6 MS	V-V1-161218-115	Total/NA	Solid	8011	
280-118336-6 MSD	V-V1-161218-115	Total/NA	Solid	8011	

Prep Batch: 442866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-1	TB-V1-171218-01	Total/NA	Water	8011	
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 442875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-8	V-V1-171218-147	Total/NA	Solid	8011	
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 442875 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 443317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-3	P-V1-161218-061	Total/NA	Solid	8015D DRO	442077
280-118336-5	P-V1-161218-101	Total/NA	Solid	8015D DRO	442077
280-118336-7	P-V1-161218-115	Total/NA	Solid	8015D DRO	442077
280-118336-9	P-V1-171218-147	Total/NA	Solid	8015D DRO	442077
MB 280-442077/1-A	Method Blank	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077

Analysis Batch: 443459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-1	TB-V1-171218-01	Total/NA	Water	8011	442866
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	442866
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	442866
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	442866

Analysis Batch: 444201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-2	V-V1-161218-061	Total/NA	Solid	8011	442668
280-118336-4	V-V1-161218-101	Total/NA	Solid	8011	442668
280-118336-6	V-V1-161218-115	Total/NA	Solid	8011	442668
280-118336-8	V-V1-171218-147	Total/NA	Solid	8011	442875
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	442875
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	442875
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442875
280-118336-6 MS	V-V1-161218-115	Total/NA	Solid	8011	442668
280-118336-6 MSD	V-V1-161218-115	Total/NA	Solid	8011	442668

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	442668
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	442668
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442668

General Chemistry

Analysis Batch: 441926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118336-2	V-V1-161218-061	Total/NA	Solid	Moisture	
280-118336-3	P-V1-161218-061	Total/NA	Solid	Moisture	
280-118336-4	V-V1-161218-101	Total/NA	Solid	Moisture	
280-118336-5	P-V1-161218-101	Total/NA	Solid	Moisture	
280-118336-6	V-V1-161218-115	Total/NA	Solid	Moisture	
280-118336-7	P-V1-161218-115	Total/NA	Solid	Moisture	
280-118336-8	V-V1-171218-147	Total/NA	Solid	Moisture	
280-118336-9	P-V1-171218-147	Total/NA	Solid	Moisture	

Client Sample ID: TB-V1-171218-01

Lab Sample ID: 280-118336-1

Date Collected: 12/17/18 16:00

Matrix: Water

Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 uL	20 uL	442892	12/31/18 16:19	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	442898	12/31/18 11:35	SU	TAL DEN
Total/NA	Prep	8011			34.4 mL	35 mL	442866	12/30/18 10:16	MJS	TAL DEN
Total/NA	Analysis	8011		1			443459	01/08/19 14:18	JLW	TAL DEN

Client Sample ID: V-V1-161218-061

Lab Sample ID: 280-118336-2

Date Collected: 12/16/18 09:51

Matrix: Solid

Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: V-V1-161218-061

Lab Sample ID: 280-118336-2

Date Collected: 12/16/18 09:51

Matrix: Solid

Date Received: 12/18/18 10:54

Percent Solids: 94.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.073 g	1000 mL	442179	12/16/18 09:51	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442592	12/27/18 13:09	JLS	TAL DEN
Total/NA	Prep	8011			10.06 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		20			444201	01/15/19 04:30	JLW	TAL DEN

Client Sample ID: P-V1-161218-061

Lab Sample ID: 280-118336-3

Date Collected: 12/16/18 09:51

Matrix: Solid

Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: P-V1-161218-061

Lab Sample ID: 280-118336-3

Date Collected: 12/16/18 09:51

Matrix: Solid

Date Received: 12/18/18 10:54

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		4.564 g	5 mL	442646	12/16/18 09:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO	RA	200	0.1 mL	5 mL	443157	01/03/19 17:02	SU	TAL DEN
Total/NA	Prep	3546			16.7 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		10			443317	01/04/19 22:17	AMB1	TAL DEN

Client Sample ID: V-V1-161218-101 — **Lab Sample ID: 280-118336-4**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: V-V1-161218-101 — **Lab Sample ID: 280-118336-4**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.27 g	1000 mL	442179	12/16/18 14:30	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442592	12/27/18 14:09	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		100			444201	01/15/19 04:49	JLW	TAL DEN

Client Sample ID: P-V1-161218-101 — **Lab Sample ID: 280-118336-5**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: P-V1-161218-101 — **Lab Sample ID: 280-118336-5**
Date Collected: 12/16/18 14:30 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 96.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.086 g	5 mL	442646	12/16/18 14:30	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	200	0.1 mL	5 mL	442874	12/30/18 14:20	SU	TAL DEN
Total/NA	Prep	3546			16.7 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		10			443317	01/04/19 22:38	AMB1	TAL DEN

Client Sample ID: V-V1-161218-115 — **Lab Sample ID: 280-118336-6**
Date Collected: 12/16/18 15:48 — **Matrix: Solid**
Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: V-V1-161218-115 — **Lab Sample ID: 280-118336-6**
Date Collected: 12/16/18 15:48 — **Matrix: Solid**
Date Received: 12/18/18 10:54 — **Percent Solids: 86.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.563 g	1000 mL	442179	12/16/18 15:48	CAS	TAL DEN

Client Sample ID: V-V1-161218-115

Lab Sample ID: 280-118336-6
Date Collected: 12/16/18 15:48
Matrix: Solid
Date Received: 12/18/18 10:54
Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	20 mL	20 mL	442592	12/27/18 17:59	JLS	TAL DEN
Total/NA	Prep	8011			9.94 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		100			444201	01/15/19 05:09	JLW	TAL DEN

Client Sample ID: P-V1-161218-115

Lab Sample ID: 280-118336-7
Date Collected: 12/16/18 15:48
Matrix: Solid
Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: P-V1-161218-115

Lab Sample ID: 280-118336-7
Date Collected: 12/16/18 15:48
Matrix: Solid
Date Received: 12/18/18 10:54
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		4.621 g	5 mL	442646	12/16/18 15:48	SU	TAL DEN
Total/NA	Analysis	8015D GRO	RA	200	0.1 mL	5 mL	443049	01/02/19 17:07	SU	TAL DEN
Total/NA	Prep	3546			16.8 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		10			443317	01/04/19 23:00	AMB1	TAL DEN

Client Sample ID: V-V1-171218-147

Lab Sample ID: 280-118336-8
Date Collected: 12/17/18 15:47
Matrix: Solid
Date Received: 12/18/18 10:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: V-V1-171218-147

Lab Sample ID: 280-118336-8
Date Collected: 12/17/18 15:47
Matrix: Solid
Date Received: 12/18/18 10:54
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.581 g	1000 mL	442179	12/17/18 15:47	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442592	12/27/18 18:18	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		50			444201	01/14/19 18:31	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Client Sample ID: P-V1-171218-147

Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: P-V1-171218-147

Date Collected: 12/17/18 15:47
Date Received: 12/18/18 10:54

Lab Sample ID: 280-118336-9

Matrix: Solid
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		4.138 g	5 mL	442646	12/17/18 15:47	SU	TAL DEN
Total/NA	Analysis	8015D GRO	RA	250	0.1 mL	5 mL	443049	01/02/19 16:43	SU	TAL DEN
Total/NA	Prep	3546			16.0 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		5			443317	01/04/19 23:22	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118336-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4433 3393 0983	COC No: COC2-V1-TA-20181217
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, M - Hexane, N - None, O - AsNaO2

280-118336 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-V1-171218-01	12/17/18	1600	G	W	N	N	—	—	—	—	—	X	X	—	X	—	6	
V-V1-161218-061	12/16/18	0951	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	
P-V1-161218-061	12/16/18	0951	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3	
V-V1-161218-101	12/16/18	1430	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	
P-V1-161218-101	12/16/18	1430	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3	
V-V1-161218-115	12/16/18	1548	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	
P-V1-161218-115	12/16/18	1548	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3	
V-V1-171218-147	12/17/18	1547	G	S	N	N	X	X	X	—	—	—	—	—	—	—	5	
P-V1-171218-147	12/17/18	1547	G	S	N	N	—	—	—	X	X	—	—	—	—	—	3	
	JV2																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Joshua Livingston	Date/Time: 12/17/18 1800	Company: EA	Received by:	Date/Time: 12/18/18 0910	Company: TADEN		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.3, +0.7, IR #9 transfer by JD 12/17/18

1/22/2019

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118336-1

Login Number: 118336
List Number: 1
Creator: Staack, KiAundra A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118337-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/5/2019 4:47:36 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118337-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118337-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/18/2018 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

Receipt Exceptions

The DI water terracores for sample ID V-V2-151218-287 were collected 12/15 at 0908, and received on 12/18 at 0910. Samples have exceeded the 48 hour hold time required for freezing. The samples were frozen upon receipt. Per project history, the laboratory proceeded with analysis per the standard procedure.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Sample V-V2-151218-287 (280-118337-3) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 12/15/2018 and analyzed on 12/27/2018.

Naphthalene was detected in method blank MB 280-442674/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection is less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Samples RB-V1-151218-01 (280-118337-1) and TB-V2-171218-01 (280-118337-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 12/28/2018 and 12/31/2018.

1,2-Dichloroethane-d4 (Surr) failed the surrogate recovery criteria high for RB-V1-151218-01 (280-118337-1). Toluene-d8 (Surr) failed the surrogate recovery criteria low for TB-V2-171218-01 (280-118337-2). 1,2-Dichloroethane-d4 (Surr) and Dibromofluoromethane (Surr) failed the surrogate recovery criteria high. Refer to the QC report for details.

In batch 442892, surrogate recovery for the following sample was outside control limits for Toluene-d8 (89%-112%) at 87% in the original analysis: TB-V2-171218-01 (280-118337-2). Re-analysis was performed with acceptable results for Toluene-d8 at 90%. The compounds affected by Toluene-d8 in the original run were reported as Primary in the re-analysis and both sets showed the compounds were non-detect. The re-analysis had the surrogates 1,2-Dichloroethane-d4 (81%-118%) recovering at 121% and Dibromofluoromethane (80%

Job ID: 280-118337-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

-119%) at 122%, but the compounds associated with these surrogates were not reported as Primary.

Methyl tert-butyl ether failed the recovery criteria high for LCS 280-442892/5. Associated results have been flagged "Q". Refer to the QC report for details. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported. The following sample is associated: TB-V2-171218-01 (280-118337-2).

The initial calibration verification (ICV) result for batch 280-442892 was above the upper control limit for Dichlorodifluoromethane (20%) at 20.8%. Sample results were non-detects, and have been reported as qualified data. The following sample is associated: TB-V2-171218-01 (280-118337-2).

The continuing calibration verification check (CCVC) associated with batch 280-442719 recovered above the upper control limit for 2-Butanone (50%) at 57.6%. The samples associated with this CCVC were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: RB-V1-151218-01 (280-118337-1) and (CCVC 280-442719/34).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Sample V-V2-151218-287 (280-118337-3) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/27/2018 and analyzed on 01/15/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Samples RB-V1-151218-01 (280-118337-1) and TB-V2-171218-01 (280-118337-2) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/27/2018 and 12/30/2018 and analyzed on 01/08/2019 and 12/27/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Sample P-V2-151218-287 (280-118337-4) was analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 12/15/2018 and analyzed on 01/02/2019.

Reanalysis of the following sample was performed outside of the analytical holding time due to CCVRT failure in original analytical batch 442742 : P-V2-151218-287 (280-118337-4). The continuing calibration verification (CCV) associated with batch 280-442742 recovered above the upper control limit for Gasoline Range Organics (GRO)-C6-C10. The samples associated with this CCV had detections for the affected analytes; therefore, the samples have been reanalyzed and diluted properly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Samples RB-V1-151218-01 (280-118337-1) and TB-V2-171218-01 (280-118337-2) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/26/2018 and 12/31/2018.

Re-analysis of the following samples was performed outside of the analytical holding time due to failure of several quality control parameters in the initial analysis: RB-V1-151218-01 (280-118337-1) and TB-V2-171218-01 (280-118337-2). The calibration failed due to contaminated vials in the initial analysis. The re-analysis batch had acceptable calibration and QC; therefore, as instructed by the client, the re-analysis has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO) - Solid

Sample P-V2-151218-287 (280-118337-4) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/20/2018 and analyzed on 01/04/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V2-151218-287

Job ID: 280-118337-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-118337-4), (LCS 280-442077/2-A), (LCS 280-442077/3-A), (MB 280-442077/1-A). This is for preparation batch 280-442077 and analytical batch 280-443317.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442077/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO) - Water

Sample RB-V1-151218-01 (280-118337-1) was analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 12/18/2018 and analyzed on 12/20/2018.

Per the method comments, the following samples are reported from analysis of extracts that were silica gel cleaned: RB-V1-151218-01 (280-118337-1), (LCS 280-441778/2-A), (LCS 280-441778/4-A), (LCSD 280-441778/3-A), (LCSD 280-441778/5-A) and (MB 280-441778/1-A). This is for preparation batch 280-441778 and analytical batch 280-442025.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-441778. A duplicate LCS (LCSD) was performed.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V2-151218-287 (280-118337-3) and P-V2-151218-287 (280-118337-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/19/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page..

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Client Sample ID: RB-V1-151218-01 — Lab Sample ID: 280-118337-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	0.33	J	5.0	0.80	0.32	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO)-C6-C10 - RA	21	J H	25	25	10	ug/L	1		8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	0.064	J	0.25	0.12	0.032	mg/L	1		8015D DRO	Total/NA

Client Sample ID: TB-V2-171218-01 — Lab Sample ID: 280-118337-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.5	J	10	6.4	1.9	ug/L	1		8260B	Total/NA

Client Sample ID: V-V2-151218-287 — Lab Sample ID: 280-118337-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	220		22	14	5.8	ug/Kg	1	☼	8260B	Total/NA
Toluene	1.7	J	5.4	1.7	0.74	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-V2-151218-287 — Lab Sample ID: 280-118337-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - RA	1.1	J H	1.5	1.4	0.40	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	2.5	J	8.1	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118337-1	RB-V1-151218-01	Water	12/15/18 15:45	12/18/18 11:04
280-118337-2	TB-V2-171218-01	Water	12/17/18 14:00	12/18/18 11:04
280-118337-3	V-V2-151218-287	Solid	12/15/18 09:08	12/18/18 11:04
280-118337-4	P-V2-151218-287	Solid	12/15/18 09:08	12/18/18 11:04

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-V1-151218-01
Date Collected: 12/15/18 15:45
Date Received: 12/18/18 11:04

Lab Sample ID: 280-118337-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		12/28/18 18:09	1
Benzene	0.40	U Q	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 18:09	1
Bromodichloromethane	0.40	U Q	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 18:09	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 18:09	1
2-Butanone (MEK)	4.0	U Q	6.0	4.0	2.0	ug/L		12/28/18 18:09	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 18:09	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 18:09	1
Carbon tetrachloride	0.40	U Q	2.0	0.40	0.19	ug/L		12/28/18 18:09	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/28/18 18:09	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/28/18 18:09	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 18:09	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 18:09	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 18:09	1
Dibromomethane	0.40	U Q	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 18:09	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 18:09	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 18:09	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 18:09	1
1,2-Dichloroethane	0.40	U Q	1.0	0.40	0.13	ug/L		12/28/18 18:09	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 18:09	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 18:09	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 18:09	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 18:09	1
1,2-Dichloropropane	0.40	U Q	1.0	0.40	0.18	ug/L		12/28/18 18:09	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 18:09	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 18:09	1
1,1-Dichloropropene	0.40	U Q	1.0	0.40	0.19	ug/L		12/28/18 18:09	1
cis-1,3-Dichloropropene	0.40	U Q	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
trans-1,3-Dichloropropene	0.40	U Q	1.0	0.40	0.19	ug/L		12/28/18 18:09	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 18:09	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 18:09	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 18:09	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 18:09	1
Methylene Chloride	**0.33**	**J**	5.0	0.80	0.32	ug/L		12/28/18 18:09	1
4-Methyl-2-pentanone (MIBK)	3.2	U Q	5.0	3.2	0.98	ug/L		12/28/18 18:09	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 18:09	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/28/18 18:09	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-V1-151218-01
Date Collected: 12/15/18 15:45
Date Received: 12/18/18 11:04
Lab Sample ID: 280-118337-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 18:09	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 18:09	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 18:09	1
Toluene	0.40	U Q	1.0	0.40	0.17	ug/L		12/28/18 18:09	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 18:09	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		12/28/18 18:09	1
Trichloroethene	0.40	U Q	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 18:09	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 18:09	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 18:09	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 18:09	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 18:09	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/28/18 18:09	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 18:09	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 18:09	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*89 - 112*		*12/28/18 18:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*136*	*Q*	*81 - 118*		*12/28/18 18:09*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/28/18 18:09*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/28/18 18:09*	*1*

Client Sample ID: TB-V2-171218-01
Date Collected: 12/17/18 14:00
Date Received: 12/18/18 11:04
Lab Sample ID: 280-118337-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2.5**	**J**	10	6.4	1.9	ug/L		12/31/18 09:05	1
Benzene	0.40	U M	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 09:05	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/31/18 09:05	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 09:05	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/31/18 09:05	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/31/18 09:05	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/31/18 09:05	1
sec-Butylbenzene	0.40	U M	1.0	0.40	0.17	ug/L		12/31/18 09:05	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/31/18 09:05	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/31/18 09:05	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		12/31/18 09:05	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/31/18 09:05	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 09:05	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/31/18 09:05	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		12/31/18 09:05	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 09:05	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 09:05	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 09:05	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V2-171218-01
Date Collected: 12/17/18 14:00
Date Received: 12/18/18 11:04
Lab Sample ID: 280-118337-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 09:05	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 09:05	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/31/18 09:05	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/31/18 09:05	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 09:05	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 09:05	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 09:05	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 09:05	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 09:05	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 09:05	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/31/18 09:05	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 09:05	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 09:05	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/31/18 09:05	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/31/18 09:05	1
Methyl tert-butyl ether	0.80	U Q	5.0	0.80	0.25	ug/L		12/31/18 09:05	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 09:05	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 09:05	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 09:05	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 09:05	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/31/18 09:05	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/31/18 09:05	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 09:05	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/31/18 09:05	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 09:05	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 09:05	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/31/18 09:05	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 09:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*87*	*Q*	*89 - 112*		*12/31/18 09:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*81 - 118*		*12/31/18 09:05*	*1*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*		*12/31/18 09:05*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 119*		*12/31/18 09:05*	*1*

Client Sample ID: V-V2-151218-287
Date Collected: 12/15/18 09:08
Date Received: 12/18/18 11:04
Lab Sample ID: 280-118337-3
Matrix: Solid
Percent Solids: 95.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.4	1.7	0.60	ug/Kg	☼	12/27/18 17:36	1
1,1,1-Trichloroethane	1.7	U	5.4	1.7	0.56	ug/Kg	☼	12/27/18 17:36	1
1,1,2,2-Tetrachloroethane	1.7	U	5.4	1.7	0.66	ug/Kg	☼	12/27/18 17:36	1
1,1,2-Trichloroethane	3.4	U	5.4	3.4	0.95	ug/Kg	☼	12/27/18 17:36	1
1,1-Dichloroethane	0.86	U	5.4	0.86	0.23	ug/Kg	☼	12/27/18 17:36	1
1,1-Dichloroethene	1.7	U	5.4	1.7	0.63	ug/Kg	☼	12/27/18 17:36	1
1,1-Dichloropropene	1.7	U	5.4	1.7	0.58	ug/Kg	☼	12/27/18 17:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-151218-287 — **Lab Sample ID: 280-118337-3**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	1.7	U	5.4	1.7	0.81	ug/Kg	☼	12/27/18 17:36	1
1,2,3-Trichloropropane	3.4	U	5.4	3.4	0.87	ug/Kg	☼	12/27/18 17:36	1
1,2,4-Trichlorobenzene	1.7	U	5.4	1.7	0.78	ug/Kg	☼	12/27/18 17:36	1
1,2,4-Trimethylbenzene	3.4	U	5.4	3.4	0.62	ug/Kg	☼	12/27/18 17:36	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.65	ug/Kg	☼	12/27/18 17:36	1
1,2-Dichlorobenzene	1.7	U	5.4	1.7	0.48	ug/Kg	☼	12/27/18 17:36	1
1,2-Dichloroethane	1.7	U	5.4	1.7	0.75	ug/Kg	☼	12/27/18 17:36	1
1,2-Dichloroethene, Total	1.7	U	5.4	1.7	0.42	ug/Kg	☼	12/27/18 17:36	1
1,2-Dichloropropane	1.7	U	5.4	1.7	0.59	ug/Kg	☼	12/27/18 17:36	1
1,3,5-Trimethylbenzene	1.7	U	5.4	1.7	0.61	ug/Kg	☼	12/27/18 17:36	1
1,3-Dichlorobenzene	1.7	U	5.4	1.7	0.52	ug/Kg	☼	12/27/18 17:36	1
1,3-Dichloropropane	1.7	U	5.4	1.7	0.55	ug/Kg	☼	12/27/18 17:36	1
1,4-Dichlorobenzene	1.7	U	5.4	1.7	0.84	ug/Kg	☼	12/27/18 17:36	1
2,2-Dichloropropane	1.7	U	5.4	1.7	0.47	ug/Kg	☼	12/27/18 17:36	1
2-Butanone (MEK)	6.9	U	22	6.9	2.0	ug/Kg	☼	12/27/18 17:36	1
2-Chlorotoluene	1.7	U	5.4	1.7	0.55	ug/Kg	☼	12/27/18 17:36	1
2-Hexanone	14	U	22	14	5.3	ug/Kg	☼	12/27/18 17:36	1
4-Chlorotoluene	1.7	U	5.4	1.7	0.84	ug/Kg	☼	12/27/18 17:36	1
4-Isopropyltoluene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	12/27/18 17:36	1
4-Methyl-2-pentanone (MIBK)	14	U M	22	14	4.7	ug/Kg	☼	12/27/18 17:36	1
Acetone	**220**		22	14	5.8	ug/Kg	☼	12/27/18 17:36	1
Benzene	1.7	U	5.4	1.7	0.51	ug/Kg	☼	12/27/18 17:36	1
Bromobenzene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	12/27/18 17:36	1
Bromoform	0.86	U	5.4	0.86	0.25	ug/Kg	☼	12/27/18 17:36	1
Bromomethane	1.7	U	11	1.7	0.54	ug/Kg	☼	12/27/18 17:36	1
Carbon disulfide	1.7	U	5.4	1.7	0.45	ug/Kg	☼	12/27/18 17:36	1
Carbon tetrachloride	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/27/18 17:36	1
Chlorobenzene	1.7	U	5.4	1.7	0.58	ug/Kg	☼	12/27/18 17:36	1
Bromochloromethane	0.86	U	5.4	0.86	0.32	ug/Kg	☼	12/27/18 17:36	1
Dibromochloromethane	1.7	U	5.4	1.7	0.61	ug/Kg	☼	12/27/18 17:36	1
Chloroethane	3.4	U	11	3.4	0.96	ug/Kg	☼	12/27/18 17:36	1
Chloroform	0.86	U	11	0.86	0.31	ug/Kg	☼	12/27/18 17:36	1
Chloromethane	1.7	U	11	1.7	0.83	ug/Kg	☼	12/27/18 17:36	1
cis-1,2-Dichloroethene	1.7	U	5.4	1.7	0.60	ug/Kg	☼	12/27/18 17:36	1
cis-1,3-Dichloropropene	3.4	U	5.4	3.4	1.4	ug/Kg	☼	12/27/18 17:36	1
Dibromomethane	3.4	U	5.4	3.4	0.90	ug/Kg	☼	12/27/18 17:36	1
Bromodichloromethane	0.86	U	5.4	0.86	0.24	ug/Kg	☼	12/27/18 17:36	1
Dichlorodifluoromethane	1.7	U Q	11	1.7	0.56	ug/Kg	☼	12/27/18 17:36	1
Ethylbenzene	1.7	U	5.4	1.7	0.72	ug/Kg	☼	12/27/18 17:36	1
Ethylene Dibromide	1.7	U	5.4	1.7	0.56	ug/Kg	☼	12/27/18 17:36	1
Hexachlorobutadiene	1.7	U	5.4	1.7	0.59	ug/Kg	☼	12/27/18 17:36	1
Isopropylbenzene	1.7	U	5.4	1.7	0.63	ug/Kg	☼	12/27/18 17:36	1
Methyl tert-butyl ether	0.86	U	22	0.86	0.37	ug/Kg	☼	12/27/18 17:36	1
Methylene Chloride	3.4	U	5.4	3.4	1.7	ug/Kg	☼	12/27/18 17:36	1
m-Xylene & p-Xylene	3.4	U	3.4	3.4	1.1	ug/Kg	☼	12/27/18 17:36	1
Naphthalene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/27/18 17:36	1
n-Butylbenzene	1.7	U	5.4	1.7	0.60	ug/Kg	☼	12/27/18 17:36	1
N-Propylbenzene	1.7	U	5.4	1.7	0.62	ug/Kg	☼	12/27/18 17:36	1
o-Xylene	1.7	U	5.4	1.7	0.66	ug/Kg	☼	12/27/18 17:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V2-151218-287 — **Lab Sample ID: 280-118337-3**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	1.7	U	5.4	1.7	0.83	ug/Kg	☼	12/27/18 17:36	1
Styrene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	12/27/18 17:36	1
tert-Butylbenzene	1.7	U	5.4	1.7	0.54	ug/Kg	☼	12/27/18 17:36	1
Tetrachloroethene	1.7	U	5.4	1.7	0.63	ug/Kg	☼	12/27/18 17:36	1
Toluene	**1.7**	**J**	5.4	1.7	0.74	ug/Kg	☼	12/27/18 17:36	1
trans-1,2-Dichloroethene	0.86	U	5.4	0.86	0.42	ug/Kg	☼	12/27/18 17:36	1
trans-1,3-Dichloropropene	1.7	U	5.4	1.7	0.72	ug/Kg	☼	12/27/18 17:36	1
Trichloroethene	0.86	U	5.4	0.86	0.25	ug/Kg	☼	12/27/18 17:36	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	12/27/18 17:36	1
Vinyl chloride	3.4	U	5.4	3.4	1.4	ug/Kg	☼	12/27/18 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*86*		*85 - 116*	*12/15/18 09:08*	*12/27/18 17:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*12/15/18 09:08*	*12/27/18 17:36*	*1*
4-Bromofluorobenzene (Surr)	*82*		*79 - 119*	*12/15/18 09:08*	*12/27/18 17:36*	*1*
Dibromofluoromethane (Surr)	*85*		*78 - 119*	*12/15/18 09:08*	*12/27/18 17:36*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - RA

Client Sample ID: TB-V2-171218-01 — **Lab Sample ID: 280-118337-2**
Date Collected: 12/17/18 14:00 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 16:38	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:38	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:38	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 16:38	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 16:38	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 16:38	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/31/18 16:38	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 16:38	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 16:38	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 16:38	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 16:38	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/31/18 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*90*		*89 - 112*		*12/31/18 16:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*121*	*Q*	*81 - 118*		*12/31/18 16:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*12/31/18 16:38*	*1*
Dibromofluoromethane (Surr)	*122*	*Q*	*80 - 119*		*12/31/18 16:38*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-V2-171218-01 — **Lab Sample ID: 280-118337-2**
Date Collected: 12/17/18 14:00 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:59	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*12/31/18 11:59*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: RB-V1-151218-01 — **Lab Sample ID: 280-118337-1**
Date Collected: 12/15/18 15:45 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**21**	**J H**	25	25	10	ug/L		12/31/18 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	*88*		*82 - 110*		*12/31/18 21:12*	*1*

Client Sample ID: P-V2-151218-287 — **Lab Sample ID: 280-118337-4**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 93.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.1**	**J H**	1.5	1.4	0.40	mg/Kg	☼	01/02/19 17:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	*110*		*77 - 123*	*12/15/18 09:08*	*01/02/19 17:31*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-V1-151218-01 — **Lab Sample ID: 280-118337-1**
Date Collected: 12/15/18 15:45 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		12/27/18 22:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*110*		*70 - 130*	*12/27/18 11:44*	*12/27/18 22:27*	*1*

Client Sample ID: TB-V2-171218-01 — **Lab Sample ID: 280-118337-2**
Date Collected: 12/17/18 14:00 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 14:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*97*		*70 - 130*	*12/30/18 10:16*	*01/08/19 14:37*	*1*

Client Sample ID: V-V2-151218-287 — **Lab Sample ID: 280-118337-3**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	01/15/19 20:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	*113*		*55 - 130*	*12/27/18 14:22*	*01/15/19 20:06*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-V1-151218-01 — **Lab Sample ID: 280-118337-1**
Date Collected: 12/15/18 15:45 — **Matrix: Water**
Date Received: 12/18/18 11:04

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.064**	**J**	0.25	0.12	0.032	mg/L		12/20/18 18:40	1
Motor Oil (C20-C38)	0.12	U	0.49	0.12	0.055	mg/L		12/20/18 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*89*		*56 - 125*	*12/18/18 19:08*	*12/20/18 18:40*	*1*
n-Octacosane	*108*		*60 - 142*	*12/18/18 19:08*	*12/20/18 18:40*	*1*

Client Sample ID: P-V2-151218-287 — **Lab Sample ID: 280-118337-4**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 93.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.5**	**J**	8.1	4.1	1.4	mg/Kg	☼	01/04/19 15:21	1
Motor Oil (C20-C38)	24	U	24	24	7.9	mg/Kg	☼	01/04/19 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*59*		*45 - 130*	*12/20/18 19:41*	*01/04/19 15:21*	*1*
n-Octacosane	*71*		*25 - 162*	*12/20/18 19:41*	*01/04/19 15:21*	*1*

General Chemistry

Client Sample ID: V-V2-151218-287 — **Lab Sample ID: 280-118337-3**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.7**		0.1	0.05	0.1	%		12/19/18 16:47	1

Client Sample ID: P-V2-151218-287 — **Lab Sample ID: 280-118337-4**
Date Collected: 12/15/18 09:08 — **Matrix: Solid**
Date Received: 12/18/18 11:04 — **Percent Solids: 93.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**6.5**		0.1	0.05	0.1	%		12/19/18 16:47	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118337-3	V-V2-151218-287	86	82	82	85
LCS 280-442674/2-A	Lab Control Sample	90	85	91	84
LCSD 280-442674/3-A	Lab Control Sample Dup	96	84	94	87
MB 280-442674/1-A	Method Blank	104	96	109	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118337-1	RB-V1-151218-01	91	136 Q	101	98
280-118337-2	TB-V2-171218-01	87 Q	95	90	103
280-118337-2 - RA	TB-V2-171218-01	90	121 Q	99	122 Q
LCS 280-442719/5	Lab Control Sample	101	113	104	101
LCS 280-442892/5	Lab Control Sample	107	117	106	118
MB 280-442719/9	Method Blank	95	101	95	98
MB 280-442892/7	Method Blank	100	109	101	116

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118337-4 - RA	P-V2-151218-287	110
LCS 280-442646/1-A	Lab Control Sample	94
LCSD 280-442646/2-A	Lab Control Sample Dup	98
MB 280-442646/3-A	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118337-1 - RA	RB-V1-151218-01	88
280-118337-2	TB-V2-171218-01	96
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118337-3	V-V2-151218-287	113
LCS 280-442668/1-A	Lab Control Sample	107
LCSD 280-442668/2-A	Lab Control Sample Dup	106
MB 280-442668/3-A	Method Blank	102

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-118337-1	RB-V1-151218-01	110
280-118337-2	TB-V2-171218-01	97
LCS 280-442645/2-A	Lab Control Sample	99
LCS 280-442866/1-A	Lab Control Sample	87
LCSD 280-442645/3-A	Lab Control Sample Dup	98
LCSD 280-442866/2-A	Lab Control Sample Dup	87
MB 280-442645/4-A	Method Blank	97
MB 280-442866/3-A	Method Blank	93

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-118337-4	P-V2-151218-287	59	71
LCS 280-442077/2-A	Lab Control Sample	76	94
LCS 280-442077/3-A	Lab Control Sample	77	97

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
MB 280-442077/1-A	Method Blank	70	90

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)
280-118337-1	RB-V1-151218-01	89	108
LCS 280-441778/2-A	Lab Control Sample	91	105
LCS 280-441778/4-A	Lab Control Sample	101	110
LCSD 280-441778/3-A	Lab Control Sample Dup	95	115
LCSD 280-441778/5-A	Lab Control Sample Dup	92	108
MB 280-441778/1-A	Method Blank	90	108

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-442674/1-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442674

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		12/27/18 14:07	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg		12/27/18 14:07	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		12/27/18 14:07	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		12/27/18 14:07	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		12/27/18 14:07	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		12/27/18 14:07	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		12/27/18 14:07	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		12/27/18 14:07	1
Acetone	13	U M	20	13	5.4	ug/Kg		12/27/18 14:07	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/27/18 14:07	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		12/27/18 14:07	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		12/27/18 14:07	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		12/27/18 14:07	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		12/27/18 14:07	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		12/27/18 14:07	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		12/27/18 14:07	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		12/27/18 14:07	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		12/27/18 14:07	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		12/27/18 14:07	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		12/27/18 14:07	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		12/27/18 14:07	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		12/27/18 14:07	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		12/27/18 14:07	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		12/27/18 14:07	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		12/27/18 14:07	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		12/27/18 14:07	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		12/27/18 14:07	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		12/27/18 14:07	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		12/27/18 14:07	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		12/27/18 14:07	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		12/27/18 14:07	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		12/27/18 14:07	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		12/27/18 14:07	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		12/27/18 14:07	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		12/27/18 14:07	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		12/27/18 14:07	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		12/27/18 14:07	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		12/27/18 14:07	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		12/27/18 14:07	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		12/27/18 14:07	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		12/27/18 14:07	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		12/27/18 14:07	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		12/27/18 14:07	1
Naphthalene	0.918	J	5.0	1.6	0.63	ug/Kg		12/27/18 14:07	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		12/27/18 14:07	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		12/27/18 14:07	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		12/27/18 14:07	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		12/27/18 14:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442674/1-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442674

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		12/27/18 14:07	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		12/27/18 14:07	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		12/27/18 14:07	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		12/27/18 14:07	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		12/27/18 14:07	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		12/27/18 14:07	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		12/27/18 14:07	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		12/27/18 14:07	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		12/27/18 14:07	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		12/27/18 14:07	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		12/27/18 14:07	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		12/27/18 14:07	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		12/27/18 14:07	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		12/27/18 14:07	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		12/27/18 14:07	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		12/27/18 14:07	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		12/27/18 14:07	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		12/27/18 14:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*85 - 116*	*12/27/18 07:00*	*12/27/18 14:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*12/27/18 07:00*	*12/27/18 14:07*	*1*
4-Bromofluorobenzene (Surr)	*109*		*79 - 119*	*12/27/18 07:00*	*12/27/18 14:07*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*12/27/18 07:00*	*12/27/18 14:07*	*1*

Lab Sample ID: LCS 280-442674/2-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442674

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	50.8		ug/Kg		102	61 - 132
2-Butanone (MEK)	200	216		ug/Kg		108	51 - 148
1,2-Dichlorobenzene	50.0	51.9		ug/Kg		104	78 - 121
1,3-Dichlorobenzene	50.0	50.1		ug/Kg		100	77 - 121
4-Chlorotoluene	50.0	52.9		ug/Kg		106	72 - 124
1,4-Dichlorobenzene	50.0	49.3		ug/Kg		99	75 - 120
1,1-Dichloroethane	50.0	49.9		ug/Kg		100	76 - 125
1,2-Dichloroethane	50.0	52.5		ug/Kg		105	73 - 128
Acetone	200	222		ug/Kg		111	36 - 164
1,1-Dichloroethene	50.0	49.7		ug/Kg		99	70 - 131
Benzene	50.0	51.2		ug/Kg		102	77 - 121
Bromobenzene	50.0	53.0		ug/Kg		106	78 - 121
Bromoform	50.0	52.3		ug/Kg		105	67 - 132
Bromomethane	50.0	45.7		ug/Kg		91	53 - 143
1,2-Dichloropropane	50.0	52.3		ug/Kg		105	76 - 123
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	77 - 121
Carbon tetrachloride	50.0	48.9		ug/Kg		98	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442674/2-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442674

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	50.4		ug/Kg		101	67 - 133
Chlorobenzene	50.0	50.7		ug/Kg		101	79 - 120
1,1-Dichloropropene	50.0	51.1		ug/Kg		102	76 - 125
Bromochloromethane	50.0	51.5		ug/Kg		103	78 - 125
Dibromochloromethane	50.0	51.6		ug/Kg		103	74 - 126
Chloroethane	50.0	46.3		ug/Kg		93	59 - 139
Chloroform	50.0	51.2		ug/Kg		102	78 - 123
2-Hexanone	200	209		ug/Kg		104	53 - 145
Chloromethane	50.0	41.3		ug/Kg		83	50 - 136
cis-1,2-Dichloroethene	50.0	49.9		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	55.2		ug/Kg		110	74 - 126
4-Isopropyltoluene	50.0	52.1		ug/Kg		104	73 - 127
Dibromomethane	50.0	51.5		ug/Kg		103	78 - 125
Bromodichloromethane	50.0	52.3		ug/Kg		105	75 - 127
4-Methyl-2-pentanone (MIBK)	200	210		ug/Kg		105	65 - 135
Dichlorodifluoromethane	50.0	37.4		ug/Kg		75	29 - 149
Ethylbenzene	50.0	50.4		ug/Kg		101	76 - 122
Ethylene Dibromide	50.0	52.3		ug/Kg		105	78 - 122
Hexachlorobutadiene	50.0	49.6		ug/Kg		99	61 - 135
Isopropylbenzene	50.0	52.3		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	49.9		ug/Kg		100	78 - 125
Methyl tert-butyl ether	50.0	49.6		ug/Kg		99	73 - 125
1,1,2,2-Tetrachloroethane	50.0	52.4		ug/Kg		105	70 - 124
Methylene Chloride	50.0	52.3		ug/Kg		105	70 - 128
Naphthalene	50.0	51.9		ug/Kg		104	62 - 129
1,2,3-Trichlorobenzene	50.0	49.6		ug/Kg		99	66 - 130
n-Butylbenzene	50.0	51.5		ug/Kg		103	70 - 128
1,1,1-Trichloroethane	50.0	50.0		ug/Kg		100	73 - 130
N-Propylbenzene	50.0	52.3		ug/Kg		105	73 - 125
1,1,2-Trichloroethane	50.0	54.1		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	50.6		ug/Kg		101	73 - 126
Styrene	50.0	49.6		ug/Kg		99	76 - 124
1,2,4-Trichlorobenzene	50.0	51.5		ug/Kg		103	67 - 129
tert-Butylbenzene	50.0	50.7		ug/Kg		101	73 - 125
1,2,3-Trichloropropane	50.0	53.5		ug/Kg		107	73 - 125
Tetrachloroethene	50.0	48.1		ug/Kg		96	73 - 128
1,2,4-Trimethylbenzene	50.0	50.3		ug/Kg		101	75 - 123
Toluene	50.0	51.1		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	50.0	52.2		ug/Kg		104	73 - 124
trans-1,2-Dichloroethene	50.0	51.2		ug/Kg		102	74 - 125
trans-1,3-Dichloropropene	50.0	52.9		ug/Kg		106	71 - 130
o-Xylene	50.0	50.6		ug/Kg		101	77 - 123
Trichloroethene	50.0	49.7		ug/Kg		99	77 - 123
m-Xylene & p-Xylene	50.0	50.8		ug/Kg		102	77 - 124
Trichlorofluoromethane	50.0	43.7		ug/Kg		87	62 - 140
Vinyl chloride	50.0	45.4		ug/Kg		91	56 - 135
2-Chlorotoluene	50.0	51.8		ug/Kg		104	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442674/2-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442674

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*91*		*79 - 119*
Dibromofluoromethane (Surr)	*84*		*78 - 119*

Lab Sample ID: LCSD 280-442674/3-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442674

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	50.1		ug/Kg		100	61 - 132	2	20
2-Butanone (MEK)			200	219		ug/Kg		110	51 - 148	1	20
1,2-Dichlorobenzene			50.0	52.3		ug/Kg		105	78 - 121	1	20
1,3-Dichlorobenzene			50.0	51.6		ug/Kg		103	77 - 121	3	20
4-Chlorotoluene			50.0	55.1		ug/Kg		110	72 - 124	4	20
1,4-Dichlorobenzene			50.0	51.5		ug/Kg		103	75 - 120	4	20
1,1-Dichloroethane			50.0	50.3		ug/Kg		101	76 - 125	1	20
1,2-Dichloroethane			50.0	51.4		ug/Kg		103	73 - 128	2	20
Acetone			200	212		ug/Kg		106	36 - 164	5	20
1,1-Dichloroethene			50.0	50.3		ug/Kg		101	70 - 131	1	20
Benzene			50.0	52.3		ug/Kg		105	77 - 121	2	20
Bromobenzene			50.0	54.8		ug/Kg		110	78 - 121	3	20
Bromoform			50.0	54.3		ug/Kg		109	67 - 132	4	20
Bromomethane			50.0	43.6		ug/Kg		87	53 - 143	5	20
1,2-Dichloropropane			50.0	52.7		ug/Kg		105	76 - 123	1	20
Carbon disulfide			50.0	53.1		ug/Kg		106	63 - 132	1	20
1,3-Dichloropropane			50.0	52.7		ug/Kg		105	77 - 121	3	20
Carbon tetrachloride			50.0	49.5		ug/Kg		99	70 - 135	1	20
2,2-Dichloropropane			50.0	50.9		ug/Kg		102	67 - 133	1	20
Chlorobenzene			50.0	53.4		ug/Kg		107	79 - 120	5	20
1,1-Dichloropropene			50.0	51.6		ug/Kg		103	76 - 125	1	20
Bromochloromethane			50.0	52.3		ug/Kg		105	78 - 125	2	20
Dibromochloromethane			50.0	53.5		ug/Kg		107	74 - 126	4	20
Chloroethane			50.0	43.5		ug/Kg		87	59 - 139	6	20
Chloroform			50.0	51.1		ug/Kg		102	78 - 123	0	20
2-Hexanone			200	216		ug/Kg		108	53 - 145	3	20
Chloromethane			50.0	41.5		ug/Kg		83	50 - 136	0	20
cis-1,2-Dichloroethene			50.0	50.4		ug/Kg		101	77 - 123	1	20
cis-1,3-Dichloropropene			50.0	58.3		ug/Kg		117	74 - 126	5	20
4-Isopropyltoluene			50.0	53.6		ug/Kg		107	73 - 127	3	20
Dibromomethane			50.0	50.8		ug/Kg		102	78 - 125	1	20
Bromodichloromethane			50.0	52.1		ug/Kg		104	75 - 127	0	20
4-Methyl-2-pentanone (MIBK)			200	212		ug/Kg		106	65 - 135	1	20
Dichlorodifluoromethane			50.0	37.1		ug/Kg		74	29 - 149	1	20
Ethylbenzene			50.0	54.8		ug/Kg		110	76 - 122	8	20
Ethylene Dibromide			50.0	54.3		ug/Kg		109	78 - 122	4	20
Hexachlorobutadiene			50.0	50.8		ug/Kg		102	61 - 135	2	20
Isopropylbenzene			50.0	53.7		ug/Kg		107	68 - 134	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-442674/3-A
Matrix: Solid
Analysis Batch: 442679

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442674

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	53.1		ug/Kg		106	78 - 125	6	20
Methyl tert-butyl ether			50.0	49.8		ug/Kg		100	73 - 125	0	20
1,1,2,2-Tetrachloroethane			50.0	50.4		ug/Kg		101	70 - 124	4	20
Methylene Chloride			50.0	52.4		ug/Kg		105	70 - 128	0	20
Naphthalene			50.0	53.4		ug/Kg		107	62 - 129	3	20
1,2,3-Trichlorobenzene			50.0	52.4		ug/Kg		105	66 - 130	5	20
n-Butylbenzene			50.0	53.1		ug/Kg		106	70 - 128	3	20
1,1,1-Trichloroethane			50.0	50.3		ug/Kg		101	73 - 130	1	20
N-Propylbenzene			50.0	54.7		ug/Kg		109	73 - 125	5	20
1,1,2-Trichloroethane			50.0	54.0		ug/Kg		108	78 - 121	0	20
sec-Butylbenzene			50.0	53.0		ug/Kg		106	73 - 126	5	20
Styrene			50.0	53.8		ug/Kg		108	76 - 124	8	20
1,2,4-Trichlorobenzene			50.0	54.3		ug/Kg		109	67 - 129	5	20
tert-Butylbenzene			50.0	52.3		ug/Kg		105	73 - 125	3	20
1,2,3-Trichloropropane			50.0	53.9		ug/Kg		108	73 - 125	1	20
Tetrachloroethene			50.0	51.7		ug/Kg		103	73 - 128	7	20
1,2,4-Trimethylbenzene			50.0	50.8		ug/Kg		102	75 - 123	1	20
Toluene			50.0	51.6		ug/Kg		103	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	53.6		ug/Kg		107	73 - 124	3	20
trans-1,2-Dichloroethene			50.0	52.0		ug/Kg		104	74 - 125	2	20
trans-1,3-Dichloropropene			50.0	53.0		ug/Kg		106	71 - 130	0	20
o-Xylene			50.0	54.2		ug/Kg		108	77 - 123	7	20
Trichloroethene			50.0	50.9		ug/Kg		102	77 - 123	2	20
m-Xylene & p-Xylene			50.0	53.5		ug/Kg		107	77 - 124	5	20
Trichlorofluoromethane			50.0	43.2		ug/Kg		86	62 - 140	1	20
Vinyl chloride			50.0	44.8		ug/Kg		90	56 - 135	1	20
2-Chlorotoluene			50.0	53.3		ug/Kg		107	75 - 122	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*84*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*
Dibromofluoromethane (Surr)	*87*		*78 - 119*

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/28/18 09:37	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/28/18 09:37	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/28/18 09:37	1
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/28/18 09:37	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/28/18 09:37	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/28/18 09:37	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/28/18 09:37	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/28/18 09:37	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/28/18 09:37	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/28/18 09:37	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/28/18 09:37	1
Chloromethane	0.80	U M	2.0	0.80	0.30	ug/L		12/28/18 09:37	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/28/18 09:37	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/28/18 09:37	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/28/18 09:37	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/28/18 09:37	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/28/18 09:37	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/28/18 09:37	1
Naphthalene	0.80	U M	1.0	0.80	0.22	ug/L		12/28/18 09:37	1
1,2,3-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/28/18 09:37	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/28/18 09:37	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1
1,2,4-Trichlorobenzene	0.80	U M	1.0	0.80	0.21	ug/L		12/28/18 09:37	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/28/18 09:37	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/28/18 09:37	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442719/9
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/28/18 09:37	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/28/18 09:37	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/28/18 09:37	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/28/18 09:37	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/28/18 09:37	1
Vinyl chloride	0.20	U M	1.5	0.20	0.10	ug/L		12/28/18 09:37	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/28/18 09:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*12/28/18 09:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*12/28/18 09:37*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*12/28/18 09:37*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*12/28/18 09:37*	*1*

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.92	J	ug/L		98	62 - 128
2-Butanone (MEK)	20.0	23.2		ug/L		116	56 - 143
1,2-Dichlorobenzene	5.00	5.20		ug/L		104	80 - 119
1,3-Dichlorobenzene	5.00	5.14		ug/L		103	80 - 119
4-Chlorotoluene	5.00	5.26		ug/L		105	78 - 122
1,4-Dichlorobenzene	5.00	5.13		ug/L		103	79 - 118
1,1-Dichloroethane	5.00	5.62		ug/L		112	77 - 125
1,2-Dichloroethane	5.00	5.98		ug/L		120	73 - 128
Acetone	20.0	21.1		ug/L		106	39 - 160
1,1-Dichloroethene	5.00	5.35		ug/L		107	71 - 131
Benzene	5.00	5.43		ug/L		109	79 - 120
Bromobenzene	5.00	5.15		ug/L		103	80 - 120
Bromoform	5.00	5.31		ug/L		106	66 - 130
Bromomethane	5.00	5.55		ug/L		111	53 - 141
1,2-Dichloropropane	5.00	5.73		ug/L		115	78 - 122
Carbon disulfide	5.00	5.54		ug/L		111	64 - 133
1,3-Dichloropropane	5.00	5.50		ug/L		110	80 - 119
Carbon tetrachloride	5.00	5.56		ug/L		111	72 - 136
2,2-Dichloropropane	5.00	5.45		ug/L		109	60 - 139
Chlorobenzene	5.00	5.30		ug/L		106	82 - 118
1,1-Dichloropropene	5.00	5.46		ug/L		109	79 - 125
Bromochloromethane	5.00	5.41		ug/L		108	78 - 123
Dibromochloromethane	5.00	5.51		ug/L		110	74 - 126
Chloroethane	5.00	5.72		ug/L		114	60 - 138
Chloroform	5.00	5.63		ug/L		113	79 - 124
2-Hexanone	20.0	22.9		ug/L		114	57 - 139
Chloromethane	5.00	5.85		ug/L		117	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442719/5
Matrix: Water
Analysis Batch: 442719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	5.30		ug/L		106	78 - 123
cis-1,3-Dichloropropene	5.00	5.49		ug/L		110	75 - 124
4-Isopropyltoluene	5.00	5.06		ug/L		101	77 - 127
Dibromomethane	5.00	5.57		ug/L		111	79 - 123
Bromodichloromethane	5.00	5.60		ug/L		112	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	67 - 130
Dichlorodifluoromethane	5.00	5.58		ug/L		112	32 - 152
Ethylbenzene	5.00	5.20		ug/L		104	79 - 121
Ethylene Dibromide	5.00	5.40		ug/L		108	77 - 121
Hexachlorobutadiene	5.00	4.86		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.09		ug/L		102	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.27		ug/L		105	78 - 124
Methyl tert-butyl ether	5.00	5.61		ug/L		112	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.37		ug/L		107	71 - 121
Methylene Chloride	5.00	5.22		ug/L		104	74 - 124
Naphthalene	5.00	5.18		ug/L		104	61 - 128
1,2,3-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 129
n-Butylbenzene	5.00	5.03		ug/L		101	75 - 128
1,1,1-Trichloroethane	5.00	5.59		ug/L		112	74 - 131
N-Propylbenzene	5.00	5.03		ug/L		101	76 - 126
1,1,2-Trichloroethane	5.00	5.65		ug/L		113	80 - 119
sec-Butylbenzene	5.00	4.87		ug/L		97	77 - 126
Styrene	5.00	5.09		ug/L		102	78 - 123
1,2,4-Trichlorobenzene	5.00	5.02		ug/L		100	69 - 130
tert-Butylbenzene	5.00	4.94		ug/L		99	78 - 124
1,2,3-Trichloropropane	5.00	5.51		ug/L		110	73 - 122
Tetrachloroethene	5.00	4.92		ug/L		98	74 - 129
1,2,4-Trimethylbenzene	5.00	5.04		ug/L		101	76 - 124
Toluene	5.00	5.34		ug/L		107	80 - 121
1,3,5-Trimethylbenzene	5.00	5.04		ug/L		101	75 - 124
trans-1,2-Dichloroethene	5.00	5.66		ug/L		113	75 - 124
trans-1,3-Dichloropropene	5.00	5.54		ug/L		111	73 - 127
o-Xylene	5.00	5.23		ug/L		105	78 - 122
Trichloroethene	5.00	5.18		ug/L		104	79 - 123
m-Xylene & p-Xylene	5.00	5.30		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	6.03		ug/L		121	65 - 141
Vinyl chloride	5.00	5.59		ug/L		112	58 - 137
2-Chlorotoluene	5.00	5.09		ug/L		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*113*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*101*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442892/7
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		12/31/18 08:06	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		12/31/18 08:06	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 08:06	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		12/31/18 08:06	1
Acetone	6.4	U M	10	6.4	1.9	ug/L		12/31/18 08:06	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		12/31/18 08:06	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		12/31/18 08:06	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		12/31/18 08:06	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		12/31/18 08:06	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		12/31/18 08:06	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		12/31/18 08:06	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Chloroethane	1.6	U M	2.0	1.6	0.41	ug/L		12/31/18 08:06	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		12/31/18 08:06	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		12/31/18 08:06	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 08:06	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		12/31/18 08:06	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		12/31/18 08:06	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		12/31/18 08:06	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		12/31/18 08:06	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		12/31/18 08:06	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		12/31/18 08:06	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		12/31/18 08:06	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		12/31/18 08:06	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442892/7
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		12/31/18 08:06	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		12/31/18 08:06	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		12/31/18 08:06	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		12/31/18 08:06	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		12/31/18 08:06	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		12/31/18 08:06	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		12/31/18 08:06	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		12/31/18 08:06	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		12/31/18 08:06	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		12/31/18 08:06	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		12/31/18 08:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*12/31/18 08:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*81 - 118*		*12/31/18 08:06*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*12/31/18 08:06*	*1*
Dibromofluoromethane (Surr)	*116*		*80 - 119*		*12/31/18 08:06*	*1*

Lab Sample ID: LCS 280-442892/5
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.47		ug/L		109	62 - 128
2-Butanone (MEK)	20.0	21.8		ug/L		109	56 - 143
1,2-Dichlorobenzene	5.00	5.25		ug/L		105	80 - 119
1,3-Dichlorobenzene	5.00	5.04		ug/L		101	80 - 119
4-Chlorotoluene	5.00	5.35		ug/L		107	78 - 122
1,4-Dichlorobenzene	5.00	5.01		ug/L		100	79 - 118
1,1-Dichloroethane	5.00	5.93		ug/L		119	77 - 125
1,2-Dichloroethane	5.00	5.87		ug/L		117	73 - 128
Acetone	20.0	22.8		ug/L		114	39 - 160
1,1-Dichloroethene	5.00	6.22		ug/L		124	71 - 131
Benzene	5.00	5.74		ug/L		115	79 - 120
Bromobenzene	5.00	5.20		ug/L		104	80 - 120
Bromoform	5.00	6.01		ug/L		120	66 - 130
Bromomethane	5.00	4.93		ug/L		99	53 - 141
1,2-Dichloropropane	5.00	5.74		ug/L		115	78 - 122
Carbon disulfide	5.00	6.33		ug/L		127	64 - 133
1,3-Dichloropropane	5.00	5.36		ug/L		107	80 - 119
Carbon tetrachloride	5.00	5.89		ug/L		118	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442892/5
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.50		ug/L		110	60 - 139
Chlorobenzene	5.00	5.22		ug/L		104	82 - 118
1,1-Dichloropropene	5.00	6.13		ug/L		123	79 - 125
Bromochloromethane	5.00	5.95		ug/L		119	78 - 123
Dibromochloromethane	5.00	5.94		ug/L		119	74 - 126
Chloroethane	5.00	5.71		ug/L		114	60 - 138
Chloroform	5.00	5.82		ug/L		116	79 - 124
2-Hexanone	20.0	23.7		ug/L		118	57 - 139
Chloromethane	5.00	5.43		ug/L		109	50 - 139
cis-1,2-Dichloroethene	5.00	5.90		ug/L		118	78 - 123
cis-1,3-Dichloropropene	5.00	5.87		ug/L		117	75 - 124
4-Isopropyltoluene	5.00	5.83		ug/L		117	77 - 127
Dibromomethane	5.00	5.60		ug/L		112	79 - 123
Bromodichloromethane	5.00	5.80		ug/L		116	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	26.1		ug/L		130	67 - 130
Dichlorodifluoromethane	5.00	6.07		ug/L		121	32 - 152
Ethylbenzene	5.00	5.43		ug/L		109	79 - 121
Ethylene Dibromide	5.00	5.51		ug/L		110	77 - 121
Hexachlorobutadiene	5.00	5.10		ug/L		102	66 - 134
Isopropylbenzene	5.00	5.68		ug/L		114	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.48		ug/L		110	78 - 124
Methyl tert-butyl ether	5.00	6.25	Q	ug/L		125	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.44		ug/L		109	71 - 121
Methylene Chloride	5.00	5.64		ug/L		113	74 - 124
Naphthalene	5.00	5.23		ug/L		105	61 - 128
1,2,3-Trichlorobenzene	5.00	4.99		ug/L		100	69 - 129
n-Butylbenzene	5.00	5.57		ug/L		111	75 - 128
1,1,1-Trichloroethane	5.00	5.98		ug/L		120	74 - 131
N-Propylbenzene	5.00	5.44		ug/L		109	76 - 126
1,1,2-Trichloroethane	5.00	5.66		ug/L		113	80 - 119
sec-Butylbenzene	5.00	5.42		ug/L		108	77 - 126
Styrene	5.00	5.44		ug/L		109	78 - 123
1,2,4-Trichlorobenzene	5.00	4.93		ug/L		99	69 - 130
tert-Butylbenzene	5.00	5.32		ug/L		106	78 - 124
1,2,3-Trichloropropane	5.00	5.58		ug/L		112	73 - 122
Tetrachloroethene	5.00	5.32		ug/L		106	74 - 129
1,2,4-Trimethylbenzene	5.00	5.54		ug/L		111	76 - 124
Toluene	5.00	5.73		ug/L		115	80 - 121
1,3,5-Trimethylbenzene	5.00	5.55		ug/L		111	75 - 124
trans-1,2-Dichloroethene	5.00	6.12		ug/L		122	75 - 124
trans-1,3-Dichloropropene	5.00	5.44		ug/L		109	73 - 127
o-Xylene	5.00	5.56		ug/L		111	78 - 122
Trichloroethene	5.00	5.91		ug/L		118	79 - 123
m-Xylene & p-Xylene	5.00	5.57		ug/L		111	80 - 121
Trichlorofluoromethane	5.00	5.70		ug/L		114	65 - 141
Vinyl chloride	5.00	5.41		ug/L		108	58 - 137
2-Chlorotoluene	5.00	5.39		ug/L		108	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442892/5
Matrix: Water
Analysis Batch: 442892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*117*		*81 - 118*
4-Bromofluorobenzene (Surr)	*106*		*85 - 114*
Dibromofluoromethane (Surr)	*118*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/28/18 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*12/27/18 11:52*	*12/28/18 11:55*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.38		mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.40		mg/Kg		103	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	97		82 - 110		12/31/18 11:11	1

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	82.3		ug/L		105	78 - 122		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	96		82 - 110

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
a,a,a-Trifluorotoluene	96		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442645/4-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442645

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		12/27/18 17:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	97		70 - 130	12/27/18 11:44	12/27/18 17:59	1

Lab Sample ID: LCS 280-442645/2-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442645

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.217		ug/L		87	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	99		70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-442645/3-A
Matrix: Water
Analysis Batch: 442681

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442645

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.211		ug/L		84	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*98*		*70 - 130*

Lab Sample ID: MB 280-442668/3-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442668

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/15/19 17:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*55 - 130*	*12/27/18 14:22*	*01/15/19 17:32*	*1*

Lab Sample ID: LCS 280-442668/1-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.770		ug/Kg		88	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*107*		*55 - 130*

Lab Sample ID: LCSD 280-442668/2-A
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442668

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.783		ug/Kg		89	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*106*		*55 - 130*

Lab Sample ID: MB 280-442866/3-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442866

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 13:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*93*		*70 - 130*	*12/30/18 10:16*	*01/08/19 13:58*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-442866/1-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442866

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.217		ug/L		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*87*		*70 - 130*

Lab Sample ID: LCSD 280-442866/2-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442866

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.216		ug/L		86	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*87*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-441778/1-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441778

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		12/20/18 16:40	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		12/20/18 16:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*90*		*56 - 125*	*12/18/18 19:08*	*12/20/18 16:40*	*1*
n-Octacosane	*108*		*60 - 142*	*12/18/18 19:08*	*12/20/18 16:40*	*1*

Lab Sample ID: LCS 280-441778/2-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			2.00	1.81		mg/L		91	36 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*91*		*56 - 125*
n-Octacosane	*105*		*60 - 142*

Lab Sample ID: LCS 280-441778/4-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.31		mg/L		106	41 - 113		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	101		56 - 125
n-Octacosane	110		60 - 125

Lab Sample ID: LCSD 280-441778/3-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	2.11		mg/L		105	36 - 132	15	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl (Surr)	95		56 - 125
n-Octacosane	115		60 - 125

Lab Sample ID: LCSD 280-441778/5-A
Matrix: Water
Analysis Batch: 442025

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 441778

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	5.01		mg/L		100	41 - 113	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl (Surr)	92		56 - 125
n-Octacosane	108		60 - 125

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.05	J	7.7	3.8	1.3	mg/Kg		01/04/19 14:15	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg		01/04/19 14:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	70		45 - 130	12/20/18 19:41	01/04/19 14:15	1
n-Octacosane	90		25 - 162	12/20/18 19:41	01/04/19 14:15	1

Lab Sample ID: LCS 280-442077/2-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]			132	113		mg/Kg		85	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	76		45 - 130
n-Octacosane	94		25 - 162

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-442077/3-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	271		mg/Kg		83	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*		*45 - 130*
n-Octacosane	*97*		*25 - 162*

GC/MS VOA

Prep Batch: 442674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-3	V-V2-151218-287	Total/NA	Solid	5035	
MB 280-442674/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442674/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442674/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-3	V-V2-151218-287	Total/NA	Solid	8260B	442674
MB 280-442674/1-A	Method Blank	Total/NA	Solid	8260B	442674
LCS 280-442674/2-A	Lab Control Sample	Total/NA	Solid	8260B	442674
LCSD 280-442674/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	442674

Analysis Batch: 442719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1	RB-V1-151218-01	Total/NA	Water	8260B	
MB 280-442719/9	Method Blank	Total/NA	Water	8260B	
LCS 280-442719/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 442892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-2	TB-V2-171218-01	Total/NA	Water	8260B	
280-118337-2 - RA	TB-V2-171218-01	Total/NA	Water	8260B	
MB 280-442892/7	Method Blank	Total/NA	Water	8260B	
LCS 280-442892/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-4 - RA	P-V2-151218-287	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1 - RA	RB-V1-151218-01	Total/NA	Water	8015D GRO	
280-118337-2	TB-V2-171218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC VOA (Continued)

Analysis Batch: 443049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-4 - RA	P-V2-151218-287	Total/NA	Solid	8015D GRO	442646

GC Semi VOA

Prep Batch: 441778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1	RB-V1-151218-01	Total/NA	Water	3510C	
MB 280-441778/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-441778/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-441778/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-441778/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-441778/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 442025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1	RB-V1-151218-01	Total/NA	Water	8015D DRO	441778
MB 280-441778/1-A	Method Blank	Total/NA	Water	8015D DRO	441778
LCS 280-441778/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	441778
LCS 280-441778/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	441778
LCSD 280-441778/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	441778
LCSD 280-441778/5-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	441778

Prep Batch: 442077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-4	P-V2-151218-287	Total/NA	Solid	3546	
MB 280-442077/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 442645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1	RB-V1-151218-01	Total/NA	Water	8011	
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 442668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-3	V-V2-151218-287	Total/NA	Solid	8011	
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 442681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-1	RB-V1-151218-01	Total/NA	Water	8011	442645
MB 280-442645/4-A	Method Blank	Total/NA	Water	8011	442645
LCS 280-442645/2-A	Lab Control Sample	Total/NA	Water	8011	442645
LCSD 280-442645/3-A	Lab Control Sample Dup	Total/NA	Water	8011	442645

GC Semi VOA (Continued)

Prep Batch: 442866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-2	TB-V2-171218-01	Total/NA	Water	8011	
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 443317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-4	P-V2-151218-287	Total/NA	Solid	8015D DRO	442077
MB 280-442077/1-A	Method Blank	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077

Analysis Batch: 443459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-2	TB-V2-171218-01	Total/NA	Water	8011	442866
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	442866
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	442866
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	442866

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-3	V-V2-151218-287	Total/NA	Solid	8011	442668
MB 280-442668/3-A	Method Blank	Total/NA	Solid	8011	442668
LCS 280-442668/1-A	Lab Control Sample	Total/NA	Solid	8011	442668
LCSD 280-442668/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442668

General Chemistry

Analysis Batch: 441926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118337-3	V-V2-151218-287	Total/NA	Solid	Moisture	
280-118337-4	P-V2-151218-287	Total/NA	Solid	Moisture	

Client Sample ID: RB-V1-151218-01

Lab Sample ID: 280-118337-1

Date Collected: 12/15/18 15:45

Matrix: Water

Date Received: 12/18/18 11:04

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442719	12/28/18 18:09	MD	TAL DEN
Total/NA	Analysis	8015D GRO	RA	1	5 mL	5 mL	442898	12/31/18 21:12	SU	TAL DEN
Total/NA	Prep	8011			34 mL	35 mL	442645	12/27/18 11:44	MJS	TAL DEN
Total/NA	Analysis	8011		1			442681	12/27/18 22:27	JLW	TAL DEN
Total/NA	Prep	3510C			1011.1 mL	1 mL	441778	12/18/18 19:08	AJE	TAL DEN
Total/NA	Analysis	8015D DRO		1			442025	12/20/18 18:40	AMB1	TAL DEN

Client Sample ID: TB-V2-171218-01

Lab Sample ID: 280-118337-2

Date Collected: 12/17/18 14:00

Matrix: Water

Date Received: 12/18/18 11:04

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 uL	20 uL	442892	12/31/18 09:05	MD	TAL DEN
Total/NA	Analysis	8260B	RA	1	20 uL	20 uL	442892	12/31/18 16:38	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	442898	12/31/18 11:59	SU	TAL DEN
Total/NA	Prep	8011			34.7 mL	35 mL	442866	12/30/18 10:16	MJS	TAL DEN
Total/NA	Analysis	8011		1			443459	01/08/19 14:37	JLW	TAL DEN

Client Sample ID: V-V2-151218-287

Lab Sample ID: 280-118337-3

Date Collected: 12/15/18 09:08

Matrix: Solid

Date Received: 12/18/18 11:04

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Client Sample ID: V-V2-151218-287

Lab Sample ID: 280-118337-3

Date Collected: 12/15/18 09:08

Matrix: Solid

Date Received: 12/18/18 11:04

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.882 g	5 mL	442674	12/15/18 09:08	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	442679	12/27/18 17:36	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	442668	12/27/18 14:22	MJS	TAL DEN
Total/NA	Analysis	8011		1			444292	01/15/19 20:06	JLW	TAL DEN

Client Sample ID: P-V2-151218-287

Lab Sample ID: 280-118337-4

Date Collected: 12/15/18 09:08

Matrix: Solid

Date Received: 12/18/18 11:04

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			441926	12/19/18 16:47	LMD	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Client Sample ID: P-V2-151218-287
Date Collected: 12/15/18 09:08
Date Received: 12/18/18 11:04

Lab Sample ID: 280-118337-4
Matrix: Solid
Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		4.615 g	5 mL	442646	12/15/18 09:08	SU	TAL DEN
Total/NA	Analysis	8015D GRO	RA	1	0.1 mL	5 mL	443049	01/02/19 17:31	SU	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443317	01/04/19 15:21	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118337-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 4933 3393 0972	COC No: COC1-VI-TA-2018127
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
RB-VI-151218-01	12/15/18	1545	G	W	N	N						X	X	X	X	0	
TB-V2-171218-01	12/17/18	1400	G	W	N	N						X	X	X		6	
V-V2-151218-287	12/15/18	0908	G	S	N	N	X	X	X							5	
P-V2-151218-287	12/15/18	0908	G	S	N	N				X	X					3	

280-118337 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: JOSHUA LIVINGSTON	Date/Time: 12/17/18 1800	Company: EA	Received by:	Date/Time: 12/17/18 0910	Company: TAD EN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: D.S, +0.7, ice 9 transfer by JD 12/17/18

2/5/2019

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118337-1

Login Number: 118337
List Number: 1
Creator: Staack, KiAundra A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118390-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/22/2019 10:01:25 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	The reported value is from a dilution.
Q	One or more quality control criteria failed.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
D	The reported value is from a dilution.
H	Sample was prepped or analyzed beyond the specified holding time
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118390-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118390-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/19/2018 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-V1-171218-161 (280-118390-2) and V-V1-181218-216 (280-118390-4) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared and analyzed on 12/28/2018.

Samples V-V1-171218-161 (280-118390-2)[10X], V-V1-171218-161 (280-118390-2)[50X] and V-V1-181218-216 (280-118390-4)[10X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly. Because of this dilution, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

The initial calibration verification (ICV) result for batch 443099280-443099 was above the upper control limit for 1,2,3-trichlorobenzene (20.87%, limit 20%) and cis-1,3-dichloropropene (20.2%, limit 20%). Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-V1-181218-01 (280-118390-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/04/2019.

The following sample (batch 443292) was analyzed outside of analytical holding time due to instrument error on evening shift which did not allow for loading of sample: TB-V1-181218-01 (280-118390-1).

4-Bromofluorobenzene (Surr) and Toluene-d8 (Surr) failed the surrogate recovery criteria high for TB-V1-181218-01 (280-118390-1). Refer to the QC report for details. This sample did not contain any target analytes associated with these surrogates; therefore, re-extraction and/or re-analysis was not performed.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Refer to the QC report for details.

Job ID: 280-118390-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-V1-171218-161 (280-118390-2) and V-V1-181218-216 (280-118390-4) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/30/2018 and analyzed on 01/14/2019.

The following samples were diluted due to abundance of target analytes: V-V1-171218-161 (280-118390-2) and V-V1-181218-216 (280-118390-4). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water
Sample TB-V1-181218-01 (280-118390-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/30/2018 and analyzed on 01/08/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Samples P-V1-171218-161 (280-118390-3) and P-V1-181218-216 (280-118390-5) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 12/17/2018 and 12/18/2018 and analyzed on 12/30/2018.

Samples P-V1-171218-161 (280-118390-3)[2X] and P-V1-181218-216 (280-118390-5)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-181218-216 (280-118390-5). Refer to the QC report for details. Surrogate recovery was outside control limit due to the required dilution.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-V1-181218-01 (280-118390-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/31/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Samples P-V1-171218-161 (280-118390-3) and P-V1-181218-216 (280-118390-5) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/03/2019 and 12/20/2018 and analyzed on 01/04/2019 and 01/07/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V1-181218-216 (280-118390-5), (LCS 280-442077/2-A), (LCS 280-442077/3-A), (MB 280-442077/1-A), (280-118290-A-3-A), (280-118290-A-3-B MS), (280-118290-A-3-D MS), (280-118290-A-3-C MSD) and (280-118290-A-3-E MSD). This is for preparation batch 280-442077 and analytical batch 280-443317.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V1-171218-161 (280-118390-3), (LCS 280-443201/2-B), (LCS 280-443201/3-B), (MB 280-443201/1-B), (280-118291-A-5-E), (280-118291-A-5-F MS), (280-118291-A-5-H MS), (280-118291-A-5-G MSD) and (280-118291-A-5-I MSD). This is for preparation batch 280-443201 and analytical batch 280-443450.

Sample P-V1-181218-216 (280-118390-5)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442077/1-A at a level that was above the method detection limit

Job ID: 280-118390-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

Sample P-V1-171218-161 (280-118390-3) was re-extracted due to a large loss of analytes observed in previous extraction - the tube vented. It was re-prepared outside of holding time due to analyst error. The client was notified on January 3, 2019, and instructed the laboratory to re-extract the samples outside of the holding time, flag and narrate the deficiency.

The initial aliquot and surrogate aliquot used for extraction of the following sample was split between three extraction vessels with the routine volume of solvent added to each vessel: P-V1-171218-161 (280-118390-3). After the extraction, the extracts from all vessels were combined and concentrated. This was done due to first attempt at extraction in one tube causing the tube to vent. Preparation batch 280-443201 .

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V1-171218-161 (280-118390-2), P-V1-171218-161 (280-118390-3), V-V1-181218-216 (280-118390-4) and P-V1-181218-216 (280-118390-5) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/22/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Client Sample ID: TB-V1-181218-01 — Lab Sample ID: 280-118390-1

No Detections.

Client Sample ID: V-V1-171218-161 — Lab Sample ID: 280-118390-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone - DL	1100000	D	120000	99000	31000	ug/Kg	50	☼	8260B	Total/NA
Ethylene Dibromide	0.30	D	0.26	0.10	0.040	ug/Kg	2	☼	8011	Total/NA

Client Sample ID: P-V1-171218-161 — Lab Sample ID: 280-118390-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	15	D	4.0	3.7	1.1	mg/Kg	2	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	980	H	10	5.2	1.8	mg/Kg	1	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	30	J H	31	30	10	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-181218-216 — Lab Sample ID: 280-118390-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	98000	D	17000	14000	4400	ug/Kg	10	☼	8260B	Total/NA
Benzene	5900	D	2800	1800	500	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	5700	D Q	2800	880	350	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	7000	D Q	2800	880	420	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	23000	D Q	2800	880	380	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	6300	D Q	2800	880	320	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	3700	D Q	2800	880	350	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	10000	D Q	5500	880	420	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	11000	D Q	2800	1800	450	ug/Kg	10	☼	8260B	Total/NA
Toluene	62000	D	2800	880	430	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	42000	D Q	2800	880	340	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	18000	D Q	2800	880	430	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	32000	D Q	1400	880	390	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	88000	D Q	2800	1800	860	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	17	D Q	2.1	0.79	0.31	ug/Kg	20	☼	8011	Total/NA

Client Sample ID: P-V1-181218-216 — Lab Sample ID: 280-118390-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	2200	D Q	360	330	97	mg/Kg	250	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	2500	D	16	7.8	2.7	mg/Kg	2	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118390-1	TB-V1-181218-01	Water	12/18/18 14:00	12/19/18 10:10
280-118390-2	V-V1-171218-161	Solid	12/17/18 16:55	12/19/18 10:10
280-118390-3	P-V1-171218-161	Solid	12/17/18 16:55	12/19/18 10:10
280-118390-4	V-V1-181218-216	Solid	12/18/18 15:19	12/19/18 10:10
280-118390-5	P-V1-181218-216	Solid	12/18/18 15:19	12/19/18 10:10

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V1-181218-01
Date Collected: 12/18/18 14:00
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U H	10	6.4	1.9	ug/L		01/04/19 12:40	1
Benzene	0.40	U H	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Bromobenzene	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
Bromochloromethane	0.20	U H	1.0	0.20	0.10	ug/L		01/04/19 12:40	1
Bromodichloromethane	0.40	U H	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
Bromoform	0.40	U H Q	1.0	0.40	0.19	ug/L		01/04/19 12:40	1
Bromomethane	0.80	U H	2.0	0.80	0.21	ug/L		01/04/19 12:40	1
2-Butanone (MEK)	4.0	U H	6.0	4.0	2.0	ug/L		01/04/19 12:40	1
n-Butylbenzene	0.80	U H Q	1.0	0.80	0.32	ug/L		01/04/19 12:40	1
sec-Butylbenzene	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
tert-Butylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Carbon disulfide	1.6	U H	2.0	1.6	0.45	ug/L		01/04/19 12:40	1
Carbon tetrachloride	0.40	U H	2.0	0.40	0.19	ug/L		01/04/19 12:40	1
Chlorobenzene	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
Chloroethane	1.6	U H	2.0	1.6	0.41	ug/L		01/04/19 12:40	1
Chloroform	0.40	U H	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Chloromethane	0.80	U H	2.0	0.80	0.30	ug/L		01/04/19 12:40	1
4-Chlorotoluene	0.80	U H Q	1.0	0.80	0.21	ug/L		01/04/19 12:40	1
Dibromochloromethane	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
1,2-Dibromo-3-Chloropropane	1.6	U H Q	5.0	1.6	0.47	ug/L		01/04/19 12:40	1
Dichlorodifluoromethane	0.80	U H	2.0	0.80	0.31	ug/L		01/04/19 12:40	1
Dibromomethane	0.40	U H	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
Ethylene Dibromide	0.40	U H Q	1.0	0.40	0.18	ug/L		01/04/19 12:40	1
1,2-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.15	ug/L		01/04/19 12:40	1
1,3-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.13	ug/L		01/04/19 12:40	1
1,4-Dichlorobenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
1,1-Dichloroethane	0.80	U H	1.0	0.80	0.22	ug/L		01/04/19 12:40	1
1,2-Dichloroethane	0.40	U H	1.0	0.40	0.13	ug/L		01/04/19 12:40	1
1,1-Dichloroethene	0.80	U H	1.0	0.80	0.23	ug/L		01/04/19 12:40	1
1,2-Dichloroethene, Total	0.20	U H	1.0	0.20	0.24	ug/L		01/04/19 12:40	1
cis-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		01/04/19 12:40	1
trans-1,2-Dichloroethene	0.40	U H	1.0	0.40	0.15	ug/L		01/04/19 12:40	1
1,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		01/04/19 12:40	1
1,3-Dichloropropane	0.80	U H Q	1.0	0.80	0.22	ug/L		01/04/19 12:40	1
2,2-Dichloropropane	0.40	U H	1.0	0.40	0.18	ug/L		01/04/19 12:40	1
1,1-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		01/04/19 12:40	1
cis-1,3-Dichloropropene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
trans-1,3-Dichloropropene	0.40	U H	1.0	0.40	0.19	ug/L		01/04/19 12:40	1
Ethylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
2-Hexanone	4.0	U H Q	5.0	4.0	1.7	ug/L		01/04/19 12:40	1
Hexachlorobutadiene	0.80	U H Q	1.0	0.80	0.36	ug/L		01/04/19 12:40	1
Isopropylbenzene	0.40	U H Q	1.0	0.40	0.19	ug/L		01/04/19 12:40	1
4-Isopropyltoluene	0.40	U H Q	1.0	0.40	0.20	ug/L		01/04/19 12:40	1
Methylene Chloride	0.80	U H	5.0	0.80	0.32	ug/L		01/04/19 12:40	1
4-Methyl-2-pentanone (MIBK)	3.2	U H	5.0	3.2	0.98	ug/L		01/04/19 12:40	1
Methyl tert-butyl ether	0.80	U H	5.0	0.80	0.25	ug/L		01/04/19 12:40	1
Naphthalene	0.80	U H Q	1.0	0.80	0.22	ug/L		01/04/19 12:40	1
N-Propylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Styrene	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V1-181218-01
Date Collected: 12/18/18 14:00
Date Received: 12/19/18 10:10
Lab Sample ID: 280-118390-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U H Q	1.0	0.80	0.21	ug/L		01/04/19 12:40	1
1,1,2,2-Tetrachloroethane	0.80	U H Q	1.0	0.80	0.21	ug/L		01/04/19 12:40	1
Tetrachloroethene	0.40	U H Q	1.0	0.40	0.20	ug/L		01/04/19 12:40	1
Toluene	0.40	U H	1.0	0.40	0.17	ug/L		01/04/19 12:40	1
1,2,3-Trichlorobenzene	0.80	U H Q	1.0	0.80	0.21	ug/L		01/04/19 12:40	1
1,1,1-Trichloroethane	0.40	U H	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
1,1,2-Trichloroethane	0.80	U H	1.0	0.80	0.27	ug/L		01/04/19 12:40	1
Trichloroethene	0.40	U H	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Trichlorofluoromethane	0.80	U H	2.0	0.80	0.29	ug/L		01/04/19 12:40	1
1,2,4-Trichlorobenzene	0.80	U H Q	1.0	0.80	0.21	ug/L		01/04/19 12:40	1
1,2,3-Trichloropropane	0.80	U H Q	3.0	0.80	0.33	ug/L		01/04/19 12:40	1
1,2,4-Trimethylbenzene	0.40	U H Q	1.0	0.40	0.15	ug/L		01/04/19 12:40	1
1,3,5-Trimethylbenzene	0.40	U H Q	1.0	0.40	0.16	ug/L		01/04/19 12:40	1
Vinyl chloride	0.20	U H	1.5	0.20	0.10	ug/L		01/04/19 12:40	1
o-Xylene	0.40	U H Q	1.0	0.40	0.19	ug/L		01/04/19 12:40	1
m-Xylene & p-Xylene	0.80	U H Q	2.0	0.80	0.34	ug/L		01/04/19 12:40	1
2-Chlorotoluene	0.40	U H Q	1.0	0.40	0.17	ug/L		01/04/19 12:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*122*	*Q*	*89 - 112*		*01/04/19 12:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*81 - 118*		*01/04/19 12:40*	*1*
4-Bromofluorobenzene (Surr)	*116*	*Q*	*85 - 114*		*01/04/19 12:40*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 119*		*01/04/19 12:40*	*1*

Client Sample ID: V-V1-171218-161
Date Collected: 12/17/18 16:55
Date Received: 12/19/18 10:10
Lab Sample ID: 280-118390-2
Matrix: Solid
Percent Solids: 75.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Benzene	2500	U	3900	2500	700	ug/Kg	☼	12/28/18 15:54	10
Bromobenzene	620	U	3900	620	290	ug/Kg	☼	12/28/18 15:54	10
Bromochloromethane	2500	U	3900	2500	730	ug/Kg	☼	12/28/18 15:54	10
Bromodichloromethane	1200	U	3900	1200	610	ug/Kg	☼	12/28/18 15:54	10
Bromoform	2500	U	3900	2500	2500	ug/Kg	☼	12/28/18 15:54	10
Bromomethane	2500	U	7800	2500	680	ug/Kg	☼	12/28/18 15:54	10
2-Butanone (MEK)	9900	U	16000	9900	4600	ug/Kg	☼	12/28/18 15:54	10
n-Butylbenzene	1200	U	3900	1200	500	ug/Kg	☼	12/28/18 15:54	10
sec-Butylbenzene	1200	U	3900	1200	590	ug/Kg	☼	12/28/18 15:54	10
tert-Butylbenzene	1200	U	3900	1200	430	ug/Kg	☼	12/28/18 15:54	10
Carbon disulfide	2500	U M	3900	2500	990	ug/Kg	☼	12/28/18 15:54	10
Carbon tetrachloride	620	U	3900	620	260	ug/Kg	☼	12/28/18 15:54	10
Chlorobenzene	1200	U	3900	1200	470	ug/Kg	☼	12/28/18 15:54	10
Chloroethane	2500	U	7800	2500	680	ug/Kg	☼	12/28/18 15:54	10
Chloroform	2500	U	3900	2500	710	ug/Kg	☼	12/28/18 15:54	10
Chloromethane	2500	U	7800	2500	780	ug/Kg	☼	12/28/18 15:54	10
4-Chlorotoluene	1200	U	3900	1200	360	ug/Kg	☼	12/28/18 15:54	10
Dibromochloromethane	1200	U	3900	1200	510	ug/Kg	☼	12/28/18 15:54	10
1,2-Dibromo-3-Chloropropane	5000	U	7800	5000	1300	ug/Kg	☼	12/28/18 15:54	10
Dichlorodifluoromethane	1200	U	7800	1200	340	ug/Kg	☼	12/28/18 15:54	10
Dibromomethane	1200	U	3900	1200	470	ug/Kg	☼	12/28/18 15:54	10
Ethylene Dibromide	1200	U	3900	1200	390	ug/Kg	☼	12/28/18 15:54	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-171218-161
Date Collected: 12/17/18 16:55
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-2
Matrix: Solid
Percent Solids: 75.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dichlorobenzene	5000	U	7800	5000	1500	ug/Kg	☼	12/28/18 15:54	10
1,3-Dichlorobenzene	2500	U	3900	2500	630	ug/Kg	☼	12/28/18 15:54	10
1,4-Dichlorobenzene	1200	U	3900	1200	390	ug/Kg	☼	12/28/18 15:54	10
1,1-Dichloroethane	2500	U	3900	2500	780	ug/Kg	☼	12/28/18 15:54	10
1,2-Dichloroethane	1200	U	3900	1200	390	ug/Kg	☼	12/28/18 15:54	10
1,1-Dichloroethene	2500	U	3900	2500	780	ug/Kg	☼	12/28/18 15:54	10
1,2-Dichloroethene, Total	1200	U	1900	1200	340	ug/Kg	☼	12/28/18 15:54	10
cis-1,2-Dichloroethene	1200	U	1900	1200	340	ug/Kg	☼	12/28/18 15:54	10
trans-1,2-Dichloroethene	2500	U	3900	2500	690	ug/Kg	☼	12/28/18 15:54	10
1,2-Dichloropropane	2500	U	3900	2500	720	ug/Kg	☼	12/28/18 15:54	10
1,3-Dichloropropane	1200	U	3900	1200	430	ug/Kg	☼	12/28/18 15:54	10
2,2-Dichloropropane	1200	U	3900	1200	420	ug/Kg	☼	12/28/18 15:54	10
1,1-Dichloropropene	2500	U	3900	2500	750	ug/Kg	☼	12/28/18 15:54	10
cis-1,3-Dichloropropene	1200	U	3900	1200	420	ug/Kg	☼	12/28/18 15:54	10
trans-1,3-Dichloropropene	2500	U	3900	2500	640	ug/Kg	☼	12/28/18 15:54	10
Ethylbenzene	1200	U	3900	1200	530	ug/Kg	☼	12/28/18 15:54	10
2-Hexanone	9900	U	16000	9900	3400	ug/Kg	☼	12/28/18 15:54	10
Hexachlorobutadiene	2500	U	3900	2500	760	ug/Kg	☼	12/28/18 15:54	10
Isopropylbenzene	1200	U M	3900	1200	450	ug/Kg	☼	12/28/18 15:54	10
4-Isopropyltoluene	1200	U	3900	1200	500	ug/Kg	☼	12/28/18 15:54	10
Methylene Chloride	2500	U	3900	2500	1100	ug/Kg	☼	12/28/18 15:54	10
4-Methyl-2-pentanone (MIBK)	9900	U	16000	9900	3500	ug/Kg	☼	12/28/18 15:54	10
Methyl tert-butyl ether	2500	U	3900	2500	780	ug/Kg	☼	12/28/18 15:54	10
Naphthalene	1200	U	7800	1200	590	ug/Kg	☼	12/28/18 15:54	10
N-Propylbenzene	2500	U	3900	2500	640	ug/Kg	☼	12/28/18 15:54	10
Styrene	1200	U	3900	1200	400	ug/Kg	☼	12/28/18 15:54	10
1,1,1,2-Tetrachloroethane	1200	U	3900	1200	330	ug/Kg	☼	12/28/18 15:54	10
1,1,2,2-Tetrachloroethane	1200	U	3900	1200	450	ug/Kg	☼	12/28/18 15:54	10
Tetrachloroethene	1200	U	3900	1200	420	ug/Kg	☼	12/28/18 15:54	10
Toluene	1200	U	3900	1200	600	ug/Kg	☼	12/28/18 15:54	10
1,2,3-Trichlorobenzene	1200	U	3900	1200	540	ug/Kg	☼	12/28/18 15:54	10
1,1,1-Trichloroethane	620	U	3900	620	310	ug/Kg	☼	12/28/18 15:54	10
1,1,2-Trichloroethane	1200	U M	3900	1200	420	ug/Kg	☼	12/28/18 15:54	10
Trichloroethene	1200	U	3900	1200	360	ug/Kg	☼	12/28/18 15:54	10
Trichlorofluoromethane	2500	U	7800	2500	780	ug/Kg	☼	12/28/18 15:54	10
1,2,4-Trichlorobenzene	2500	U	3900	2500	730	ug/Kg	☼	12/28/18 15:54	10
1,2,3-Trichloropropane	2500	U	3900	2500	730	ug/Kg	☼	12/28/18 15:54	10
1,2,4-Trimethylbenzene	1200	U	3900	1200	480	ug/Kg	☼	12/28/18 15:54	10
1,3,5-Trimethylbenzene	1200	U M	3900	1200	600	ug/Kg	☼	12/28/18 15:54	10
Vinyl chloride	1200	U	7800	1200	420	ug/Kg	☼	12/28/18 15:54	10
o-Xylene	1200	U	1900	1200	540	ug/Kg	☼	12/28/18 15:54	10
m-Xylene & p-Xylene	2500	U	3900	2500	1200	ug/Kg	☼	12/28/18 15:54	10
2-Chlorotoluene	1200	U	3900	1200	400	ug/Kg	☼	12/28/18 15:54	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*88*	*D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 15:54*	*10*
1,2-Dichloroethane-d4 (Surr)	*90*	*D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 15:54*	*10*
4-Bromofluorobenzene (Surr)	*81*	*D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 15:54*	*10*
Dibromofluoromethane (Surr)	*86*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 15:54*	*10*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-4
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**98000**	**D**	17000	14000	4400	ug/Kg	☼	12/28/18 16:14	10
Benzene	**5900**	**D**	2800	1800	500	ug/Kg	☼	12/28/18 16:14	10
Bromobenzene	440	U Q	2800	440	210	ug/Kg	☼	12/28/18 16:14	10
Bromochloromethane	1800	U	2800	1800	520	ug/Kg	☼	12/28/18 16:14	10
Bromodichloromethane	880	U M	2800	880	440	ug/Kg	☼	12/28/18 16:14	10
Bromoform	1800	U Q	2800	1800	1800	ug/Kg	☼	12/28/18 16:14	10
Bromomethane	1800	U	5500	1800	490	ug/Kg	☼	12/28/18 16:14	10
2-Butanone (MEK)	7100	U M	11000	7100	3300	ug/Kg	☼	12/28/18 16:14	10
n-Butylbenzene	**5700**	**D Q**	2800	880	350	ug/Kg	☼	12/28/18 16:14	10
sec-Butylbenzene	**7000**	**D Q**	2800	880	420	ug/Kg	☼	12/28/18 16:14	10
tert-Butylbenzene	880	U M Q	2800	880	310	ug/Kg	☼	12/28/18 16:14	10
Carbon disulfide	1800	U	2800	1800	710	ug/Kg	☼	12/28/18 16:14	10
Carbon tetrachloride	440	U	2800	440	190	ug/Kg	☼	12/28/18 16:14	10
Chlorobenzene	880	U Q	2800	880	330	ug/Kg	☼	12/28/18 16:14	10
Chloroethane	1800	U	5500	1800	490	ug/Kg	☼	12/28/18 16:14	10
Chloroform	1800	U	2800	1800	510	ug/Kg	☼	12/28/18 16:14	10
Chloromethane	1800	U	5500	1800	550	ug/Kg	☼	12/28/18 16:14	10
4-Chlorotoluene	880	U M Q	2800	880	250	ug/Kg	☼	12/28/18 16:14	10
Dibromochloromethane	880	U Q	2800	880	360	ug/Kg	☼	12/28/18 16:14	10
1,2-Dibromo-3-Chloropropane	3500	U Q	5500	3500	950	ug/Kg	☼	12/28/18 16:14	10
Dichlorodifluoromethane	880	U	5500	880	240	ug/Kg	☼	12/28/18 16:14	10
Dibromomethane	880	U	2800	880	330	ug/Kg	☼	12/28/18 16:14	10
Ethylene Dibromide	880	U Q	2800	880	280	ug/Kg	☼	12/28/18 16:14	10
1,2-Dichlorobenzene	3500	U Q	5500	3500	1000	ug/Kg	☼	12/28/18 16:14	10
1,3-Dichlorobenzene	1800	U Q	2800	1800	450	ug/Kg	☼	12/28/18 16:14	10
1,4-Dichlorobenzene	880	U Q	2800	880	280	ug/Kg	☼	12/28/18 16:14	10
1,1-Dichloroethane	1800	U	2800	1800	560	ug/Kg	☼	12/28/18 16:14	10
1,2-Dichloroethane	880	U	2800	880	280	ug/Kg	☼	12/28/18 16:14	10
1,1-Dichloroethene	1800	U	2800	1800	560	ug/Kg	☼	12/28/18 16:14	10
1,2-Dichloroethene, Total	880	U	1400	880	240	ug/Kg	☼	12/28/18 16:14	10
cis-1,2-Dichloroethene	880	U	1400	880	240	ug/Kg	☼	12/28/18 16:14	10
trans-1,2-Dichloroethene	1800	U	2800	1800	500	ug/Kg	☼	12/28/18 16:14	10
1,2-Dichloropropane	1800	U M	2800	1800	510	ug/Kg	☼	12/28/18 16:14	10
1,3-Dichloropropane	880	U Q	2800	880	310	ug/Kg	☼	12/28/18 16:14	10
2,2-Dichloropropane	880	U	2800	880	300	ug/Kg	☼	12/28/18 16:14	10
1,1-Dichloropropene	1800	U	2800	1800	530	ug/Kg	☼	12/28/18 16:14	10
cis-1,3-Dichloropropene	880	U	2800	880	300	ug/Kg	☼	12/28/18 16:14	10
trans-1,3-Dichloropropene	1800	U M	2800	1800	460	ug/Kg	☼	12/28/18 16:14	10
Ethylbenzene	**23000**	**D Q**	2800	880	380	ug/Kg	☼	12/28/18 16:14	10
2-Hexanone	7100	U M Q	11000	7100	2400	ug/Kg	☼	12/28/18 16:14	10
Hexachlorobutadiene	1800	U Q	2800	1800	540	ug/Kg	☼	12/28/18 16:14	10
Isopropylbenzene	**6300**	**D Q**	2800	880	320	ug/Kg	☼	12/28/18 16:14	10
4-Isopropyltoluene	**3700**	**D Q**	2800	880	350	ug/Kg	☼	12/28/18 16:14	10
Methylene Chloride	1800	U M	2800	1800	760	ug/Kg	☼	12/28/18 16:14	10
4-Methyl-2-pentanone (MIBK)	7100	U M	11000	7100	2500	ug/Kg	☼	12/28/18 16:14	10
Methyl tert-butyl ether	1800	U	2800	1800	550	ug/Kg	☼	12/28/18 16:14	10
Naphthalene	**10000**	**D Q**	5500	880	420	ug/Kg	☼	12/28/18 16:14	10
N-Propylbenzene	**11000**	**D Q**	2800	1800	450	ug/Kg	☼	12/28/18 16:14	10
Styrene	880	U M Q	2800	880	290	ug/Kg	☼	12/28/18 16:14	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10
Lab Sample ID: 280-118390-4
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	880	U Q	2800	880	230	ug/Kg	☼	12/28/18 16:14	10
1,1,2,2-Tetrachloroethane	880	U M Q	2800	880	320	ug/Kg	☼	12/28/18 16:14	10
Tetrachloroethene	880	U Q	2800	880	300	ug/Kg	☼	12/28/18 16:14	10
Toluene	**62000**	**D**	2800	880	430	ug/Kg	☼	12/28/18 16:14	10
1,2,3-Trichlorobenzene	880	U M Q	2800	880	390	ug/Kg	☼	12/28/18 16:14	10
1,1,1-Trichloroethane	440	U	2800	440	220	ug/Kg	☼	12/28/18 16:14	10
1,1,2-Trichloroethane	880	U M	2800	880	300	ug/Kg	☼	12/28/18 16:14	10
Trichloroethene	880	U	2800	880	250	ug/Kg	☼	12/28/18 16:14	10
Trichlorofluoromethane	1800	U	5500	1800	550	ug/Kg	☼	12/28/18 16:14	10
1,2,4-Trichlorobenzene	1800	U Q	2800	1800	520	ug/Kg	☼	12/28/18 16:14	10
1,2,3-Trichloropropane	1800	U M Q	2800	1800	520	ug/Kg	☼	12/28/18 16:14	10
1,2,4-Trimethylbenzene	**42000**	**D Q**	2800	880	340	ug/Kg	☼	12/28/18 16:14	10
1,3,5-Trimethylbenzene	**18000**	**D Q**	2800	880	430	ug/Kg	☼	12/28/18 16:14	10
Vinyl chloride	880	U	5500	880	300	ug/Kg	☼	12/28/18 16:14	10
o-Xylene	**32000**	**D Q**	1400	880	390	ug/Kg	☼	12/28/18 16:14	10
m-Xylene & p-Xylene	**88000**	**D Q**	2800	1800	860	ug/Kg	☼	12/28/18 16:14	10
2-Chlorotoluene	880	U M Q	2800	880	290	ug/Kg	☼	12/28/18 16:14	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*293*	*Q D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 16:14*	*10*
1,2-Dichloroethane-d4 (Surr)	*123*	*D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 16:14*	*10*
4-Bromofluorobenzene (Surr)	*168*	*Q D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 16:14*	*10*
Dibromofluoromethane (Surr)	*96*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 16:14*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-V1-171218-161
Date Collected: 12/17/18 16:55
Date Received: 12/19/18 10:10
Lab Sample ID: 280-118390-2
Matrix: Solid
Percent Solids: 75.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**1100000**	**D**	120000	99000	31000	ug/Kg	☼	12/28/18 19:05	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*116*	*D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 19:05*	*50*
1,2-Dichloroethane-d4 (Surr)	*0*	*Q D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 19:05*	*50*
4-Bromofluorobenzene (Surr)	*119*	*D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 19:05*	*50*
Dibromofluoromethane (Surr)	*108*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 19:05*	*50*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-V1-181218-01
Date Collected: 12/18/18 14:00
Date Received: 12/19/18 10:10
Lab Sample ID: 280-118390-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 12:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*82 - 110*		*12/31/18 12:23*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - DL

Client Sample ID: P-V1-171218-161 — **Lab Sample ID: 280-118390-3**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	15	D	4.0	3.7	1.1	mg/Kg	☼	12/30/18 15:07	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	104		77 - 123	12/17/18 16:55	12/30/18 15:07	2

Client Sample ID: P-V1-181218-216 — **Lab Sample ID: 280-118390-5**
Date Collected: 12/18/18 15:19 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	2200	D Q	360	330	97	mg/Kg	☼	12/30/18 14:44	250

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	3934	Q	77 - 123	12/18/18 15:19	12/30/18 14:44	250

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-V1-181218-01 — **Lab Sample ID: 280-118390-1**
Date Collected: 12/18/18 14:00 — **Matrix: Water**
Date Received: 12/19/18 10:10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 14:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	94		70 - 130	12/30/18 10:16	01/08/19 14:56	1

Client Sample ID: V-V1-171218-161 — **Lab Sample ID: 280-118390-2**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.30	D	0.26	0.10	0.040	ug/Kg	☼	01/14/19 19:10	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	127	M D	55 - 130	12/30/18 12:34	01/14/19 19:10	2

Client Sample ID: V-V1-181218-216 — **Lab Sample ID: 280-118390-4**
Date Collected: 12/18/18 15:19 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	17	D Q	2.1	0.79	0.31	ug/Kg	☼	01/14/19 19:29	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	0	M D	55 - 130	12/30/18 12:34	01/14/19 19:29	20

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V1-171218-161 — **Lab Sample ID: 280-118390-3**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	980	H	10	5.2	1.8	mg/Kg	☼	01/07/19 19:03	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-V1-171218-161 — **Lab Sample ID: 280-118390-3**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	30	J H	31	30	10	mg/Kg	☼	01/07/19 19:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*80*		*45 - 130*	*01/03/19 18:43*	*01/07/19 19:03*	*1*
n-Octacosane	*84*		*25 - 162*	*01/03/19 18:43*	*01/07/19 19:03*	*1*

Client Sample ID: P-V1-181218-216 — **Lab Sample ID: 280-118390-5**
Date Collected: 12/18/18 15:19 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2500	D	16	7.8	2.7	mg/Kg	☼	01/04/19 21:11	2
Motor Oil (C20-C38)	46	U D	47	46	15	mg/Kg	☼	01/04/19 21:11	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*76*	*D*	*45 - 130*	*12/20/18 19:41*	*01/04/19 21:11*	*2*
n-Octacosane	*88*	*D*	*25 - 162*	*12/20/18 19:41*	*01/04/19 21:11*	*2*

General Chemistry

Client Sample ID: V-V1-171218-161 — **Lab Sample ID: 280-118390-2**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	24.1		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-171218-161 — **Lab Sample ID: 280-118390-3**
Date Collected: 12/17/18 16:55 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 75.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	24.1		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: V-V1-181218-216 — **Lab Sample ID: 280-118390-4**
Date Collected: 12/18/18 15:19 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.3		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-181218-216 — **Lab Sample ID: 280-118390-5**
Date Collected: 12/18/18 15:19 — **Matrix: Solid**
Date Received: 12/19/18 10:10 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.4		0.1	0.05	0.1	%		12/22/18 11:58	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118390-2	V-V1-171218-161	88 D	90 D	81 D	86 D
280-118390-2 - DL	V-V1-171218-161	116 D	0 Q D	119 D	108 D
280-118390-4	V-V1-181218-216	293 Q D	123 D	168 Q D	96 D
LCS 280-442765/2-A	Lab Control Sample	102	109	96	107
LCSD 280-442765/3-A	Lab Control Sample Dup	102	107	93	107
MB 280-442765/1-A	Method Blank	110	118	105	116

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118390-1	TB-V1-181218-01	122 Q	91	116 Q	94
LCS 280-443292/4	Lab Control Sample	107	106	105	105
LCSD 280-443292/5	Lab Control Sample Dup	100	108	104	109
MB 280-443292/6	Method Blank	105	102	107	106

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118390-3 - DL	P-V1-171218-161	104
280-118390-5 - DL	P-V1-181218-216	3934 Q
LCS 280-442646/1-A	Lab Control Sample	94
LCSD 280-442646/2-A	Lab Control Sample Dup	98
MB 280-442646/3-A	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118390-1	TB-V1-181218-01	95
LCS 280-442898/22	Lab Control Sample	96
LCSD 280-442898/23	Lab Control Sample Dup	96
MB 280-442898/24	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118390-2	V-V1-171218-161	127 M D
280-118390-4	V-V1-181218-216	0 M D
LCS 280-442875/1-A	Lab Control Sample	110
LCSD 280-442875/2-A	Lab Control Sample Dup	103
MB 280-442875/3-A	Method Blank	112

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-118390-1	TB-V1-181218-01	94
LCS 280-442866/1-A	Lab Control Sample	87
LCSD 280-442866/2-A	Lab Control Sample Dup	87
MB 280-442866/3-A	Method Blank	93

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-118390-3	P-V1-171218-161	80	84
280-118390-5	P-V1-181218-216	76 D	88 D
LCS 280-442077/2-A	Lab Control Sample	76	94
LCS 280-442077/3-A	Lab Control Sample	77	97
LCS 280-443201/2-B	Lab Control Sample	69	74
LCS 280-443201/3-B	Lab Control Sample	99	111
MB 280-442077/1-A	Method Blank	70	90

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
MB 280-443201/1-B	Method Blank	64	69								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-442765/1-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442765

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/28/18 13:22	1
Benzene	160	U	250	160	45	ug/Kg		12/28/18 13:22	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/28/18 13:22	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/28/18 13:22	1
Bromoform	160	U	250	160	160	ug/Kg		12/28/18 13:22	1
Bromomethane	160	U	500	160	44	ug/Kg		12/28/18 13:22	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/28/18 13:22	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/28/18 13:22	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/28/18 13:22	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/28/18 13:22	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/28/18 13:22	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/28/18 13:22	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/28/18 13:22	1
Chloroethane	160	U	500	160	44	ug/Kg		12/28/18 13:22	1
Chloroform	160	U	250	160	46	ug/Kg		12/28/18 13:22	1
Chloromethane	160	U	500	160	50	ug/Kg		12/28/18 13:22	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/28/18 13:22	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/28/18 13:22	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/28/18 13:22	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/28/18 13:22	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/28/18 13:22	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/28/18 13:22	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/28/18 13:22	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/28/18 13:22	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/28/18 13:22	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/28/18 13:22	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/28/18 13:22	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/28/18 13:22	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/28/18 13:22	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/28/18 13:22	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/28/18 13:22	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/28/18 13:22	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/28/18 13:22	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/28/18 13:22	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/28/18 13:22	1
Methylene Chloride	160	U M	250	160	69	ug/Kg		12/28/18 13:22	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/28/18 13:22	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/28/18 13:22	1
Naphthalene	80	U	500	80	38	ug/Kg		12/28/18 13:22	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442765/1-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442765

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/28/18 13:22	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/28/18 13:22	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/28/18 13:22	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
Toluene	80	U M	250	80	39	ug/Kg		12/28/18 13:22	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/28/18 13:22	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/28/18 13:22	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/28/18 13:22	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/28/18 13:22	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/28/18 13:22	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/28/18 13:22	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/28/18 13:22	1
o-Xylene	80	U	130	80	35	ug/Kg		12/28/18 13:22	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/28/18 13:22	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/28/18 13:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*85 - 116*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*118*		*71 - 136*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
Dibromofluoromethane (Surr)	*116*		*78 - 119*	*12/28/18 10:21*	*12/28/18 13:22*	*1*

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	8060		ug/Kg		101	36 - 164
Benzene	2000	1750		ug/Kg		87	77 - 121
Bromobenzene	2000	1680		ug/Kg		84	78 - 121
Bromochloromethane	2000	1910		ug/Kg		95	78 - 125
Bromodichloromethane	2000	1830		ug/Kg		91	75 - 127
Bromoform	2000	1770		ug/Kg		88	67 - 132
Bromomethane	2000	2000		ug/Kg		100	53 - 143
2-Butanone (MEK)	8000	7140		ug/Kg		89	51 - 148
n-Butylbenzene	2000	1830		ug/Kg		92	70 - 128
sec-Butylbenzene	2000	1840		ug/Kg		92	73 - 126
tert-Butylbenzene	2000	1720		ug/Kg		86	73 - 125
Carbon disulfide	2000	1810		ug/Kg		91	63 - 132
Carbon tetrachloride	2000	1950		ug/Kg		98	70 - 135
Chlorobenzene	2000	1730		ug/Kg		86	79 - 120
Chloroethane	2000	1780		ug/Kg		89	59 - 139
Chloroform	2000	1800		ug/Kg		90	78 - 123
Chloromethane	2000	1480		ug/Kg		74	50 - 136
4-Chlorotoluene	2000	1720		ug/Kg		86	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	1840		ug/Kg		92	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1790		ug/Kg		89	61 - 132
Dichlorodifluoromethane	2000	1190		ug/Kg		59	29 - 149
Dibromomethane	2000	1820		ug/Kg		91	78 - 125
Ethylene Dibromide	2000	1790		ug/Kg		89	78 - 122
1,2-Dichlorobenzene	2000	1790		ug/Kg		89	78 - 121
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121
1,4-Dichlorobenzene	2000	1710		ug/Kg		85	75 - 120
1,1-Dichloroethane	2000	1810		ug/Kg		90	76 - 125
1,2-Dichloroethane	2000	1830		ug/Kg		92	73 - 128
1,1-Dichloroethene	2000	1850		ug/Kg		92	70 - 131
cis-1,2-Dichloroethene	2000	1800		ug/Kg		90	77 - 123
trans-1,2-Dichloroethene	2000	1900		ug/Kg		95	74 - 125
1,2-Dichloropropane	2000	1850		ug/Kg		93	76 - 123
1,3-Dichloropropane	2000	1750		ug/Kg		87	77 - 121
2,2-Dichloropropane	2000	1920		ug/Kg		96	67 - 133
1,1-Dichloropropene	2000	1780		ug/Kg		89	76 - 125
cis-1,3-Dichloropropene	2000	1830		ug/Kg		91	74 - 126
trans-1,3-Dichloropropene	2000	1780		ug/Kg		89	71 - 130
Ethylbenzene	2000	1750		ug/Kg		88	76 - 122
2-Hexanone	8000	7480		ug/Kg		94	53 - 145
Hexachlorobutadiene	2000	1920		ug/Kg		96	61 - 135
Isopropylbenzene	2000	1770		ug/Kg		89	68 - 134
4-Isopropyltoluene	2000	1840		ug/Kg		92	73 - 127
Methylene Chloride	2000	1740		ug/Kg		87	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	8220		ug/Kg		103	65 - 135
Methyl tert-butyl ether	2000	2000		ug/Kg		100	73 - 125
Naphthalene	2000	1810		ug/Kg		90	62 - 129
N-Propylbenzene	2000	1810		ug/Kg		90	73 - 125
Styrene	2000	1790		ug/Kg		89	76 - 124
1,1,1,2-Tetrachloroethane	2000	1950		ug/Kg		97	78 - 125
1,1,2,2-Tetrachloroethane	2000	1790		ug/Kg		89	70 - 124
Tetrachloroethene	2000	1740		ug/Kg		87	73 - 128
Toluene	2000	1820		ug/Kg		91	77 - 121
1,2,3-Trichlorobenzene	2000	2050		ug/Kg		102	66 - 130
1,1,1-Trichloroethane	2000	1920		ug/Kg		96	73 - 130
1,1,2-Trichloroethane	2000	1840		ug/Kg		92	78 - 121
Trichloroethene	2000	1740		ug/Kg		87	77 - 123
Trichlorofluoromethane	2000	1930		ug/Kg		96	62 - 140
1,2,4-Trichlorobenzene	2000	1950		ug/Kg		98	67 - 129
1,2,3-Trichloropropane	2000	1860		ug/Kg		93	73 - 125
1,2,4-Trimethylbenzene	2000	1750		ug/Kg		88	75 - 123
1,3,5-Trimethylbenzene	2000	1790		ug/Kg		90	73 - 124
Vinyl chloride	2000	1740		ug/Kg		87	56 - 135
o-Xylene	2000	1810		ug/Kg		91	77 - 123
m-Xylene & p-Xylene	2000	1740		ug/Kg		87	77 - 124
2-Chlorotoluene	2000	1750		ug/Kg		87	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*107*		*78 - 119*

Lab Sample ID: LCSD 280-442765/3-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442765

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			8000	6970		ug/Kg		87	36 - 164	15	20
Benzene			2000	1750		ug/Kg		88	77 - 121	0	20
Bromobenzene			2000	1660		ug/Kg		83	78 - 121	1	20
Bromochloromethane			2000	1940		ug/Kg		97	78 - 125	2	20
Bromodichloromethane			2000	1840		ug/Kg		92	75 - 127	1	20
Bromoform			2000	1780		ug/Kg		89	67 - 132	1	20
Bromomethane			2000	1750		ug/Kg		87	53 - 143	13	20
2-Butanone (MEK)			8000	7260		ug/Kg		91	51 - 148	2	20
n-Butylbenzene			2000	1690		ug/Kg		85	70 - 128	8	20
sec-Butylbenzene			2000	1730		ug/Kg		86	73 - 126	6	20
tert-Butylbenzene			2000	1680		ug/Kg		84	73 - 125	3	20
Carbon disulfide			2000	1680		ug/Kg		84	63 - 132	8	20
Carbon tetrachloride			2000	1800		ug/Kg		90	70 - 135	8	20
Chlorobenzene			2000	1730		ug/Kg		86	79 - 120	0	20
Chloroethane			2000	1700		ug/Kg		85	59 - 139	4	20
Chloroform			2000	1810		ug/Kg		90	78 - 123	0	20
Chloromethane			2000	1260		ug/Kg		63	50 - 136	16	20
4-Chlorotoluene			2000	1690		ug/Kg		85	72 - 124	2	20
Dibromochloromethane			2000	1940		ug/Kg		97	74 - 126	5	20
1,2-Dibromo-3-Chloropropane			2000	1690		ug/Kg		85	61 - 132	5	20
Dichlorodifluoromethane			2000	992		ug/Kg		50	29 - 149	18	20
Dibromomethane			2000	1900		ug/Kg		95	78 - 125	4	20
Ethylene Dibromide			2000	1790		ug/Kg		89	78 - 122	0	20
1,2-Dichlorobenzene			2000	1700		ug/Kg		85	78 - 121	5	20
1,3-Dichlorobenzene			2000	1670		ug/Kg		83	77 - 121	2	20
1,4-Dichlorobenzene			2000	1650		ug/Kg		83	75 - 120	3	20
1,1-Dichloroethane			2000	1820		ug/Kg		91	76 - 125	1	20
1,2-Dichloroethane			2000	1870		ug/Kg		93	73 - 128	2	20
1,1-Dichloroethene			2000	1730		ug/Kg		87	70 - 131	6	20
cis-1,2-Dichloroethene			2000	1810		ug/Kg		91	77 - 123	1	20
trans-1,2-Dichloroethene			2000	1850		ug/Kg		93	74 - 125	3	20
1,2-Dichloropropane			2000	1850		ug/Kg		93	76 - 123	0	20
1,3-Dichloropropane			2000	1740		ug/Kg		87	77 - 121	0	20
2,2-Dichloropropane			2000	1720		ug/Kg		86	67 - 133	11	20
1,1-Dichloropropene			2000	1800		ug/Kg		90	76 - 125	1	20
cis-1,3-Dichloropropene			2000	1880		ug/Kg		94	74 - 126	3	20
trans-1,3-Dichloropropene			2000	1860		ug/Kg		93	71 - 130	4	20
Ethylbenzene			2000	1700		ug/Kg		85	76 - 122	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-442765/3-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	7430		ug/Kg		93	53 - 145	1	20
Hexachlorobutadiene	2000	1770		ug/Kg		88	61 - 135	8	20
Isopropylbenzene	2000	1650		ug/Kg		83	68 - 134	7	20
4-Isopropyltoluene	2000	1720		ug/Kg		86	73 - 127	6	20
Methylene Chloride	2000	1680		ug/Kg		84	70 - 128	4	20
4-Methyl-2-pentanone (MIBK)	8000	7910		ug/Kg		99	65 - 135	4	20
Methyl tert-butyl ether	2000	1940		ug/Kg		97	73 - 125	3	20
Naphthalene	2000	1660		ug/Kg		83	62 - 129	9	20
N-Propylbenzene	2000	1700		ug/Kg		85	73 - 125	6	20
Styrene	2000	1750		ug/Kg		88	76 - 124	2	20
1,1,1,2-Tetrachloroethane	2000	1850		ug/Kg		93	78 - 125	5	20
1,1,2,2-Tetrachloroethane	2000	1720		ug/Kg		86	70 - 124	4	20
Tetrachloroethene	2000	1730		ug/Kg		87	73 - 128	0	20
Toluene	2000	1790		ug/Kg		89	77 - 121	2	20
1,2,3-Trichlorobenzene	2000	1810		ug/Kg		90	66 - 130	12	20
1,1,1-Trichloroethane	2000	1770		ug/Kg		88	73 - 130	8	20
1,1,2-Trichloroethane	2000	1910		ug/Kg		95	78 - 121	3	20
Trichloroethene	2000	1740		ug/Kg		87	77 - 123	0	20
Trichlorofluoromethane	2000	1690		ug/Kg		84	62 - 140	13	20
1,2,4-Trichlorobenzene	2000	1780		ug/Kg		89	67 - 129	9	20
1,2,3-Trichloropropane	2000	1790		ug/Kg		89	73 - 125	4	20
1,2,4-Trimethylbenzene	2000	1660		ug/Kg		83	75 - 123	5	20
1,3,5-Trimethylbenzene	2000	1690		ug/Kg		85	73 - 124	6	20
Vinyl chloride	2000	1470		ug/Kg		73	56 - 135	17	20
o-Xylene	2000	1740		ug/Kg		87	77 - 123	4	20
m-Xylene & p-Xylene	2000	1710		ug/Kg		85	77 - 124	2	20
2-Chlorotoluene	2000	1670		ug/Kg		83	75 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*107*		*78 - 119*

Lab Sample ID: MB 280-443292/6
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/04/19 12:14	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/04/19 12:14	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/04/19 12:14	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/04/19 12:14	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/04/19 12:14	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/04/19 12:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-443292/6
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/04/19 12:14	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/04/19 12:14	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/04/19 12:14	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/04/19 12:14	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/04/19 12:14	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/04/19 12:14	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/04/19 12:14	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/04/19 12:14	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/04/19 12:14	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/04/19 12:14	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/04/19 12:14	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/04/19 12:14	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/04/19 12:14	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/04/19 12:14	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/04/19 12:14	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/04/19 12:14	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/04/19 12:14	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/04/19 12:14	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/04/19 12:14	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/04/19 12:14	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/04/19 12:14	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/04/19 12:14	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/04/19 12:14	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/04/19 12:14	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/04/19 12:14	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/04/19 12:14	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/04/19 12:14	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/04/19 12:14	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/04/19 12:14	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/04/19 12:14	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/04/19 12:14	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/04/19 12:14	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/04/19 12:14	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/04/19 12:14	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-443292/6
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/04/19 12:14	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/04/19 12:14	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/04/19 12:14	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/04/19 12:14	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/04/19 12:14	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/04/19 12:14	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/04/19 12:14	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/04/19 12:14	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/04/19 12:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*89 - 112*		*01/04/19 12:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*01/04/19 12:14*	*1*
4-Bromofluorobenzene (Surr)	*107*		*85 - 114*		*01/04/19 12:14*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*01/04/19 12:14*	*1*

Lab Sample ID: LCS 280-443292/4
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	22.5		ug/L		113	39 - 160
Benzene	5.00	5.24		ug/L		105	79 - 120
Bromobenzene	5.00	5.25		ug/L		105	80 - 120
Bromochloromethane	5.00	5.10		ug/L		102	78 - 123
Bromodichloromethane	5.00	5.21		ug/L		104	79 - 125
Bromoform	5.00	4.75		ug/L		95	66 - 130
Bromomethane	5.00	4.97		ug/L		99	53 - 141
2-Butanone (MEK)	20.0	17.3		ug/L		86	56 - 143
n-Butylbenzene	5.00	4.75		ug/L		95	75 - 128
sec-Butylbenzene	5.00	5.10		ug/L		102	77 - 126
tert-Butylbenzene	5.00	5.15		ug/L		103	78 - 124
Carbon disulfide	5.00	5.04		ug/L		101	64 - 133
Carbon tetrachloride	5.00	5.18		ug/L		104	72 - 136
Chlorobenzene	5.00	5.18		ug/L		104	82 - 118
Chloroethane	5.00	4.94		ug/L		99	60 - 138
Chloroform	5.00	5.25		ug/L		105	79 - 124
Chloromethane	5.00	4.52		ug/L		90	50 - 139
4-Chlorotoluene	5.00	5.13		ug/L		103	78 - 122
Dibromochloromethane	5.00	5.09		ug/L		102	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	4.61	J	ug/L		92	62 - 128
Dichlorodifluoromethane	5.00	5.11		ug/L		102	32 - 152
Dibromomethane	5.00	5.12		ug/L		102	79 - 123
Ethylene Dibromide	5.00	5.03		ug/L		101	77 - 121
1,2-Dichlorobenzene	5.00	5.06		ug/L		101	80 - 119
1,3-Dichlorobenzene	5.00	5.07		ug/L		101	80 - 119
1,4-Dichlorobenzene	5.00	5.07		ug/L		101	79 - 118
1,1-Dichloroethane	5.00	5.27		ug/L		105	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-443292/4
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.27		ug/L		105	73 - 128
1,1-Dichloroethene	5.00	5.09		ug/L		102	71 - 131
cis-1,2-Dichloroethene	5.00	5.20		ug/L		104	78 - 123
trans-1,2-Dichloroethene	5.00	5.34		ug/L		107	75 - 124
1,2-Dichloropropane	5.00	5.60		ug/L		112	78 - 122
1,3-Dichloropropane	5.00	5.11		ug/L		102	80 - 119
2,2-Dichloropropane	5.00	5.20		ug/L		104	60 - 139
1,1-Dichloropropene	5.00	5.30		ug/L		106	79 - 125
cis-1,3-Dichloropropene	5.00	5.15		ug/L		103	75 - 124
trans-1,3-Dichloropropene	5.00	5.17		ug/L		103	73 - 127
Ethylbenzene	5.00	5.18		ug/L		104	79 - 121
2-Hexanone	20.0	20.9		ug/L		105	57 - 139
Hexachlorobutadiene	5.00	4.87		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.20		ug/L		104	72 - 131
4-Isopropyltoluene	5.00	5.16		ug/L		103	77 - 127
Methylene Chloride	5.00	4.92	J	ug/L		98	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	21.2		ug/L		106	67 - 130
Methyl tert-butyl ether	5.00	5.14		ug/L		103	71 - 124
Naphthalene	5.00	4.98		ug/L		100	61 - 128
N-Propylbenzene	5.00	5.21		ug/L		104	76 - 126
Styrene	5.00	5.33		ug/L		107	78 - 123
1,1,1,2-Tetrachloroethane	5.00	5.32		ug/L		106	78 - 124
1,1,2,2-Tetrachloroethane	5.00	5.05		ug/L		101	71 - 121
Tetrachloroethene	5.00	5.17		ug/L		103	74 - 129
Toluene	5.00	5.16		ug/L		103	80 - 121
1,2,3-Trichlorobenzene	5.00	5.19		ug/L		104	69 - 129
1,1,1-Trichloroethane	5.00	5.24		ug/L		105	74 - 131
1,1,2-Trichloroethane	5.00	5.25		ug/L		105	80 - 119
Trichloroethene	5.00	5.20		ug/L		104	79 - 123
Trichlorofluoromethane	5.00	5.10		ug/L		102	65 - 141
1,2,4-Trichlorobenzene	5.00	4.84		ug/L		97	69 - 130
1,2,3-Trichloropropane	5.00	5.11		ug/L		102	73 - 122
1,2,4-Trimethylbenzene	5.00	5.10		ug/L		102	76 - 124
1,3,5-Trimethylbenzene	5.00	4.89		ug/L		98	75 - 124
Vinyl chloride	5.00	4.75		ug/L		95	58 - 137
o-Xylene	5.00	5.00		ug/L		100	78 - 122
m-Xylene & p-Xylene	5.00	5.16		ug/L		103	80 - 121
2-Chlorotoluene	5.00	5.25		ug/L		105	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*105*		*85 - 114*
Dibromofluoromethane (Surr)	*105*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-443292/5
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20.0	24.8		ug/L		124	39 - 160	10	20
Benzene	5.00	5.27		ug/L		105	79 - 120	1	20
Bromobenzene	5.00	4.99		ug/L		100	80 - 120	5	20
Bromochloromethane	5.00	5.37		ug/L		107	78 - 123	5	20
Bromodichloromethane	5.00	5.14		ug/L		103	79 - 125	1	20
Bromoform	5.00	4.67		ug/L		93	66 - 130	2	20
Bromomethane	5.00	5.22		ug/L		104	53 - 141	5	20
2-Butanone (MEK)	20.0	17.9		ug/L		89	56 - 143	3	20
n-Butylbenzene	5.00	4.43		ug/L		89	75 - 128	7	20
sec-Butylbenzene	5.00	4.76		ug/L		95	77 - 126	7	20
tert-Butylbenzene	5.00	4.85		ug/L		97	78 - 124	6	20
Carbon disulfide	5.00	5.35		ug/L		107	64 - 133	6	20
Carbon tetrachloride	5.00	5.44		ug/L		109	72 - 136	5	20
Chlorobenzene	5.00	5.04		ug/L		101	82 - 118	3	20
Chloroethane	5.00	5.16		ug/L		103	60 - 138	4	20
Chloroform	5.00	5.42		ug/L		108	79 - 124	3	20
Chloromethane	5.00	4.84		ug/L		97	50 - 139	7	20
4-Chlorotoluene	5.00	4.85		ug/L		97	78 - 122	6	20
Dibromochloromethane	5.00	4.89		ug/L		98	74 - 126	4	20
1,2-Dibromo-3-Chloropropane	5.00	4.50	J	ug/L		90	62 - 128	2	20
Dichlorodifluoromethane	5.00	5.53		ug/L		111	32 - 152	8	20
Dibromomethane	5.00	5.08		ug/L		102	79 - 123	1	20
Ethylene Dibromide	5.00	4.83		ug/L		97	77 - 121	4	20
1,2-Dichlorobenzene	5.00	4.83		ug/L		97	80 - 119	5	20
1,3-Dichlorobenzene	5.00	4.80		ug/L		96	80 - 119	5	20
1,4-Dichlorobenzene	5.00	4.87		ug/L		97	79 - 118	4	20
1,1-Dichloroethane	5.00	5.41		ug/L		108	77 - 125	3	20
1,2-Dichloroethane	5.00	5.14		ug/L		103	73 - 128	3	20
1,1-Dichloroethene	5.00	5.52		ug/L		110	71 - 131	8	20
cis-1,2-Dichloroethene	5.00	5.38		ug/L		108	78 - 123	3	20
trans-1,2-Dichloroethene	5.00	5.64		ug/L		113	75 - 124	5	20
1,2-Dichloropropane	5.00	5.44		ug/L		109	78 - 122	3	20
1,3-Dichloropropane	5.00	4.80		ug/L		96	80 - 119	6	20
2,2-Dichloropropane	5.00	5.30		ug/L		106	60 - 139	2	20
1,1-Dichloropropene	5.00	5.30		ug/L		106	79 - 125	0	20
cis-1,3-Dichloropropene	5.00	4.75		ug/L		95	75 - 124	8	20
trans-1,3-Dichloropropene	5.00	5.05		ug/L		101	73 - 127	2	20
Ethylbenzene	5.00	5.11		ug/L		102	79 - 121	1	20
2-Hexanone	20.0	21.0		ug/L		105	57 - 139	0	20
Hexachlorobutadiene	5.00	4.37		ug/L		87	66 - 134	11	20
Isopropylbenzene	5.00	4.95		ug/L		99	72 - 131	5	20
4-Isopropyltoluene	5.00	4.78		ug/L		96	77 - 127	8	20
Methylene Chloride	5.00	5.28		ug/L		106	74 - 124	7	20
4-Methyl-2-pentanone (MIBK)	20.0	22.0		ug/L		110	67 - 130	4	20
Methyl tert-butyl ether	5.00	5.41		ug/L		108	71 - 124	5	20
Naphthalene	5.00	4.73		ug/L		95	61 - 128	5	20
N-Propylbenzene	5.00	4.90		ug/L		98	76 - 126	6	20
Styrene	5.00	5.27		ug/L		105	78 - 123	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-443292/5
Matrix: Water
Analysis Batch: 443292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			5.00	5.29		ug/L		106	78 - 124	1	20
1,1,2,2-Tetrachloroethane			5.00	4.87		ug/L		97	71 - 121	4	20
Tetrachloroethene			5.00	4.81		ug/L		96	74 - 129	7	20
Toluene			5.00	4.97		ug/L		99	80 - 121	4	20
1,2,3-Trichlorobenzene			5.00	4.82		ug/L		96	69 - 129	7	20
1,1,1-Trichloroethane			5.00	5.49		ug/L		110	74 - 131	5	20
1,1,2-Trichloroethane			5.00	5.14		ug/L		103	80 - 119	2	20
Trichloroethene			5.00	5.13		ug/L		103	79 - 123	1	20
Trichlorofluoromethane			5.00	5.55		ug/L		111	65 - 141	8	20
1,2,4-Trichlorobenzene			5.00	4.51		ug/L		90	69 - 130	7	20
1,2,3-Trichloropropane			5.00	4.94		ug/L		99	73 - 122	3	20
1,2,4-Trimethylbenzene			5.00	4.87		ug/L		97	76 - 124	4	20
1,3,5-Trimethylbenzene			5.00	4.61		ug/L		92	75 - 124	6	20
Vinyl chloride			5.00	5.07		ug/L		101	58 - 137	7	20
o-Xylene			5.00	4.97		ug/L		99	78 - 122	1	20
m-Xylene & p-Xylene			5.00	4.95		ug/L		99	80 - 121	4	20
2-Chlorotoluene			5.00	4.95		ug/L		99	79 - 122	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*108*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*109*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/28/18 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*12/27/18 11:52*	*12/28/18 11:55*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10			4.28	4.38		mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			4.28	4.40		mg/Kg		103	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: MB 280-442898/24
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*12/31/18 11:11*	*1*

Lab Sample ID: LCS 280-442898/22
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	82.3		ug/L		105	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Lab Sample ID: LCSD 280-442898/23
Matrix: Water
Analysis Batch: 442898

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			78.4	82.5		ug/L		105	78 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*96*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442866/3-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442866

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 13:58	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442866/3-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442866

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	93		70 - 130	12/30/18 10:16	01/08/19 13:58	1

Lab Sample ID: LCS 280-442866/1-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442866

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.217		ug/L		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	87		70 - 130

Lab Sample ID: LCSD 280-442866/2-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442866

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.216		ug/L		86	70 - 130	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	87		70 - 130

Lab Sample ID: MB 280-442875/3-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442875

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/14/19 18:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	112		55 - 130	12/30/18 12:34	01/14/19 18:12	1

Lab Sample ID: LCS 280-442875/1-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442875

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.785		ug/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	110		55 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-442875/2-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442875

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.796		ug/Kg		91	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*103*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-442077/1-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442077

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.05	J	7.7	3.8	1.3	mg/Kg		01/04/19 14:15	1
Motor Oil (C20-C38)	23	U	23	23	7.5	mg/Kg		01/04/19 14:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*45 - 130*	*12/20/18 19:41*	*01/04/19 14:15*	*1*
n-Octacosane	*90*		*25 - 162*	*12/20/18 19:41*	*01/04/19 14:15*	*1*

Lab Sample ID: LCS 280-442077/2-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	113		mg/Kg		85	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*76*		*45 - 130*
n-Octacosane	*94*		*25 - 162*

Lab Sample ID: LCS 280-442077/3-A
Matrix: Solid
Analysis Batch: 443317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442077

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	271		mg/Kg		83	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*77*		*45 - 130*
n-Octacosane	*97*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-443201/1-B
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 443201

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.9	U	7.9	3.9	1.3	mg/Kg		01/07/19 16:00	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg		01/07/19 16:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*64*		*45 - 130*	*01/03/19 18:43*	*01/07/19 16:00*	*1*
n-Octacosane	*69*		*25 - 162*	*01/03/19 18:43*	*01/07/19 16:00*	*1*

Lab Sample ID: LCS 280-443201/2-B
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 443201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	130	94.5		mg/Kg		73	38 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*69*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

Lab Sample ID: LCS 280-443201/3-B
Matrix: Solid
Analysis Batch: 443450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 443201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	340		mg/Kg		102	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*99*		*45 - 130*
n-Octacosane	*111*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-118390-2 DU
Matrix: Solid
Analysis Batch: 442307

Client Sample ID: V-V1-171218-161
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	24.1		24.2		%		0.1	20

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

GC/MS VOA

Prep Batch: 442765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-2	V-V1-171218-161	Total/NA	Solid	5035	
280-118390-2 - DL	V-V1-171218-161	Total/NA	Solid	5035	
280-118390-4	V-V1-181218-216	Total/NA	Solid	5035	
MB 280-442765/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442765/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442765/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-2	V-V1-171218-161	Total/NA	Solid	8260B	442765
280-118390-2 - DL	V-V1-171218-161	Total/NA	Solid	8260B	442765
280-118390-4	V-V1-181218-216	Total/NA	Solid	8260B	442765
MB 280-442765/1-A	Method Blank	Total/NA	Solid	8260B	442765
LCS 280-442765/2-A	Lab Control Sample	Total/NA	Solid	8260B	442765
LCSD 280-442765/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	442765

Analysis Batch: 443292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-1	TB-V1-181218-01	Total/NA	Water	8260B	
MB 280-443292/6	Method Blank	Total/NA	Water	8260B	
LCS 280-443292/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-443292/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-3 - DL	P-V1-171218-161	Total/NA	Solid	5035	
280-118390-5 - DL	P-V1-181218-216	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-3 - DL	P-V1-171218-161	Total/NA	Solid	8015D GRO	442646
280-118390-5 - DL	P-V1-181218-216	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-1	TB-V1-181218-01	Total/NA	Water	8015D GRO	
MB 280-442898/24	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442898/22	Lab Control Sample	Total/NA	Water	8015D GRO	
LCSD 280-442898/23	Lab Control Sample Dup	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 442077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-5	P-V1-181218-216	Total/NA	Solid	3546	
MB 280-442077/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 442866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-1	TB-V1-181218-01	Total/NA	Water	8011	
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Prep Batch: 442875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-2	V-V1-171218-161	Total/NA	Solid	8011	
280-118390-4	V-V1-181218-216	Total/NA	Solid	8011	
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 443201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-3	P-V1-171218-161	Total/NA	Solid	3546	
MB 280-443201/1-B	Method Blank	Total/NA	Solid	3546	
LCS 280-443201/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-443201/3-B	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 443317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-5	P-V1-181218-216	Total/NA	Solid	8015D DRO	442077
MB 280-442077/1-A	Method Blank	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077
LCS 280-442077/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442077

Analysis Batch: 443450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-3	P-V1-171218-161	Total/NA	Solid	8015D DRO	443201
MB 280-443201/1-B	Method Blank	Total/NA	Solid	8015D DRO	443201
LCS 280-443201/2-B	Lab Control Sample	Total/NA	Solid	8015D DRO	443201
LCS 280-443201/3-B	Lab Control Sample	Total/NA	Solid	8015D DRO	443201

Analysis Batch: 443459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-1	TB-V1-181218-01	Total/NA	Water	8011	442866
MB 280-442866/3-A	Method Blank	Total/NA	Water	8011	442866
LCS 280-442866/1-A	Lab Control Sample	Total/NA	Water	8011	442866
LCSD 280-442866/2-A	Lab Control Sample Dup	Total/NA	Water	8011	442866

Analysis Batch: 444201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-2	V-V1-171218-161	Total/NA	Solid	8011	442875

GC Semi VOA (Continued)

Analysis Batch: 444201 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-4	V-V1-181218-216	Total/NA	Solid	8011	442875
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	442875
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	442875
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442875

General Chemistry

Analysis Batch: 442307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118390-2	V-V1-171218-161	Total/NA	Solid	Moisture	
280-118390-3	P-V1-171218-161	Total/NA	Solid	Moisture	
280-118390-4	V-V1-181218-216	Total/NA	Solid	Moisture	
280-118390-5	P-V1-181218-216	Total/NA	Solid	Moisture	
280-118390-2 DU	V-V1-171218-161	Total/NA	Solid	Moisture	

Client Sample ID: TB-V1-181218-01

Lab Sample ID: 280-118390-1

Date Collected: 12/18/18 14:00

Matrix: Water

Date Received: 12/19/18 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	443292	01/04/19 12:40	DPI	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	442898	12/31/18 12:23	SU	TAL DEN
Total/NA	Prep	8011			35.4 mL	35 mL	442866	12/30/18 10:16	MJS	TAL DEN
Total/NA	Analysis	8011		1			443459	01/08/19 14:56	JLW	TAL DEN

Client Sample ID: V-V1-171218-161

Lab Sample ID: 280-118390-2

Date Collected: 12/17/18 16:55

Matrix: Solid

Date Received: 12/19/18 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-171218-161

Lab Sample ID: 280-118390-2

Date Collected: 12/17/18 16:55

Matrix: Solid

Date Received: 12/19/18 10:10

Percent Solids: 75.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.255 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 15:54	JLS	TAL DEN
Total/NA	Prep	5035	DL		4.255 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B	DL	50	20 mL	20 mL	442899	12/28/18 19:05	JLS	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		2			444201	01/14/19 19:10	JLW	TAL DEN

Client Sample ID: P-V1-171218-161

Lab Sample ID: 280-118390-3

Date Collected: 12/17/18 16:55

Matrix: Solid

Date Received: 12/19/18 10:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-171218-161

Lab Sample ID: 280-118390-3

Date Collected: 12/17/18 16:55

Matrix: Solid

Date Received: 12/19/18 10:10

Percent Solids: 75.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.866 g	5 mL	442646	12/17/18 16:55	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	2	0.1 mL	5 mL	442874	12/30/18 15:07	SU	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	443201	01/03/19 18:43	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443450	01/07/19 19:03	AMB1	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Client Sample ID: V-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-4
Matrix: Solid
Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.681 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 16:14	JLS	TAL DEN
Total/NA	Prep	8011			9.94 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		20			444201	01/14/19 19:29	JLW	TAL DEN

Client Sample ID: P-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-181218-216
Date Collected: 12/18/18 15:19
Date Received: 12/19/18 10:10

Lab Sample ID: 280-118390-5
Matrix: Solid
Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.468 g	5 mL	442646	12/18/18 15:19	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	250	0.1 mL	5 mL	442874	12/30/18 14:44	SU	TAL DEN
Total/NA	Prep	3546			15.9 g	1 mL	442077	12/20/18 19:41	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		2			443317	01/04/19 21:11	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118390-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 9433 3392 7601	COC No: COC1-VI-TA-20181218
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —

Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO
City: Greenwood Village	TAT Requested (days): Per PO
State, Zip: CO, 80111	
Phone: 303-590-9143(Tel)	PO #: 16065
Email: pmoss@eaest.com	WO #: 62735DM02.1017
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071
Site: Kirtland BFF	SSOW#: —

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-VI-181218-01	12/18/18	1400	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-VI-171218-161	12/17/18	1655	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-VI-171218-161	12/17/18	1655	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-VI-181218-216	12/18/18	1519	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-VI-181218-216	12/18/18	1519	G	S	N	N	—	—	—	X	X	—	—	—	—	3	

JRL

280-118390 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	12/18/18 1800	EA		12/19/18 1010	TAPEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 1. 1.4 + IR4 transfer lab 12/19/18

1/22/2019
Page 40 of 41
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Appendix G-1

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118390-1

Login Number: 118390
List Number: 1
Creator: Diffendall, Jessica L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-118473-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/22/2019 11:50:28 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
Q	One or more quality control criteria failed.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-118473-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-118473-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/20/2018 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-V1-191218-254 (280-118473-2), V-V1-191218-271 (280-118473-4), V-V1-191218-285 (280-118473-6) and V-V1-191258-285 (280-118473-8) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared and analyzed on 12/28/2018.

Samples V-V1-191218-254 (280-118473-2)[10X], V-V1-191218-254 (280-118473-2)[100X], V-V1-191218-271 (280-118473-4)[10X], V-V1-191218-285 (280-118473-6)[10X] and V-V1-191258-285 (280-118473-8)[10X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly. Because of the required dilutions, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-V1-191218-01 (280-118473-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/02/2019.

4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria low for TB-V1-191218-01 (280-118473-1). Refer to the QC report for details. The sample was re-extracted and re-analyzed with similar results, therefore, the data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-V1-191218-254 (280-118473-2), V-V1-191218-271 (280-118473-4), V-V1-191218-285 (280-118473-6) and V-V1-191258-285 (280-118473-8) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/30/2018 and analyzed on 01/14/2019 and 01/15/2019.

Samples V-V1-191218-254 (280-118473-2)[5000X], V-V1-191218-271 (280-118473-4)[20X], V-V1-191218-285 (280-118473-6)[10X], V-V1-191258-285 (280-118473-8)[20X], (280-118473-B-8-B MS) and (280-118473-B-8-C MSD) required dilution prior to analysis due to

Job ID: 280-118473-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

abundance of target analytes and the nature of the sample matrix. As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Ethylene Dibromide failed the recovery criteria low for the MS/MSD of sample V-V1-191258-285 (280-118473-8) in batch 280-444292. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-V1-191218-01 (280-118473-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 12/31/2018 and analyzed on 01/09/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-V1-191218-254 (280-118473-3), P-V1-191218-271 (280-118473-5), P-V1-191218-285 (280-118473-7) and P-V1-191258-285 (280-118473-9) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 12/19/2018 and analyzed on 01/02/2019, 12/28/2018 and 12/30/2018.

Samples P-V1-191218-254 (280-118473-3)[500X], P-V1-191218-271 (280-118473-5)[2X], P-V1-191218-285 (280-118473-7)[100X] and P-V1-191258-285 (280-118473-9)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-191218-271 (280-118473-5) and P-V1-191258-285 (280-118473-9). Because of the required dilutions, the surrogate spike concentration in the samples was reduced to a level where the recovery calculation does not provide useful information.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-V1-191218-254 (280-118473-3) and P-V1-191218-285 (280-118473-7). Matrix interference is suspected, as surrogates failed similarly in the initial analysis and reanalysis. The reanalysis data have been qualified and reported.

The continuing calibration verification (CCV) associated with batch 280-442742 recovered above the upper control limit for Gasoline Range Organics (GRO)-C6-C10. The samples associated with this CCV were detects for the affected analytes; therefore, the samples have been reanalyzed and diluted properly within hold time. The reanalysis data have been reported. The following samples are associated: P-V1-191218-254 (280-118473-3), P-V1-191218-271 (280-118473-5), P-V1-191218-285 (280-118473-7) and P-V1-191258-285 (280-118473-9).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-V1-191218-01 (280-118473-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 12/31/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-V1-191218-254 (280-118473-3), P-V1-191218-271 (280-118473-5), P-V1-191218-285 (280-118473-7) and P-V1-191258-285 (280-118473-9) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 12/28/2018 and analyzed on 01/08/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: P-V1-191218-254 (280-118473-3), P-V1-191218-271 (280-118473-5), P-V1-191218-285 (280-118473-7), P-V1-191258-285 (280-118473-9), (LCS 280-442809/2-A), (LCS 280-442809/3-A), (MB 280-442809/1-A), (280-118473-A-3-B MS), (280-118473-A-3-D MS), (280-118473-A-3-C MSD) and (280-118473-A-3-E MSD). This is for preparation batch 280-442809 and analytical batch 280-443571.

The following sample and associated matrix spike/matrix spike duplicate (MS/MSD) were diluted 20X in order to bring the concentration of

Job ID: 280-118473-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

target analyte Diesel Range Organics [C10-C28] within the calibration range: P-V1-191218-254 (280-118473-3), (280-118473-A-3-B MS), (280-118473-A-3-D MS), (280-118473-A-3-C MSD) and (280-118473-A-3-E MSD). Elevated reporting limits (RLs) are provided. Because of this dilution, the surrogate and matrix spike concentrations were reduced to a level at which the recovery calculations do not provide useful information. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount; therefore, control limits are not applicable. Refer to the QC report for details.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-442809/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than 1/2 the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-V1-191218-254 (280-118473-2), P-V1-191218-254 (280-118473-3), V-V1-191218-271 (280-118473-4), P-V1-191218-271 (280-118473-5), V-V1-191218-285 (280-118473-6), P-V1-191218-285 (280-118473-7), V-V1-191258-285 (280-118473-8) and P-V1-191258-285 (280-118473-9) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 12/22/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Client Sample ID: TB-V1-191218-01 — Lab Sample ID: 280-118473-1

No Detections.

Client Sample ID: V-V1-191218-254 — Lab Sample ID: 280-118473-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	430000	D	65000	55000	17000	ug/Kg	10	☼	8260B	Total/NA
Benzene	110000	D Q	11000	6900	2000	ug/Kg	10	☼	8260B	Total/NA
n-Butylbenzene	100000	D Q	11000	3500	1400	ug/Kg	10	☼	8260B	Total/NA
sec-Butylbenzene	150000	D Q	11000	3500	1600	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	18000	D Q	11000	3500	1100	ug/Kg	10	☼	8260B	Total/NA
Isopropylbenzene	110000	D Q	11000	3500	1300	ug/Kg	10	☼	8260B	Total/NA
4-Isopropyltoluene	51000	D Q	11000	3500	1400	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	150000	D Q	22000	3500	1600	ug/Kg	10	☼	8260B	Total/NA
N-Propylbenzene	200000	D Q	11000	6900	1800	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	300000	D Q	11000	3500	1700	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene - DL	770000	D Q	110000	35000	15000	ug/Kg	100	☼	8260B	Total/NA
Toluene - DL	3100000	D Q	110000	35000	17000	ug/Kg	100	☼	8260B	Total/NA
1,2,4-Trimethylbenzene - DL	790000	D Q	110000	35000	13000	ug/Kg	100	☼	8260B	Total/NA
o-Xylene - DL	890000	D Q	54000	35000	15000	ug/Kg	100	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	2800000	D Q	110000	69000	34000	ug/Kg	100	☼	8260B	Total/NA
Ethylene Dibromide	2100	D Q	690	260	100	ug/Kg	5000	☼	8011	Total/NA

Client Sample ID: P-V1-191218-254 — Lab Sample ID: 280-118473-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	32000	D Q	1800	1600	470	mg/Kg	500	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	24000	J1 D Q	200	99	34	mg/Kg	20	☼	8015D DRO	Total/NA
Motor Oil (C20-C38)	370	J D	590	580	190	mg/Kg	20	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-191218-271 — Lab Sample ID: 280-118473-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	34000	D	22000	19000	5900	ug/Kg	10	☼	8260B	Total/NA
Benzene	2400	J D	3700	2400	670	ug/Kg	10	☼	8260B	Total/NA
2-Butanone (MEK)	37000	D	15000	9500	4400	ug/Kg	10	☼	8260B	Total/NA
1,2-Dichloropropane	6000	D	3700	2400	690	ug/Kg	10	☼	8260B	Total/NA
Ethylbenzene	650	J D	3700	1200	500	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	680	J D	7400	1200	560	ug/Kg	10	☼	8260B	Total/NA
Toluene	4600	D	3700	1200	580	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	620	J D	3700	1200	460	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	650	J D	1900	1200	520	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	1500	J D	3700	2400	1200	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	16	D Q	2.5	0.96	0.38	ug/Kg	20	☼	8011	Total/NA

Client Sample ID: P-V1-191218-271 — Lab Sample ID: 280-118473-5

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: P-V1-191218-271 (Continued) — Lab Sample ID: 280-118473-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	61	D Q	3.9	3.6	1.1	mg/Kg	2	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	230		9.3	4.6	1.6	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-191218-285 — Lab Sample ID: 280-118473-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	1900	J D Q	8700	1400	660	ug/Kg	10	☼	8260B	Total/NA
Toluene	990	J D Q	4400	1400	680	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	1700	J D Q	4400	1400	540	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	940	J D Q	4400	1400	680	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	1200	J D Q	2200	1400	610	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	2500	J D Q	4400	2800	1400	ug/Kg	10	☼	8260B	Total/NA

Client Sample ID: P-V1-191218-285 — Lab Sample ID: 280-118473-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	380	D Q	150	140	40	mg/Kg	100	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	270		8.3	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-V1-191258-285 — Lab Sample ID: 280-118473-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
sec-Butylbenzene	500	J D	3000	950	450	ug/Kg	10	☼	8260B	Total/NA
Naphthalene	1400	J D	6000	950	450	ug/Kg	10	☼	8260B	Total/NA
Toluene	510	J D	3000	950	470	ug/Kg	10	☼	8260B	Total/NA
1,2,4-Trimethylbenzene	870	J D	3000	950	370	ug/Kg	10	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	530	J D	3000	950	470	ug/Kg	10	☼	8260B	Total/NA
o-Xylene	690	J D	1500	950	420	ug/Kg	10	☼	8260B	Total/NA
m-Xylene & p-Xylene	1300	J D	3000	1900	930	ug/Kg	10	☼	8260B	Total/NA

Client Sample ID: P-V1-191258-285 — Lab Sample ID: 280-118473-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - RA	75	D Q	2.9	2.6	0.78	mg/Kg	2	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	290		7.6	3.8	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-118473-1	TB-V1-191218-01	Water	12/19/18 15:00	12/20/18 10:15
280-118473-2	V-V1-191218-254	Solid	12/19/18 10:35	12/20/18 10:15
280-118473-3	P-V1-191218-254	Solid	12/19/18 10:35	12/20/18 10:15
280-118473-4	V-V1-191218-271	Solid	12/19/18 14:20	12/20/18 10:15
280-118473-5	P-V1-191218-271	Solid	12/19/18 14:20	12/20/18 10:15
280-118473-6	V-V1-191218-285	Solid	12/19/18 15:20	12/20/18 10:15
280-118473-7	P-V1-191218-285	Solid	12/19/18 15:20	12/20/18 10:15
280-118473-8	V-V1-191258-285	Solid	12/19/18 15:20	12/20/18 10:15
280-118473-9	P-V1-191258-285	Solid	12/19/18 15:20	12/20/18 10:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-V1-191218-01
Date Collected: 12/19/18 15:00
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/02/19 13:44	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Bromobenzene	0.40	U Q	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/02/19 13:44	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 13:44	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/02/19 13:44	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/02/19 13:44	1
n-Butylbenzene	0.80	U Q	1.0	0.80	0.32	ug/L		01/02/19 13:44	1
sec-Butylbenzene	0.40	U Q	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
tert-Butylbenzene	0.40	U Q	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/02/19 13:44	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/02/19 13:44	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/02/19 13:44	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/02/19 13:44	1
4-Chlorotoluene	0.80	U Q	1.0	0.80	0.21	ug/L		01/02/19 13:44	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
1,2-Dibromo-3-Chloropropane	1.6	U Q	5.0	1.6	0.47	ug/L		01/02/19 13:44	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/02/19 13:44	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 13:44	1
1,2-Dichlorobenzene	0.40	U Q	1.0	0.40	0.15	ug/L		01/02/19 13:44	1
1,3-Dichlorobenzene	0.40	U Q	1.0	0.40	0.13	ug/L		01/02/19 13:44	1
1,4-Dichlorobenzene	0.40	U Q	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/02/19 13:44	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/02/19 13:44	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/02/19 13:44	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/02/19 13:44	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 13:44	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 13:44	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 13:44	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/02/19 13:44	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 13:44	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 13:44	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 13:44	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/02/19 13:44	1
Hexachlorobutadiene	0.80	U Q	1.0	0.80	0.36	ug/L		01/02/19 13:44	1
Isopropylbenzene	0.40	U Q	1.0	0.40	0.19	ug/L		01/02/19 13:44	1
4-Isopropyltoluene	0.40	U Q	1.0	0.40	0.20	ug/L		01/02/19 13:44	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/02/19 13:44	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/02/19 13:44	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/02/19 13:44	1
Naphthalene	0.80	U Q	1.0	0.80	0.22	ug/L		01/02/19 13:44	1
N-Propylbenzene	0.40	U Q	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-V1-191218-01
Date Collected: 12/19/18 15:00
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 13:44	1
1,1,2,2-Tetrachloroethane	0.80	U Q	1.0	0.80	0.21	ug/L		01/02/19 13:44	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/02/19 13:44	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 13:44	1
1,2,3-Trichlorobenzene	0.80	U Q	1.0	0.80	0.21	ug/L		01/02/19 13:44	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/02/19 13:44	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/02/19 13:44	1
1,2,4-Trichlorobenzene	0.80	U Q	1.0	0.80	0.21	ug/L		01/02/19 13:44	1
1,2,3-Trichloropropane	0.80	U Q	3.0	0.80	0.33	ug/L		01/02/19 13:44	1
1,2,4-Trimethylbenzene	0.40	U Q	1.0	0.40	0.15	ug/L		01/02/19 13:44	1
1,3,5-Trimethylbenzene	0.40	U Q	1.0	0.40	0.16	ug/L		01/02/19 13:44	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/02/19 13:44	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 13:44	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/02/19 13:44	1
2-Chlorotoluene	0.40	U Q	1.0	0.40	0.17	ug/L		01/02/19 13:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*89 - 112*		*01/02/19 13:44*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*01/02/19 13:44*	*1*
4-Bromofluorobenzene (Surr)	*84*	*Q*	*85 - 114*		*01/02/19 13:44*	*1*
Dibromofluoromethane (Surr)	*108*		*80 - 119*		*01/02/19 13:44*	*1*

Client Sample ID: V-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-2
Matrix: Solid
Percent Solids: 72.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**430000**	**D**	65000	55000	17000	ug/Kg	☼	12/28/18 14:38	10
Benzene	**110000**	**D Q**	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
Bromobenzene	1700	U Q	11000	1700	820	ug/Kg	☼	12/28/18 14:38	10
Bromochloromethane	6900	U	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
Bromodichloromethane	3500	U M Q	11000	3500	1700	ug/Kg	☼	12/28/18 14:38	10
Bromoform	6900	U Q	11000	6900	6900	ug/Kg	☼	12/28/18 14:38	10
Bromomethane	6900	U	22000	6900	1900	ug/Kg	☼	12/28/18 14:38	10
2-Butanone (MEK)	28000	U M	43000	28000	13000	ug/Kg	☼	12/28/18 14:38	10
n-Butylbenzene	**100000**	**D Q**	11000	3500	1400	ug/Kg	☼	12/28/18 14:38	10
sec-Butylbenzene	**150000**	**D Q**	11000	3500	1600	ug/Kg	☼	12/28/18 14:38	10
tert-Butylbenzene	3500	U Q	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
Carbon disulfide	6900	U M	11000	6900	2800	ug/Kg	☼	12/28/18 14:38	10
Carbon tetrachloride	1700	U Q	11000	1700	740	ug/Kg	☼	12/28/18 14:38	10
Chlorobenzene	3500	U M Q	11000	3500	1300	ug/Kg	☼	12/28/18 14:38	10
Chloroethane	6900	U	22000	6900	1900	ug/Kg	☼	12/28/18 14:38	10
Chloroform	6900	U	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
Chloromethane	6900	U	22000	6900	2200	ug/Kg	☼	12/28/18 14:38	10
4-Chlorotoluene	3500	U Q	11000	3500	1000	ug/Kg	☼	12/28/18 14:38	10
Dibromochloromethane	3500	U Q	11000	3500	1400	ug/Kg	☼	12/28/18 14:38	10
1,2-Dibromo-3-Chloropropane	14000	U Q	22000	14000	3700	ug/Kg	☼	12/28/18 14:38	10
Dichlorodifluoromethane	3500	U	22000	3500	950	ug/Kg	☼	12/28/18 14:38	10
Dibromomethane	3500	U Q	11000	3500	1300	ug/Kg	☼	12/28/18 14:38	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-2
Matrix: Solid
Percent Solids: 72.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**18000**	**D Q**	11000	3500	1100	ug/Kg	☼	12/28/18 14:38	10
1,2-Dichlorobenzene	14000	U Q	22000	14000	4100	ug/Kg	☼	12/28/18 14:38	10
1,3-Dichlorobenzene	6900	U Q	11000	6900	1800	ug/Kg	☼	12/28/18 14:38	10
1,4-Dichlorobenzene	3500	U Q	11000	3500	1100	ug/Kg	☼	12/28/18 14:38	10
1,1-Dichloroethane	6900	U	11000	6900	2200	ug/Kg	☼	12/28/18 14:38	10
1,2-Dichloroethane	3500	U M Q	11000	3500	1100	ug/Kg	☼	12/28/18 14:38	10
1,1-Dichloroethene	6900	U	11000	6900	2200	ug/Kg	☼	12/28/18 14:38	10
1,2-Dichloroethene, Total	3500	U	5400	3500	950	ug/Kg	☼	12/28/18 14:38	10
cis-1,2-Dichloroethene	3500	U	5400	3500	950	ug/Kg	☼	12/28/18 14:38	10
trans-1,2-Dichloroethene	6900	U	11000	6900	1900	ug/Kg	☼	12/28/18 14:38	10
1,2-Dichloropropane	6900	U M Q	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
1,3-Dichloropropane	3500	U Q	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
2,2-Dichloropropane	3500	U	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
1,1-Dichloropropene	6900	U Q	11000	6900	2100	ug/Kg	☼	12/28/18 14:38	10
cis-1,3-Dichloropropene	3500	U M Q	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
trans-1,3-Dichloropropene	6900	U M Q	11000	6900	1800	ug/Kg	☼	12/28/18 14:38	10
2-Hexanone	28000	U M Q	43000	28000	9400	ug/Kg	☼	12/28/18 14:38	10
Hexachlorobutadiene	6900	U Q	11000	6900	2100	ug/Kg	☼	12/28/18 14:38	10
Isopropylbenzene	**110000**	**D Q**	11000	3500	1300	ug/Kg	☼	12/28/18 14:38	10
4-Isopropyltoluene	**51000**	**D Q**	11000	3500	1400	ug/Kg	☼	12/28/18 14:38	10
Methylene Chloride	6900	U	11000	6900	3000	ug/Kg	☼	12/28/18 14:38	10
4-Methyl-2-pentanone (MIBK)	28000	U M Q	43000	28000	9700	ug/Kg	☼	12/28/18 14:38	10
Methyl tert-butyl ether	6900	U	11000	6900	2200	ug/Kg	☼	12/28/18 14:38	10
Naphthalene	**150000**	**D Q**	22000	3500	1600	ug/Kg	☼	12/28/18 14:38	10
N-Propylbenzene	**200000**	**D Q**	11000	6900	1800	ug/Kg	☼	12/28/18 14:38	10
Styrene	3500	U M Q	11000	3500	1100	ug/Kg	☼	12/28/18 14:38	10
1,1,1,2-Tetrachloroethane	3500	U Q	11000	3500	910	ug/Kg	☼	12/28/18 14:38	10
1,1,2,2-Tetrachloroethane	3500	U M Q	11000	3500	1300	ug/Kg	☼	12/28/18 14:38	10
Tetrachloroethene	3500	U Q	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
1,2,3-Trichlorobenzene	3500	U Q	11000	3500	1500	ug/Kg	☼	12/28/18 14:38	10
1,1,1-Trichloroethane	1700	U	11000	1700	870	ug/Kg	☼	12/28/18 14:38	10
1,1,2-Trichloroethane	3500	U M Q	11000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
Trichloroethene	3500	U Q	11000	3500	1000	ug/Kg	☼	12/28/18 14:38	10
Trichlorofluoromethane	6900	U	22000	6900	2200	ug/Kg	☼	12/28/18 14:38	10
1,2,4-Trichlorobenzene	6900	U Q	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
1,2,3-Trichloropropane	6900	U M Q	11000	6900	2000	ug/Kg	☼	12/28/18 14:38	10
1,3,5-Trimethylbenzene	**300000**	**D Q**	11000	3500	1700	ug/Kg	☼	12/28/18 14:38	10
Vinyl chloride	3500	U	22000	3500	1200	ug/Kg	☼	12/28/18 14:38	10
2-Chlorotoluene	3500	U M Q	11000	3500	1100	ug/Kg	☼	12/28/18 14:38	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*1505*	*Q D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 14:38*	*10*
1,2-Dichloroethane-d4 (Surr)	*207*	*Q D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 14:38*	*10*
4-Bromofluorobenzene (Surr)	*0*	*Q D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 14:38*	*10*
Dibromofluoromethane (Surr)	*113*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 14:38*	*10*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-V1-191218-271
Date Collected: 12/19/18 14:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-4
Matrix: Solid
Percent Solids: 78.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**34000**	**D**	22000	19000	5900	ug/Kg	☼	12/28/18 14:57	10
Benzene	**2400**	**J D**	3700	2400	670	ug/Kg	☼	12/28/18 14:57	10
Bromobenzene	590	U	3700	590	280	ug/Kg	☼	12/28/18 14:57	10
Bromochloromethane	2400	U	3700	2400	700	ug/Kg	☼	12/28/18 14:57	10
Bromodichloromethane	1200	U	3700	1200	590	ug/Kg	☼	12/28/18 14:57	10
Bromoform	2400	U	3700	2400	2400	ug/Kg	☼	12/28/18 14:57	10
Bromomethane	2400	U	7400	2400	650	ug/Kg	☼	12/28/18 14:57	10
2-Butanone (MEK)	**37000**	**D**	15000	9500	4400	ug/Kg	☼	12/28/18 14:57	10
n-Butylbenzene	1200	U	3700	1200	470	ug/Kg	☼	12/28/18 14:57	10
sec-Butylbenzene	1200	U	3700	1200	560	ug/Kg	☼	12/28/18 14:57	10
tert-Butylbenzene	1200	U	3700	1200	420	ug/Kg	☼	12/28/18 14:57	10
Carbon disulfide	2400	U M	3700	2400	950	ug/Kg	☼	12/28/18 14:57	10
Carbon tetrachloride	590	U	3700	590	250	ug/Kg	☼	12/28/18 14:57	10
Chlorobenzene	1200	U	3700	1200	450	ug/Kg	☼	12/28/18 14:57	10
Chloroethane	2400	U	7400	2400	650	ug/Kg	☼	12/28/18 14:57	10
Chloroform	2400	U	3700	2400	680	ug/Kg	☼	12/28/18 14:57	10
Chloromethane	2400	U M	7400	2400	740	ug/Kg	☼	12/28/18 14:57	10
4-Chlorotoluene	1200	U	3700	1200	340	ug/Kg	☼	12/28/18 14:57	10
Dibromochloromethane	1200	U	3700	1200	490	ug/Kg	☼	12/28/18 14:57	10
1,2-Dibromo-3-Chloropropane	4700	U	7400	4700	1300	ug/Kg	☼	12/28/18 14:57	10
Dichlorodifluoromethane	1200	U	7400	1200	330	ug/Kg	☼	12/28/18 14:57	10
Dibromomethane	1200	U	3700	1200	450	ug/Kg	☼	12/28/18 14:57	10
Ethylene Dibromide	1200	U	3700	1200	370	ug/Kg	☼	12/28/18 14:57	10
1,2-Dichlorobenzene	4700	U	7400	4700	1400	ug/Kg	☼	12/28/18 14:57	10
1,3-Dichlorobenzene	2400	U	3700	2400	600	ug/Kg	☼	12/28/18 14:57	10
1,4-Dichlorobenzene	1200	U	3700	1200	370	ug/Kg	☼	12/28/18 14:57	10
1,1-Dichloroethane	2400	U	3700	2400	750	ug/Kg	☼	12/28/18 14:57	10
1,2-Dichloroethane	1200	U	3700	1200	370	ug/Kg	☼	12/28/18 14:57	10
1,1-Dichloroethene	2400	U	3700	2400	750	ug/Kg	☼	12/28/18 14:57	10
1,2-Dichloroethene, Total	1200	U	1900	1200	330	ug/Kg	☼	12/28/18 14:57	10
cis-1,2-Dichloroethene	1200	U	1900	1200	330	ug/Kg	☼	12/28/18 14:57	10
trans-1,2-Dichloroethene	2400	U	3700	2400	660	ug/Kg	☼	12/28/18 14:57	10
1,2-Dichloropropane	**6000**	**D**	3700	2400	690	ug/Kg	☼	12/28/18 14:57	10
1,3-Dichloropropane	1200	U	3700	1200	420	ug/Kg	☼	12/28/18 14:57	10
2,2-Dichloropropane	1200	U	3700	1200	400	ug/Kg	☼	12/28/18 14:57	10
1,1-Dichloropropene	2400	U	3700	2400	710	ug/Kg	☼	12/28/18 14:57	10
cis-1,3-Dichloropropene	1200	U M	3700	1200	400	ug/Kg	☼	12/28/18 14:57	10
trans-1,3-Dichloropropene	2400	U M	3700	2400	610	ug/Kg	☼	12/28/18 14:57	10
Ethylbenzene	**650**	**J D**	3700	1200	500	ug/Kg	☼	12/28/18 14:57	10
2-Hexanone	9500	U M	15000	9500	3200	ug/Kg	☼	12/28/18 14:57	10
Hexachlorobutadiene	2400	U	3700	2400	730	ug/Kg	☼	12/28/18 14:57	10
Isopropylbenzene	1200	U	3700	1200	430	ug/Kg	☼	12/28/18 14:57	10
4-Isopropyltoluene	1200	U	3700	1200	470	ug/Kg	☼	12/28/18 14:57	10
Methylene Chloride	2400	U	3700	2400	1000	ug/Kg	☼	12/28/18 14:57	10
4-Methyl-2-pentanone (MIBK)	9500	U M	15000	9500	3300	ug/Kg	☼	12/28/18 14:57	10
Methyl tert-butyl ether	2400	U	3700	2400	740	ug/Kg	☼	12/28/18 14:57	10
Naphthalene	**680**	**J D**	7400	1200	560	ug/Kg	☼	12/28/18 14:57	10
N-Propylbenzene	2400	U	3700	2400	610	ug/Kg	☼	12/28/18 14:57	10
Styrene	1200	U M	3700	1200	390	ug/Kg	☼	12/28/18 14:57	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-191218-271 — **Lab Sample ID: 280-118473-4**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 78.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1200	U	3700	1200	310	ug/Kg	☼	12/28/18 14:57	10
1,1,2,2-Tetrachloroethane	1200	U	3700	1200	430	ug/Kg	☼	12/28/18 14:57	10
Tetrachloroethene	1200	U	3700	1200	400	ug/Kg	☼	12/28/18 14:57	10
Toluene	**4600**	**D**	3700	1200	580	ug/Kg	☼	12/28/18 14:57	10
1,2,3-Trichlorobenzene	1200	U	3700	1200	520	ug/Kg	☼	12/28/18 14:57	10
1,1,1-Trichloroethane	590	U	3700	590	300	ug/Kg	☼	12/28/18 14:57	10
1,1,2-Trichloroethane	1200	U M	3700	1200	400	ug/Kg	☼	12/28/18 14:57	10
Trichloroethene	1200	U	3700	1200	340	ug/Kg	☼	12/28/18 14:57	10
Trichlorofluoromethane	2400	U	7400	2400	740	ug/Kg	☼	12/28/18 14:57	10
1,2,4-Trichlorobenzene	2400	U	3700	2400	690	ug/Kg	☼	12/28/18 14:57	10
1,2,3-Trichloropropane	2400	U	3700	2400	700	ug/Kg	☼	12/28/18 14:57	10
1,2,4-Trimethylbenzene	**620**	**J D**	3700	1200	460	ug/Kg	☼	12/28/18 14:57	10
1,3,5-Trimethylbenzene	1200	U	3700	1200	580	ug/Kg	☼	12/28/18 14:57	10
Vinyl chloride	1200	U	7400	1200	400	ug/Kg	☼	12/28/18 14:57	10
o-Xylene	**650**	**J D**	1900	1200	520	ug/Kg	☼	12/28/18 14:57	10
m-Xylene & p-Xylene	**1500**	**J D**	3700	2400	1200	ug/Kg	☼	12/28/18 14:57	10
2-Chlorotoluene	1200	U	3700	1200	390	ug/Kg	☼	12/28/18 14:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*112*	*D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 14:57*	*10*
1,2-Dichloroethane-d4 (Surr)	*116*	*D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 14:57*	*10*
4-Bromofluorobenzene (Surr)	*102*	*D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 14:57*	*10*
Dibromofluoromethane (Surr)	*112*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 14:57*	*10*

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	22000	U M Q	26000	22000	7000	ug/Kg	☼	12/28/18 15:16	10
Benzene	2800	U M Q	4400	2800	780	ug/Kg	☼	12/28/18 15:16	10
Bromobenzene	700	U Q	4400	700	330	ug/Kg	☼	12/28/18 15:16	10
Bromochloromethane	2800	U Q	4400	2800	820	ug/Kg	☼	12/28/18 15:16	10
Bromodichloromethane	1400	U Q	4400	1400	690	ug/Kg	☼	12/28/18 15:16	10
Bromoform	2800	U Q	4400	2800	2800	ug/Kg	☼	12/28/18 15:16	10
Bromomethane	2800	U Q	8700	2800	770	ug/Kg	☼	12/28/18 15:16	10
2-Butanone (MEK)	11000	U Q	17000	11000	5100	ug/Kg	☼	12/28/18 15:16	10
n-Butylbenzene	1400	U Q	4400	1400	560	ug/Kg	☼	12/28/18 15:16	10
sec-Butylbenzene	1400	U Q	4400	1400	660	ug/Kg	☼	12/28/18 15:16	10
tert-Butylbenzene	1400	U Q	4400	1400	490	ug/Kg	☼	12/28/18 15:16	10
Carbon disulfide	2800	U M Q	4400	2800	1100	ug/Kg	☼	12/28/18 15:16	10
Carbon tetrachloride	700	U Q	4400	700	300	ug/Kg	☼	12/28/18 15:16	10
Chlorobenzene	1400	U Q	4400	1400	520	ug/Kg	☼	12/28/18 15:16	10
Chloroethane	2800	U Q	8700	2800	770	ug/Kg	☼	12/28/18 15:16	10
Chloroform	2800	U Q	4400	2800	800	ug/Kg	☼	12/28/18 15:16	10
Chloromethane	2800	U M Q	8700	2800	870	ug/Kg	☼	12/28/18 15:16	10
4-Chlorotoluene	1400	U Q	4400	1400	400	ug/Kg	☼	12/28/18 15:16	10
Dibromochloromethane	1400	U Q	4400	1400	570	ug/Kg	☼	12/28/18 15:16	10
1,2-Dibromo-3-Chloropropane	5600	U Q	8700	5600	1500	ug/Kg	☼	12/28/18 15:16	10
Dichlorodifluoromethane	1400	U Q	8700	1400	380	ug/Kg	☼	12/28/18 15:16	10
Dibromomethane	1400	U Q	4400	1400	520	ug/Kg	☼	12/28/18 15:16	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	1400	U Q	4400	1400	440	ug/Kg	☼	12/28/18 15:16	10
1,2-Dichlorobenzene	5600	U Q	8700	5600	1600	ug/Kg	☼	12/28/18 15:16	10
1,3-Dichlorobenzene	2800	U Q	4400	2800	710	ug/Kg	☼	12/28/18 15:16	10
1,4-Dichlorobenzene	1400	U Q	4400	1400	440	ug/Kg	☼	12/28/18 15:16	10
1,1-Dichloroethane	2800	U Q	4400	2800	880	ug/Kg	☼	12/28/18 15:16	10
1,2-Dichloroethane	1400	U Q	4400	1400	440	ug/Kg	☼	12/28/18 15:16	10
1,1-Dichloroethene	2800	U Q	4400	2800	880	ug/Kg	☼	12/28/18 15:16	10
1,2-Dichloroethene, Total	1400	U	2200	1400	380	ug/Kg	☼	12/28/18 15:16	10
cis-1,2-Dichloroethene	1400	U Q	2200	1400	380	ug/Kg	☼	12/28/18 15:16	10
trans-1,2-Dichloroethene	2800	U Q	4400	2800	780	ug/Kg	☼	12/28/18 15:16	10
1,2-Dichloropropane	2800	U Q	4400	2800	800	ug/Kg	☼	12/28/18 15:16	10
1,3-Dichloropropane	1400	U Q	4400	1400	490	ug/Kg	☼	12/28/18 15:16	10
2,2-Dichloropropane	1400	U Q	4400	1400	470	ug/Kg	☼	12/28/18 15:16	10
1,1-Dichloropropene	2800	U Q	4400	2800	840	ug/Kg	☼	12/28/18 15:16	10
cis-1,3-Dichloropropene	1400	U Q	4400	1400	470	ug/Kg	☼	12/28/18 15:16	10
trans-1,3-Dichloropropene	2800	U Q	4400	2800	720	ug/Kg	☼	12/28/18 15:16	10
Ethylbenzene	1400	U Q	4400	1400	590	ug/Kg	☼	12/28/18 15:16	10
2-Hexanone	11000	U M Q	17000	11000	3800	ug/Kg	☼	12/28/18 15:16	10
Hexachlorobutadiene	2800	U Q	4400	2800	850	ug/Kg	☼	12/28/18 15:16	10
Isopropylbenzene	1400	U Q	4400	1400	500	ug/Kg	☼	12/28/18 15:16	10
4-Isopropyltoluene	1400	U Q	4400	1400	560	ug/Kg	☼	12/28/18 15:16	10
Methylene Chloride	2800	U Q	4400	2800	1200	ug/Kg	☼	12/28/18 15:16	10
4-Methyl-2-pentanone (MIBK)	11000	U Q	17000	11000	3900	ug/Kg	☼	12/28/18 15:16	10
Methyl tert-butyl ether	2800	U Q	4400	2800	870	ug/Kg	☼	12/28/18 15:16	10
Naphthalene	**1900**	**J D Q**	8700	1400	660	ug/Kg	☼	12/28/18 15:16	10
N-Propylbenzene	2800	U Q	4400	2800	710	ug/Kg	☼	12/28/18 15:16	10
Styrene	1400	U M Q	4400	1400	450	ug/Kg	☼	12/28/18 15:16	10
1,1,1,2-Tetrachloroethane	1400	U Q	4400	1400	370	ug/Kg	☼	12/28/18 15:16	10
1,1,2,2-Tetrachloroethane	1400	U M Q	4400	1400	500	ug/Kg	☼	12/28/18 15:16	10
Tetrachloroethene	1400	U Q	4400	1400	470	ug/Kg	☼	12/28/18 15:16	10
Toluene	**990**	**J D Q**	4400	1400	680	ug/Kg	☼	12/28/18 15:16	10
1,2,3-Trichlorobenzene	1400	U Q	4400	1400	610	ug/Kg	☼	12/28/18 15:16	10
1,1,1-Trichloroethane	700	U Q	4400	700	350	ug/Kg	☼	12/28/18 15:16	10
1,1,2-Trichloroethane	1400	U M Q	4400	1400	470	ug/Kg	☼	12/28/18 15:16	10
Trichloroethene	1400	U Q	4400	1400	400	ug/Kg	☼	12/28/18 15:16	10
Trichlorofluoromethane	2800	U Q	8700	2800	870	ug/Kg	☼	12/28/18 15:16	10
1,2,4-Trichlorobenzene	2800	U Q	4400	2800	810	ug/Kg	☼	12/28/18 15:16	10
1,2,3-Trichloropropane	2800	U M Q	4400	2800	820	ug/Kg	☼	12/28/18 15:16	10
1,2,4-Trimethylbenzene	**1700**	**J D Q**	4400	1400	540	ug/Kg	☼	12/28/18 15:16	10
1,3,5-Trimethylbenzene	**940**	**J D Q**	4400	1400	680	ug/Kg	☼	12/28/18 15:16	10
Vinyl chloride	1400	U Q	8700	1400	470	ug/Kg	☼	12/28/18 15:16	10
o-Xylene	**1200**	**J D Q**	2200	1400	610	ug/Kg	☼	12/28/18 15:16	10
m-Xylene & p-Xylene	**2500**	**J D Q**	4400	2800	1400	ug/Kg	☼	12/28/18 15:16	10
2-Chlorotoluene	1400	U Q	4400	1400	450	ug/Kg	☼	12/28/18 15:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*202*	*Q D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 15:16*	*10*
1,2-Dichloroethane-d4 (Surr)	*206*	*Q D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 15:16*	*10*
4-Bromofluorobenzene (Surr)	*200*	*Q D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 15:16*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-191218-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-6
Matrix: Solid
Percent Solids: 96.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	202	Q D	78 - 119	12/28/18 10:21	12/28/18 15:16	10

Client Sample ID: V-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-8
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	15000	U	18000	15000	4800	ug/Kg	☼	12/28/18 15:35	10
Benzene	1900	U M	3000	1900	540	ug/Kg	☼	12/28/18 15:35	10
Bromobenzene	480	U	3000	480	230	ug/Kg	☼	12/28/18 15:35	10
Bromochloromethane	1900	U	3000	1900	560	ug/Kg	☼	12/28/18 15:35	10
Bromodichloromethane	950	U	3000	950	470	ug/Kg	☼	12/28/18 15:35	10
Bromoform	1900	U	3000	1900	1900	ug/Kg	☼	12/28/18 15:35	10
Bromomethane	1900	U	6000	1900	530	ug/Kg	☼	12/28/18 15:35	10
2-Butanone (MEK)	7600	U	12000	7600	3500	ug/Kg	☼	12/28/18 15:35	10
n-Butylbenzene	950	U	3000	950	380	ug/Kg	☼	12/28/18 15:35	10
sec-Butylbenzene	**500**	**J D**	3000	950	450	ug/Kg	☼	12/28/18 15:35	10
tert-Butylbenzene	950	U	3000	950	330	ug/Kg	☼	12/28/18 15:35	10
Carbon disulfide	1900	U M	3000	1900	760	ug/Kg	☼	12/28/18 15:35	10
Carbon tetrachloride	480	U	3000	480	200	ug/Kg	☼	12/28/18 15:35	10
Chlorobenzene	950	U	3000	950	360	ug/Kg	☼	12/28/18 15:35	10
Chloroethane	1900	U	6000	1900	530	ug/Kg	☼	12/28/18 15:35	10
Chloroform	1900	U	3000	1900	550	ug/Kg	☼	12/28/18 15:35	10
Chloromethane	1900	U	6000	1900	600	ug/Kg	☼	12/28/18 15:35	10
4-Chlorotoluene	950	U	3000	950	270	ug/Kg	☼	12/28/18 15:35	10
Dibromochloromethane	950	U	3000	950	390	ug/Kg	☼	12/28/18 15:35	10
1,2-Dibromo-3-Chloropropane	3800	U	6000	3800	1000	ug/Kg	☼	12/28/18 15:35	10
Dichlorodifluoromethane	950	U	6000	950	260	ug/Kg	☼	12/28/18 15:35	10
Dibromomethane	950	U	3000	950	360	ug/Kg	☼	12/28/18 15:35	10
Ethylene Dibromide	950	U	3000	950	300	ug/Kg	☼	12/28/18 15:35	10
1,2-Dichlorobenzene	3800	U	6000	3800	1100	ug/Kg	☼	12/28/18 15:35	10
1,3-Dichlorobenzene	1900	U	3000	1900	490	ug/Kg	☼	12/28/18 15:35	10
1,4-Dichlorobenzene	950	U	3000	950	300	ug/Kg	☼	12/28/18 15:35	10
1,1-Dichloroethane	1900	U	3000	1900	600	ug/Kg	☼	12/28/18 15:35	10
1,2-Dichloroethane	950	U	3000	950	300	ug/Kg	☼	12/28/18 15:35	10
1,1-Dichloroethene	1900	U	3000	1900	600	ug/Kg	☼	12/28/18 15:35	10
1,2-Dichloroethene, Total	950	U	1500	950	260	ug/Kg	☼	12/28/18 15:35	10
cis-1,2-Dichloroethene	950	U	1500	950	260	ug/Kg	☼	12/28/18 15:35	10
trans-1,2-Dichloroethene	1900	U	3000	1900	530	ug/Kg	☼	12/28/18 15:35	10
1,2-Dichloropropane	1900	U	3000	1900	550	ug/Kg	☼	12/28/18 15:35	10
1,3-Dichloropropane	950	U	3000	950	330	ug/Kg	☼	12/28/18 15:35	10
2,2-Dichloropropane	950	U	3000	950	320	ug/Kg	☼	12/28/18 15:35	10
1,1-Dichloropropene	1900	U	3000	1900	570	ug/Kg	☼	12/28/18 15:35	10
cis-1,3-Dichloropropene	950	U	3000	950	320	ug/Kg	☼	12/28/18 15:35	10
trans-1,3-Dichloropropene	1900	U	3000	1900	490	ug/Kg	☼	12/28/18 15:35	10
Ethylbenzene	950	U	3000	950	410	ug/Kg	☼	12/28/18 15:35	10
2-Hexanone	7600	U	12000	7600	2600	ug/Kg	☼	12/28/18 15:35	10
Hexachlorobutadiene	1900	U	3000	1900	580	ug/Kg	☼	12/28/18 15:35	10
Isopropylbenzene	950	U	3000	950	350	ug/Kg	☼	12/28/18 15:35	10
4-Isopropyltoluene	950	U	3000	950	380	ug/Kg	☼	12/28/18 15:35	10

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-8
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	1900	U M	3000	1900	820	ug/Kg	☼	12/28/18 15:35	10
4-Methyl-2-pentanone (MIBK)	7600	U	12000	7600	2700	ug/Kg	☼	12/28/18 15:35	10
Methyl tert-butyl ether	1900	U	3000	1900	600	ug/Kg	☼	12/28/18 15:35	10
Naphthalene	**1400**	**J D**	6000	950	450	ug/Kg	☼	12/28/18 15:35	10
N-Propylbenzene	1900	U	3000	1900	490	ug/Kg	☼	12/28/18 15:35	10
Styrene	950	U	3000	950	310	ug/Kg	☼	12/28/18 15:35	10
1,1,1,2-Tetrachloroethane	950	U	3000	950	250	ug/Kg	☼	12/28/18 15:35	10
1,1,2,2-Tetrachloroethane	950	U M	3000	950	350	ug/Kg	☼	12/28/18 15:35	10
Tetrachloroethene	950	U	3000	950	320	ug/Kg	☼	12/28/18 15:35	10
Toluene	**510**	**J D**	3000	950	470	ug/Kg	☼	12/28/18 15:35	10
1,2,3-Trichlorobenzene	950	U	3000	950	420	ug/Kg	☼	12/28/18 15:35	10
1,1,1-Trichloroethane	480	U	3000	480	240	ug/Kg	☼	12/28/18 15:35	10
1,1,2-Trichloroethane	950	U M	3000	950	320	ug/Kg	☼	12/28/18 15:35	10
Trichloroethene	950	U	3000	950	270	ug/Kg	☼	12/28/18 15:35	10
Trichlorofluoromethane	1900	U	6000	1900	600	ug/Kg	☼	12/28/18 15:35	10
1,2,4-Trichlorobenzene	1900	U	3000	1900	560	ug/Kg	☼	12/28/18 15:35	10
1,2,3-Trichloropropane	1900	U M	3000	1900	560	ug/Kg	☼	12/28/18 15:35	10
1,2,4-Trimethylbenzene	**870**	**J D**	3000	950	370	ug/Kg	☼	12/28/18 15:35	10
1,3,5-Trimethylbenzene	**530**	**J D**	3000	950	470	ug/Kg	☼	12/28/18 15:35	10
Vinyl chloride	950	U	6000	950	320	ug/Kg	☼	12/28/18 15:35	10
o-Xylene	**690**	**J D**	1500	950	420	ug/Kg	☼	12/28/18 15:35	10
m-Xylene & p-Xylene	**1300**	**J D**	3000	1900	930	ug/Kg	☼	12/28/18 15:35	10
2-Chlorotoluene	950	U	3000	950	310	ug/Kg	☼	12/28/18 15:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*116*	*D*	*85 - 116*	*12/28/18 10:21*	*12/28/18 15:35*	*10*
1,2-Dichloroethane-d4 (Surr)	*126*	*D*	*71 - 136*	*12/28/18 10:21*	*12/28/18 15:35*	*10*
4-Bromofluorobenzene (Surr)	*110*	*D*	*79 - 119*	*12/28/18 10:21*	*12/28/18 15:35*	*10*
Dibromofluoromethane (Surr)	*113*	*D*	*78 - 119*	*12/28/18 10:21*	*12/28/18 15:35*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-2
Matrix: Solid
Percent Solids: 72.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylbenzene	**770000**	**D Q**	110000	35000	15000	ug/Kg	☼	12/28/18 18:46	100
Toluene	**3100000**	**D Q**	110000	35000	17000	ug/Kg	☼	12/28/18 18:46	100
1,2,4-Trimethylbenzene	**790000**	**D Q**	110000	35000	13000	ug/Kg	☼	12/28/18 18:46	100
o-Xylene	**890000**	**D Q**	54000	35000	15000	ug/Kg	☼	12/28/18 18:46	100
m-Xylene & p-Xylene	**2800000**	**D Q**	110000	69000	34000	ug/Kg	☼	12/28/18 18:46	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*1991*	*D Q*	*85 - 116*	*12/28/18 10:21*	*12/28/18 18:46*	*100*
1,2-Dichloroethane-d4 (Surr)	*0*	*D Q*	*71 - 136*	*12/28/18 10:21*	*12/28/18 18:46*	*100*
4-Bromofluorobenzene (Surr)	*0*	*D Q*	*79 - 119*	*12/28/18 10:21*	*12/28/18 18:46*	*100*
Dibromofluoromethane (Surr)	*162*	*D Q*	*78 - 119*	*12/28/18 10:21*	*12/28/18 18:46*	*100*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-V1-191218-01
Date Collected: 12/19/18 15:00
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 09:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*12/31/18 09:35*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - DL

Client Sample ID: P-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-3
Matrix: Solid
Percent Solids: 77.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	32000	D Q	1800	1600	470	mg/Kg	☼	12/28/18 19:27	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*35437*	*Q*	*77 - 123*	*12/19/18 10:35*	*12/28/18 19:27*	*500*

Client Sample ID: P-V1-191218-271
Date Collected: 12/19/18 14:20
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-5
Matrix: Solid
Percent Solids: 80.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	61	D Q	3.9	3.6	1.1	mg/Kg	☼	12/30/18 13:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*139*	*Q*	*77 - 123*	*12/19/18 14:20*	*12/30/18 13:56*	*2*

Client Sample ID: P-V1-191218-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-7
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	380	D Q	150	140	40	mg/Kg	☼	12/28/18 19:03	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*294*	*Q*	*77 - 123*	*12/19/18 15:20*	*12/28/18 19:03*	*100*

Method: 8015D GRO - Gasoline Range Organics (GRO) - RA

Client Sample ID: P-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15
Lab Sample ID: 280-118473-9
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	75	D Q	2.9	2.6	0.78	mg/Kg	☼	01/02/19 16:19	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*146*	*Q*	*77 - 123*	*12/19/18 15:20*	*01/02/19 16:19*	*2*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-V1-191218-01 — **Lab Sample ID: 280-118473-1**
Date Collected: 12/19/18 15:00 — **Matrix: Water**
Date Received: 12/20/18 10:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		01/09/19 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*104*		*70 - 130*	*12/31/18 15:04*	*01/09/19 00:12*	*1*

Client Sample ID: V-V1-191218-254 — **Lab Sample ID: 280-118473-2**
Date Collected: 12/19/18 10:35 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 72.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**2100**	**D Q**	690	260	100	ug/Kg	☼	01/14/19 19:49	5000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*12/30/18 12:34*	*01/14/19 19:49*	*5000*

Client Sample ID: V-V1-191218-271 — **Lab Sample ID: 280-118473-4**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 78.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**16**	**D Q**	2.5	0.96	0.38	ug/Kg	☼	01/14/19 20:27	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*M D*	*55 - 130*	*12/30/18 12:34*	*01/14/19 20:27*	*20*

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.39	U Q	1.0	0.39	0.16	ug/Kg	☼	01/15/19 20:45	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q D*	*55 - 130*	*12/30/18 12:34*	*01/15/19 20:45*	*10*

Client Sample ID: V-V1-191258-285 — **Lab Sample ID: 280-118473-8**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.79	U J1 Q	2.1	0.79	0.31	ug/Kg	☼	01/15/19 13:49	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*	*12/30/18 12:34*	*01/15/19 13:49*	*20*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-V1-191218-254 — **Lab Sample ID: 280-118473-3**
Date Collected: 12/19/18 10:35 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 77.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**24000**	**J1 D Q**	200	99	34	mg/Kg	☼	01/08/19 18:39	20
Motor Oil (C20-C38)	**370**	**J D**	590	580	190	mg/Kg	☼	01/08/19 18:39	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*167*	*D Q*	*45 - 130*	*12/28/18 20:10*	*01/08/19 18:39*	*20*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-3
Matrix: Solid
Percent Solids: 77.8

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*113*	*D*	*25 - 162*	*12/28/18 20:10*	*01/08/19 18:39*	*20*

Client Sample ID: P-V1-191218-271
Date Collected: 12/19/18 14:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-5
Matrix: Solid
Percent Solids: 80.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**230**		9.3	4.6	1.6	mg/Kg	☼	01/08/19 17:38	1
Motor Oil (C20-C38)	27	U	28	27	9.1	mg/Kg	☼	01/08/19 17:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*49*		*45 - 130*	*12/28/18 20:10*	*01/08/19 17:38*	*1*
n-Octacosane	*43*		*25 - 162*	*12/28/18 20:10*	*01/08/19 17:38*	*1*

Client Sample ID: P-V1-191218-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-7
Matrix: Solid
Percent Solids: 96.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**270**		8.3	4.1	1.4	mg/Kg	☼	01/08/19 17:58	1
Motor Oil (C20-C38)	24	U	25	24	8.1	mg/Kg	☼	01/08/19 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*45 - 130*	*12/28/18 20:10*	*01/08/19 17:58*	*1*
n-Octacosane	*68*		*25 - 162*	*12/28/18 20:10*	*01/08/19 17:58*	*1*

Client Sample ID: P-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-9
Matrix: Solid
Percent Solids: 96.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**290**		7.6	3.8	1.3	mg/Kg	☼	01/08/19 18:19	1
Motor Oil (C20-C38)	22	U	23	22	7.4	mg/Kg	☼	01/08/19 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*66*		*45 - 130*	*12/28/18 20:10*	*01/08/19 18:19*	*1*
n-Octacosane	*73*		*25 - 162*	*12/28/18 20:10*	*01/08/19 18:19*	*1*

General Chemistry

Client Sample ID: V-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-2
Matrix: Solid
Percent Solids: 72.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**27.7**		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-191218-254
Date Collected: 12/19/18 10:35
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-3
Matrix: Solid
Percent Solids: 77.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**22.2**		0.1	0.05	0.1	%		12/22/18 11:58	1

General Chemistry

Client Sample ID: V-V1-191218-271 — **Lab Sample ID: 280-118473-4**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 78.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	21.4		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-191218-271 — **Lab Sample ID: 280-118473-5**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 80.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	19.6		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.3		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-191218-285 — **Lab Sample ID: 280-118473-7**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.3		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: V-V1-191258-285 — **Lab Sample ID: 280-118473-8**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.6		0.1	0.05	0.1	%		12/22/18 11:58	1

Client Sample ID: P-V1-191258-285 — **Lab Sample ID: 280-118473-9**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.8		0.1	0.05	0.1	%		12/22/18 11:58	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-118473-2	V-V1-191218-254	1505 Q D	207 Q D	0 Q D	113 D
280-118473-2 - DL	V-V1-191218-254	1991 D Q	0 D Q	0 D Q	162 D Q
280-118473-4	V-V1-191218-271	112 D	116 D	102 D	112 D
280-118473-6	V-V1-191218-285	202 Q D	206 Q D	200 Q D	202 Q D
280-118473-8	V-V1-191258-285	116 D	126 D	110 D	113 D
LCS 280-442765/2-A	Lab Control Sample	102	109	96	107
LCSD 280-442765/3-A	Lab Control Sample Dup	102	107	93	107
MB 280-442765/1-A	Method Blank	110	118	105	116

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-118473-1	TB-V1-191218-01	92	102	84 Q	108
LCS 280-442962/5	Lab Control Sample	92	106	89 M	108
MB 280-442962/4	Method Blank	92	100	87	106

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-118473-3 - DL	P-V1-191218-254	35437 Q
280-118473-5 - DL	P-V1-191218-271	139 Q
280-118473-7 - DL	P-V1-191218-285	294 Q
280-118473-9 - RA	P-V1-191258-285	146 Q
LCS 280-442646/1-A	Lab Control Sample	94
LCSD 280-442646/2-A	Lab Control Sample Dup	98
MB 280-442646/3-A	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-118473-1	TB-V1-191218-01	99
LCS 280-442880/9	Lab Control Sample	99
MB 280-442880/10	Method Blank	99

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-118473-2	V-V1-191218-254	0 D
280-118473-4	V-V1-191218-271	0 M D
280-118473-6	V-V1-191218-285	0 Q D
280-118473-8	V-V1-191258-285	0 Q M D
280-118473-8 MS	V-V1-191258-285	0 Q M D
280-118473-8 MSD	V-V1-191258-285	0 Q M D
LCS 280-442875/1-A	Lab Control Sample	110
LCSD 280-442875/2-A	Lab Control Sample Dup	103
MB 280-442875/3-A	Method Blank	112

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-118473-1	TB-V1-191218-01	104
LCS 280-442942/1-A	Lab Control Sample	100
LCSD 280-442942/2-A	Lab Control Sample Dup	100
MB 280-442942/3-A	Method Blank	98

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-118473-3	P-V1-191218-254	167 D Q	113 D
280-118473-3 MS	P-V1-191218-254	135 D Q	77 D
280-118473-3 MS	P-V1-191218-254	133 D Q	88 D
280-118473-3 MSD	P-V1-191218-254	172 D Q	105 D

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-118473-3 MSD	P-V1-191218-254	131 D Q	91 D								
280-118473-5	P-V1-191218-271	49	43								
280-118473-7	P-V1-191218-285	62	68								
280-118473-9	P-V1-191258-285	66	73								
LCS 280-442809/2-A	Lab Control Sample	68	74								
LCS 280-442809/3-A	Lab Control Sample	75	80								
MB 280-442809/1-A	Method Blank	63	72								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-442765/1-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442765

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1300	U	1500	1300	400	ug/Kg		12/28/18 13:22	1
Benzene	160	U	250	160	45	ug/Kg		12/28/18 13:22	1
Bromobenzene	40	U	250	40	19	ug/Kg		12/28/18 13:22	1
Bromochloromethane	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		12/28/18 13:22	1
Bromoform	160	U	250	160	160	ug/Kg		12/28/18 13:22	1
Bromomethane	160	U	500	160	44	ug/Kg		12/28/18 13:22	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		12/28/18 13:22	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		12/28/18 13:22	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		12/28/18 13:22	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		12/28/18 13:22	1
Carbon disulfide	160	U M	250	160	64	ug/Kg		12/28/18 13:22	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		12/28/18 13:22	1
Chlorobenzene	80	U	250	80	30	ug/Kg		12/28/18 13:22	1
Chloroethane	160	U	500	160	44	ug/Kg		12/28/18 13:22	1
Chloroform	160	U	250	160	46	ug/Kg		12/28/18 13:22	1
Chloromethane	160	U	500	160	50	ug/Kg		12/28/18 13:22	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		12/28/18 13:22	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		12/28/18 13:22	1
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		12/28/18 13:22	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		12/28/18 13:22	1
Dibromomethane	80	U	250	80	30	ug/Kg		12/28/18 13:22	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		12/28/18 13:22	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		12/28/18 13:22	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		12/28/18 13:22	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		12/28/18 13:22	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		12/28/18 13:22	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		12/28/18 13:22	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		12/28/18 13:22	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		12/28/18 13:22	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		12/28/18 13:22	1
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		12/28/18 13:22	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1
Ethylbenzene	80	U	250	80	34	ug/Kg		12/28/18 13:22	1
2-Hexanone	640	U	1000	640	220	ug/Kg		12/28/18 13:22	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		12/28/18 13:22	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		12/28/18 13:22	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		12/28/18 13:22	1
Methylene Chloride	160	U M	250	160	69	ug/Kg		12/28/18 13:22	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		12/28/18 13:22	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		12/28/18 13:22	1
Naphthalene	80	U	500	80	38	ug/Kg		12/28/18 13:22	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		12/28/18 13:22	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442765/1-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442765

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	80	U	250	80	26	ug/Kg		12/28/18 13:22	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		12/28/18 13:22	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		12/28/18 13:22	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
Toluene	80	U M	250	80	39	ug/Kg		12/28/18 13:22	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		12/28/18 13:22	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		12/28/18 13:22	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		12/28/18 13:22	1
Trichloroethene	80	U	250	80	23	ug/Kg		12/28/18 13:22	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		12/28/18 13:22	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		12/28/18 13:22	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		12/28/18 13:22	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		12/28/18 13:22	1
Vinyl chloride	80	U	500	80	27	ug/Kg		12/28/18 13:22	1
o-Xylene	80	U	130	80	35	ug/Kg		12/28/18 13:22	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		12/28/18 13:22	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		12/28/18 13:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*85 - 116*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*118*		*71 - 136*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
4-Bromofluorobenzene (Surr)	*105*		*79 - 119*	*12/28/18 10:21*	*12/28/18 13:22*	*1*
Dibromofluoromethane (Surr)	*116*		*78 - 119*	*12/28/18 10:21*	*12/28/18 13:22*	*1*

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	8000	8060		ug/Kg		101	36 - 164
Benzene	2000	1750		ug/Kg		87	77 - 121
Bromobenzene	2000	1680		ug/Kg		84	78 - 121
Bromochloromethane	2000	1910		ug/Kg		95	78 - 125
Bromodichloromethane	2000	1830		ug/Kg		91	75 - 127
Bromoform	2000	1770		ug/Kg		88	67 - 132
Bromomethane	2000	2000		ug/Kg		100	53 - 143
2-Butanone (MEK)	8000	7140		ug/Kg		89	51 - 148
n-Butylbenzene	2000	1830		ug/Kg		92	70 - 128
sec-Butylbenzene	2000	1840		ug/Kg		92	73 - 126
tert-Butylbenzene	2000	1720		ug/Kg		86	73 - 125
Carbon disulfide	2000	1810		ug/Kg		91	63 - 132
Carbon tetrachloride	2000	1950		ug/Kg		98	70 - 135
Chlorobenzene	2000	1730		ug/Kg		86	79 - 120
Chloroethane	2000	1780		ug/Kg		89	59 - 139
Chloroform	2000	1800		ug/Kg		90	78 - 123
Chloromethane	2000	1480		ug/Kg		74	50 - 136
4-Chlorotoluene	2000	1720		ug/Kg		86	72 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	2000	1840		ug/Kg		92	74 - 126
1,2-Dibromo-3-Chloropropane	2000	1790		ug/Kg		89	61 - 132
Dichlorodifluoromethane	2000	1190		ug/Kg		59	29 - 149
Dibromomethane	2000	1820		ug/Kg		91	78 - 125
Ethylene Dibromide	2000	1790		ug/Kg		89	78 - 122
1,2-Dichlorobenzene	2000	1790		ug/Kg		89	78 - 121
1,3-Dichlorobenzene	2000	1700		ug/Kg		85	77 - 121
1,4-Dichlorobenzene	2000	1710		ug/Kg		85	75 - 120
1,1-Dichloroethane	2000	1810		ug/Kg		90	76 - 125
1,2-Dichloroethane	2000	1830		ug/Kg		92	73 - 128
1,1-Dichloroethene	2000	1850		ug/Kg		92	70 - 131
cis-1,2-Dichloroethene	2000	1800		ug/Kg		90	77 - 123
trans-1,2-Dichloroethene	2000	1900		ug/Kg		95	74 - 125
1,2-Dichloropropane	2000	1850		ug/Kg		93	76 - 123
1,3-Dichloropropane	2000	1750		ug/Kg		87	77 - 121
2,2-Dichloropropane	2000	1920		ug/Kg		96	67 - 133
1,1-Dichloropropene	2000	1780		ug/Kg		89	76 - 125
cis-1,3-Dichloropropene	2000	1830		ug/Kg		91	74 - 126
trans-1,3-Dichloropropene	2000	1780		ug/Kg		89	71 - 130
Ethylbenzene	2000	1750		ug/Kg		88	76 - 122
2-Hexanone	8000	7480		ug/Kg		94	53 - 145
Hexachlorobutadiene	2000	1920		ug/Kg		96	61 - 135
Isopropylbenzene	2000	1770		ug/Kg		89	68 - 134
4-Isopropyltoluene	2000	1840		ug/Kg		92	73 - 127
Methylene Chloride	2000	1740		ug/Kg		87	70 - 128
4-Methyl-2-pentanone (MIBK)	8000	8220		ug/Kg		103	65 - 135
Methyl tert-butyl ether	2000	2000		ug/Kg		100	73 - 125
Naphthalene	2000	1810		ug/Kg		90	62 - 129
N-Propylbenzene	2000	1810		ug/Kg		90	73 - 125
Styrene	2000	1790		ug/Kg		89	76 - 124
1,1,1,2-Tetrachloroethane	2000	1950		ug/Kg		97	78 - 125
1,1,2,2-Tetrachloroethane	2000	1790		ug/Kg		89	70 - 124
Tetrachloroethene	2000	1740		ug/Kg		87	73 - 128
Toluene	2000	1820		ug/Kg		91	77 - 121
1,2,3-Trichlorobenzene	2000	2050		ug/Kg		102	66 - 130
1,1,1-Trichloroethane	2000	1920		ug/Kg		96	73 - 130
1,1,2-Trichloroethane	2000	1840		ug/Kg		92	78 - 121
Trichloroethene	2000	1740		ug/Kg		87	77 - 123
Trichlorofluoromethane	2000	1930		ug/Kg		96	62 - 140
1,2,4-Trichlorobenzene	2000	1950		ug/Kg		98	67 - 129
1,2,3-Trichloropropane	2000	1860		ug/Kg		93	73 - 125
1,2,4-Trimethylbenzene	2000	1750		ug/Kg		88	75 - 123
1,3,5-Trimethylbenzene	2000	1790		ug/Kg		90	73 - 124
Vinyl chloride	2000	1740		ug/Kg		87	56 - 135
o-Xylene	2000	1810		ug/Kg		91	77 - 123
m-Xylene & p-Xylene	2000	1740		ug/Kg		87	77 - 124
2-Chlorotoluene	2000	1750		ug/Kg		87	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442765/2-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442765

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*107*		*78 - 119*

Lab Sample ID: LCSD 280-442765/3-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442765

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			8000	6970		ug/Kg		87	36 - 164	15	20
Benzene			2000	1750		ug/Kg		88	77 - 121	0	20
Bromobenzene			2000	1660		ug/Kg		83	78 - 121	1	20
Bromochloromethane			2000	1940		ug/Kg		97	78 - 125	2	20
Bromodichloromethane			2000	1840		ug/Kg		92	75 - 127	1	20
Bromoform			2000	1780		ug/Kg		89	67 - 132	1	20
Bromomethane			2000	1750		ug/Kg		87	53 - 143	13	20
2-Butanone (MEK)			8000	7260		ug/Kg		91	51 - 148	2	20
n-Butylbenzene			2000	1690		ug/Kg		85	70 - 128	8	20
sec-Butylbenzene			2000	1730		ug/Kg		86	73 - 126	6	20
tert-Butylbenzene			2000	1680		ug/Kg		84	73 - 125	3	20
Carbon disulfide			2000	1680		ug/Kg		84	63 - 132	8	20
Carbon tetrachloride			2000	1800		ug/Kg		90	70 - 135	8	20
Chlorobenzene			2000	1730		ug/Kg		86	79 - 120	0	20
Chloroethane			2000	1700		ug/Kg		85	59 - 139	4	20
Chloroform			2000	1810		ug/Kg		90	78 - 123	0	20
Chloromethane			2000	1260		ug/Kg		63	50 - 136	16	20
4-Chlorotoluene			2000	1690		ug/Kg		85	72 - 124	2	20
Dibromochloromethane			2000	1940		ug/Kg		97	74 - 126	5	20
1,2-Dibromo-3-Chloropropane			2000	1690		ug/Kg		85	61 - 132	5	20
Dichlorodifluoromethane			2000	992		ug/Kg		50	29 - 149	18	20
Dibromomethane			2000	1900		ug/Kg		95	78 - 125	4	20
Ethylene Dibromide			2000	1790		ug/Kg		89	78 - 122	0	20
1,2-Dichlorobenzene			2000	1700		ug/Kg		85	78 - 121	5	20
1,3-Dichlorobenzene			2000	1670		ug/Kg		83	77 - 121	2	20
1,4-Dichlorobenzene			2000	1650		ug/Kg		83	75 - 120	3	20
1,1-Dichloroethane			2000	1820		ug/Kg		91	76 - 125	1	20
1,2-Dichloroethane			2000	1870		ug/Kg		93	73 - 128	2	20
1,1-Dichloroethene			2000	1730		ug/Kg		87	70 - 131	6	20
cis-1,2-Dichloroethene			2000	1810		ug/Kg		91	77 - 123	1	20
trans-1,2-Dichloroethene			2000	1850		ug/Kg		93	74 - 125	3	20
1,2-Dichloropropane			2000	1850		ug/Kg		93	76 - 123	0	20
1,3-Dichloropropane			2000	1740		ug/Kg		87	77 - 121	0	20
2,2-Dichloropropane			2000	1720		ug/Kg		86	67 - 133	11	20
1,1-Dichloropropene			2000	1800		ug/Kg		90	76 - 125	1	20
cis-1,3-Dichloropropene			2000	1880		ug/Kg		94	74 - 126	3	20
trans-1,3-Dichloropropene			2000	1860		ug/Kg		93	71 - 130	4	20
Ethylbenzene			2000	1700		ug/Kg		85	76 - 122	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-442765/3-A
Matrix: Solid
Analysis Batch: 442899

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442765

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	8000	7430		ug/Kg		93	53 - 145	1	20
Hexachlorobutadiene	2000	1770		ug/Kg		88	61 - 135	8	20
Isopropylbenzene	2000	1650		ug/Kg		83	68 - 134	7	20
4-Isopropyltoluene	2000	1720		ug/Kg		86	73 - 127	6	20
Methylene Chloride	2000	1680		ug/Kg		84	70 - 128	4	20
4-Methyl-2-pentanone (MIBK)	8000	7910		ug/Kg		99	65 - 135	4	20
Methyl tert-butyl ether	2000	1940		ug/Kg		97	73 - 125	3	20
Naphthalene	2000	1660		ug/Kg		83	62 - 129	9	20
N-Propylbenzene	2000	1700		ug/Kg		85	73 - 125	6	20
Styrene	2000	1750		ug/Kg		88	76 - 124	2	20
1,1,1,2-Tetrachloroethane	2000	1850		ug/Kg		93	78 - 125	5	20
1,1,2,2-Tetrachloroethane	2000	1720		ug/Kg		86	70 - 124	4	20
Tetrachloroethene	2000	1730		ug/Kg		87	73 - 128	0	20
Toluene	2000	1790		ug/Kg		89	77 - 121	2	20
1,2,3-Trichlorobenzene	2000	1810		ug/Kg		90	66 - 130	12	20
1,1,1-Trichloroethane	2000	1770		ug/Kg		88	73 - 130	8	20
1,1,2-Trichloroethane	2000	1910		ug/Kg		95	78 - 121	3	20
Trichloroethene	2000	1740		ug/Kg		87	77 - 123	0	20
Trichlorofluoromethane	2000	1690		ug/Kg		84	62 - 140	13	20
1,2,4-Trichlorobenzene	2000	1780		ug/Kg		89	67 - 129	9	20
1,2,3-Trichloropropane	2000	1790		ug/Kg		89	73 - 125	4	20
1,2,4-Trimethylbenzene	2000	1660		ug/Kg		83	75 - 123	5	20
1,3,5-Trimethylbenzene	2000	1690		ug/Kg		85	73 - 124	6	20
Vinyl chloride	2000	1470		ug/Kg		73	56 - 135	17	20
o-Xylene	2000	1740		ug/Kg		87	77 - 123	4	20
m-Xylene & p-Xylene	2000	1710		ug/Kg		85	77 - 124	2	20
2-Chlorotoluene	2000	1670		ug/Kg		83	75 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*107*		*71 - 136*
4-Bromofluorobenzene (Surr)	*93*		*79 - 119*
Dibromofluoromethane (Surr)	*107*		*78 - 119*

Lab Sample ID: MB 280-442962/4
Matrix: Water
Analysis Batch: 442962

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/02/19 10:34	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/02/19 10:34	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 10:34	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/02/19 10:34	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/02/19 10:34	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/02/19 10:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442962/4
Matrix: Water
Analysis Batch: 442962

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/02/19 10:34	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/02/19 10:34	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/02/19 10:34	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/02/19 10:34	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 10:34	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/02/19 10:34	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/02/19 10:34	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 10:34	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 10:34	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/02/19 10:34	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/02/19 10:34	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/02/19 10:34	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/02/19 10:34	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/02/19 10:34	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 10:34	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 10:34	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 10:34	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/02/19 10:34	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/02/19 10:34	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 10:34	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 10:34	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/02/19 10:34	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/02/19 10:34	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 10:34	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/02/19 10:34	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/02/19 10:34	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/02/19 10:34	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/02/19 10:34	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/02/19 10:34	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 10:34	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 10:34	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/02/19 10:34	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 10:34	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/02/19 10:34	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-442962/4
Matrix: Water
Analysis Batch: 442962

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/02/19 10:34	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/02/19 10:34	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/02/19 10:34	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/02/19 10:34	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/02/19 10:34	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/02/19 10:34	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/02/19 10:34	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/02/19 10:34	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/02/19 10:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*92*		*89 - 112*		*01/02/19 10:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*		*01/02/19 10:34*	*1*
4-Bromofluorobenzene (Surr)	*87*		*85 - 114*		*01/02/19 10:34*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*01/02/19 10:34*	*1*

Lab Sample ID: LCS 280-442962/5
Matrix: Water
Analysis Batch: 442962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	19.8		ug/L		99	39 - 160
Benzene	5.00	5.23		ug/L		105	79 - 120
Bromobenzene	5.00	4.73		ug/L		95	80 - 120
Bromochloromethane	5.00	5.97		ug/L		119	78 - 123
Bromodichloromethane	5.00	5.51		ug/L		110	79 - 125
Bromoform	5.00	5.18		ug/L		104	66 - 130
Bromomethane	5.00	5.22		ug/L		104	53 - 141
2-Butanone (MEK)	20.0	17.5		ug/L		87	56 - 143
n-Butylbenzene	5.00	4.21		ug/L		84	75 - 128
sec-Butylbenzene	5.00	4.44		ug/L		89	77 - 126
tert-Butylbenzene	5.00	4.35		ug/L		87	78 - 124
Carbon disulfide	5.00	5.15		ug/L		103	64 - 133
Carbon tetrachloride	5.00	5.36		ug/L		107	72 - 136
Chlorobenzene	5.00	4.87		ug/L		97	82 - 118
Chloroethane	5.00	5.08		ug/L		102	60 - 138
Chloroform	5.00	5.61		ug/L		112	79 - 124
Chloromethane	5.00	4.24		ug/L		85	50 - 139
4-Chlorotoluene	5.00	4.56		ug/L		91	78 - 122
Dibromochloromethane	5.00	5.57		ug/L		111	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.19		ug/L		104	62 - 128
Dichlorodifluoromethane	5.00	4.99		ug/L		100	32 - 152
Dibromomethane	5.00	5.52		ug/L		110	79 - 123
Ethylene Dibromide	5.00	5.10		ug/L		102	77 - 121
1,2-Dichlorobenzene	5.00	4.63		ug/L		93	80 - 119
1,3-Dichlorobenzene	5.00	4.46		ug/L		89	80 - 119
1,4-Dichlorobenzene	5.00	4.68		ug/L		94	79 - 118
1,1-Dichloroethane	5.00	5.26		ug/L		105	77 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-442962/5
Matrix: Water
Analysis Batch: 442962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	5.00	5.44		ug/L		109	73 - 128
1,1-Dichloroethene	5.00	5.47		ug/L		109	71 - 131
cis-1,2-Dichloroethene	5.00	5.52		ug/L		110	78 - 123
trans-1,2-Dichloroethene	5.00	5.48		ug/L		110	75 - 124
1,2-Dichloropropane	5.00	5.28		ug/L		106	78 - 122
1,3-Dichloropropane	5.00	4.86		ug/L		97	80 - 119
2,2-Dichloropropane	5.00	4.53		ug/L		91	60 - 139
1,1-Dichloropropene	5.00	5.18		ug/L		104	79 - 125
cis-1,3-Dichloropropene	5.00	4.92		ug/L		98	75 - 124
trans-1,3-Dichloropropene	5.00	4.88		ug/L		98	73 - 127
Ethylbenzene	5.00	4.78		ug/L		96	79 - 121
2-Hexanone	20.0	17.1		ug/L		85	57 - 139
Hexachlorobutadiene	5.00	4.18		ug/L		84	66 - 134
Isopropylbenzene	5.00	4.46		ug/L		89	72 - 131
4-Isopropyltoluene	5.00	4.38		ug/L		88	77 - 127
Methylene Chloride	5.00	5.73		ug/L		115	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	19.2		ug/L		96	67 - 130
Methyl tert-butyl ether	5.00	5.24		ug/L		105	71 - 124
Naphthalene	5.00	4.98		ug/L		100	61 - 128
N-Propylbenzene	5.00	4.56		ug/L		91	76 - 126
Styrene	5.00	4.55		ug/L		91	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.86		ug/L		97	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.76		ug/L		95	71 - 121
Tetrachloroethene	5.00	4.66		ug/L		93	74 - 129
Toluene	5.00	5.25		ug/L		105	80 - 121
1,2,3-Trichlorobenzene	5.00	4.85		ug/L		97	69 - 129
1,1,1-Trichloroethane	5.00	5.41		ug/L		108	74 - 131
1,1,2-Trichloroethane	5.00	5.45		ug/L		109	80 - 119
Trichloroethene	5.00	5.20		ug/L		104	79 - 123
Trichlorofluoromethane	5.00	5.47		ug/L		109	65 - 141
1,2,4-Trichlorobenzene	5.00	4.52		ug/L		90	69 - 130
1,2,3-Trichloropropane	5.00	5.05		ug/L		101	73 - 122
1,2,4-Trimethylbenzene	5.00	4.35		ug/L		87	76 - 124
1,3,5-Trimethylbenzene	5.00	4.35		ug/L		87	75 - 124
Vinyl chloride	5.00	4.40		ug/L		88	58 - 137
o-Xylene	5.00	4.74		ug/L		95	78 - 122
m-Xylene & p-Xylene	5.00	4.74		ug/L		95	80 - 121
2-Chlorotoluene	5.00	4.46		ug/L		89	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*89*	*M*	*85 - 114*
Dibromofluoromethane (Surr)	*108*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-442646/3-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		12/28/18 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*95*		*77 - 123*	*12/27/18 11:52*	*12/28/18 11:55*	*1*

Lab Sample ID: LCS 280-442646/1-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	4.38		mg/Kg		102	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*

Lab Sample ID: LCSD 280-442646/2-A
Matrix: Solid
Analysis Batch: 442742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442646

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	4.40		mg/Kg		103	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*

Lab Sample ID: MB 280-442880/10
Matrix: Water
Analysis Batch: 442880

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		12/31/18 05:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*12/31/18 05:59*	*1*

Lab Sample ID: LCS 280-442880/9
Matrix: Water
Analysis Batch: 442880

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	80.9		ug/L		103	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-442875/3-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442875

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/14/19 18:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*112*		*55 - 130*	*12/30/18 12:34*	*01/14/19 18:12*	*1*

Lab Sample ID: LCS 280-442875/1-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442875

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.785		ug/Kg		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Lab Sample ID: LCSD 280-442875/2-A
Matrix: Solid
Analysis Batch: 444201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442875

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.796		ug/Kg		91	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*103*		*55 - 130*

Lab Sample ID: 280-118473-8 MS
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: V-V1-191258-285
Prep Type: Total/NA
Prep Batch: 442875

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.79	U J1 Q	0.910	0.535	J J1 D Q	ug/Kg	☼	59	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*

Lab Sample ID: 280-118473-8 MSD
Matrix: Solid
Analysis Batch: 444292

Client Sample ID: V-V1-191258-285
Prep Type: Total/NA
Prep Batch: 442875

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.79	U J1 Q	0.904	0.448	J D J1 Q	ug/Kg	☼	50	70 - 130	18	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*0*	*Q M D*	*55 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-442942/3-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442942

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/08/19 21:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*98*		*70 - 130*	*12/31/18 15:04*	*01/08/19 21:57*	*1*

Lab Sample ID: LCS 280-442942/1-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.227		ug/L		91	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*100*		*70 - 130*

Lab Sample ID: LCSD 280-442942/2-A
Matrix: Water
Analysis Batch: 443459

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 442942

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.235		ug/L		94	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*100*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-442809/1-A
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 442809

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1.48	J	7.3	3.6	1.2	mg/Kg		01/08/19 16:38	1
Motor Oil (C20-C38)	21	U	22	21	7.1	mg/Kg		01/08/19 16:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*63*		*45 - 130*	*12/28/18 20:10*	*01/08/19 16:38*	*1*
n-Octacosane	*72*		*25 - 162*	*12/28/18 20:10*	*01/08/19 16:38*	*1*

Lab Sample ID: LCS 280-442809/2-A
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	123	88.9		mg/Kg		72	38 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-442809/2-A
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442809

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	68		45 - 130
n-Octacosane	74		25 - 162

Lab Sample ID: LCS 280-442809/3-A
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	313	243		mg/Kg		78	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	75		45 - 130
n-Octacosane	80		25 - 162

Lab Sample ID: 280-118473-3 MS
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: P-V1-191218-254
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	24000	J1 D Q	157	17000	4 D Q	mg/Kg	☼	-4521	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	135	D Q	45 - 130
n-Octacosane	77	D	25 - 162

Lab Sample ID: 280-118473-3 MS
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: P-V1-191218-254
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	370	J D	413	633	D	mg/Kg	☼	64	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	133	D Q	45 - 130
n-Octacosane	88	D	25 - 162

Lab Sample ID: 280-118473-3 MSD
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: P-V1-191218-254
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	24000	J1 D Q	160	23700	4 D Q J1	mg/Kg	☼	-262	38 - 132	33	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	172	D Q	45 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-118473-3 MSD
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: P-V1-191218-254
Prep Type: Total/NA
Prep Batch: 442809

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*105*	*D*	*25 - 162*

Lab Sample ID: 280-118473-3 MSD
Matrix: Solid
Analysis Batch: 443571

Client Sample ID: P-V1-191218-254
Prep Type: Total/NA
Prep Batch: 442809

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	370	J D	410	632	D	mg/Kg	☼	64	45 - 130	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*131*	*D Q*	*45 - 130*
n-Octacosane	*91*	*D*	*25 - 162*

GC/MS VOA

Prep Batch: 442765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-2 - DL	V-V1-191218-254	Total/NA	Solid	5035	
280-118473-2	V-V1-191218-254	Total/NA	Solid	5035	
280-118473-4	V-V1-191218-271	Total/NA	Solid	5035	
280-118473-6	V-V1-191218-285	Total/NA	Solid	5035	
280-118473-8	V-V1-191258-285	Total/NA	Solid	5035	
MB 280-442765/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442765/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442765/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-2	V-V1-191218-254	Total/NA	Solid	8260B	442765
280-118473-2 - DL	V-V1-191218-254	Total/NA	Solid	8260B	442765
280-118473-4	V-V1-191218-271	Total/NA	Solid	8260B	442765
280-118473-6	V-V1-191218-285	Total/NA	Solid	8260B	442765
280-118473-8	V-V1-191258-285	Total/NA	Solid	8260B	442765
MB 280-442765/1-A	Method Blank	Total/NA	Solid	8260B	442765
LCS 280-442765/2-A	Lab Control Sample	Total/NA	Solid	8260B	442765
LCSD 280-442765/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	442765

Analysis Batch: 442962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-1	TB-V1-191218-01	Total/NA	Water	8260B	
MB 280-442962/4	Method Blank	Total/NA	Water	8260B	
LCS 280-442962/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 442646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-3 - DL	P-V1-191218-254	Total/NA	Solid	5035	
280-118473-5 - DL	P-V1-191218-271	Total/NA	Solid	5035	
280-118473-7 - DL	P-V1-191218-285	Total/NA	Solid	5035	
280-118473-9 - RA	P-V1-191258-285	Total/NA	Solid	5035	
MB 280-442646/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 442742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-3 - DL	P-V1-191218-254	Total/NA	Solid	8015D GRO	442646
280-118473-7 - DL	P-V1-191218-285	Total/NA	Solid	8015D GRO	442646
MB 280-442646/3-A	Method Blank	Total/NA	Solid	8015D GRO	442646
LCS 280-442646/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	442646
LCSD 280-442646/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	442646

Analysis Batch: 442874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-5 - DL	P-V1-191218-271	Total/NA	Solid	8015D GRO	442646

GC VOA (Continued)

Analysis Batch: 442880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-1	TB-V1-191218-01	Total/NA	Water	8015D GRO	
MB 280-442880/10	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-442880/9	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 443049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-9 - RA	P-V1-191258-285	Total/NA	Solid	8015D GRO	442646

GC Semi VOA

Prep Batch: 442809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-3	P-V1-191218-254	Total/NA	Solid	3546	
280-118473-5	P-V1-191218-271	Total/NA	Solid	3546	
280-118473-7	P-V1-191218-285	Total/NA	Solid	3546	
280-118473-9	P-V1-191258-285	Total/NA	Solid	3546	
MB 280-442809/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-442809/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-442809/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-118473-3 MS	P-V1-191218-254	Total/NA	Solid	3546	
280-118473-3 MS	P-V1-191218-254	Total/NA	Solid	3546	
280-118473-3 MSD	P-V1-191218-254	Total/NA	Solid	3546	
280-118473-3 MSD	P-V1-191218-254	Total/NA	Solid	3546	

Prep Batch: 442875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-2	V-V1-191218-254	Total/NA	Solid	8011	
280-118473-4	V-V1-191218-271	Total/NA	Solid	8011	
280-118473-6	V-V1-191218-285	Total/NA	Solid	8011	
280-118473-8	V-V1-191258-285	Total/NA	Solid	8011	
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-118473-8 MS	V-V1-191258-285	Total/NA	Solid	8011	
280-118473-8 MSD	V-V1-191258-285	Total/NA	Solid	8011	

Prep Batch: 442942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-1	TB-V1-191218-01	Total/NA	Water	8011	
MB 280-442942/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-442942/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-442942/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 443459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-1	TB-V1-191218-01	Total/NA	Water	8011	442942
MB 280-442942/3-A	Method Blank	Total/NA	Water	8011	442942
LCS 280-442942/1-A	Lab Control Sample	Total/NA	Water	8011	442942
LCSD 280-442942/2-A	Lab Control Sample Dup	Total/NA	Water	8011	442942

GC Semi VOA (Continued)

Analysis Batch: 443571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-3	P-V1-191218-254	Total/NA	Solid	8015D DRO	442809
280-118473-5	P-V1-191218-271	Total/NA	Solid	8015D DRO	442809
280-118473-7	P-V1-191218-285	Total/NA	Solid	8015D DRO	442809
280-118473-9	P-V1-191258-285	Total/NA	Solid	8015D DRO	442809
MB 280-442809/1-A	Method Blank	Total/NA	Solid	8015D DRO	442809
LCS 280-442809/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442809
LCS 280-442809/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	442809
280-118473-3 MS	P-V1-191218-254	Total/NA	Solid	8015D DRO	442809
280-118473-3 MS	P-V1-191218-254	Total/NA	Solid	8015D DRO	442809
280-118473-3 MSD	P-V1-191218-254	Total/NA	Solid	8015D DRO	442809
280-118473-3 MSD	P-V1-191218-254	Total/NA	Solid	8015D DRO	442809

Analysis Batch: 444201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-2	V-V1-191218-254	Total/NA	Solid	8011	442875
280-118473-4	V-V1-191218-271	Total/NA	Solid	8011	442875
MB 280-442875/3-A	Method Blank	Total/NA	Solid	8011	442875
LCS 280-442875/1-A	Lab Control Sample	Total/NA	Solid	8011	442875
LCSD 280-442875/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	442875

Analysis Batch: 444292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-6	V-V1-191218-285	Total/NA	Solid	8011	442875
280-118473-8	V-V1-191258-285	Total/NA	Solid	8011	442875
280-118473-8 MS	V-V1-191258-285	Total/NA	Solid	8011	442875
280-118473-8 MSD	V-V1-191258-285	Total/NA	Solid	8011	442875

General Chemistry

Analysis Batch: 442307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-118473-2	V-V1-191218-254	Total/NA	Solid	Moisture	
280-118473-3	P-V1-191218-254	Total/NA	Solid	Moisture	
280-118473-4	V-V1-191218-271	Total/NA	Solid	Moisture	
280-118473-5	P-V1-191218-271	Total/NA	Solid	Moisture	
280-118473-6	V-V1-191218-285	Total/NA	Solid	Moisture	
280-118473-7	P-V1-191218-285	Total/NA	Solid	Moisture	
280-118473-8	V-V1-191258-285	Total/NA	Solid	Moisture	
280-118473-9	P-V1-191258-285	Total/NA	Solid	Moisture	

Client Sample ID: TB-V1-191218-01

Lab Sample ID: 280-118473-1

Date Collected: 12/19/18 15:00

Matrix: Water

Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	442962	01/02/19 13:44	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	442880	12/31/18 09:35	SU	TAL DEN
Total/NA	Prep	8011			34.4 mL	35 mL	442942	12/31/18 15:04	MJS	TAL DEN
Total/NA	Analysis	8011		1			443459	01/09/19 00:12	JLW	TAL DEN

Client Sample ID: V-V1-191218-254

Lab Sample ID: 280-118473-2

Date Collected: 12/19/18 10:35

Matrix: Solid

Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-191218-254

Lab Sample ID: 280-118473-2

Date Collected: 12/19/18 10:35

Matrix: Solid

Date Received: 12/20/18 10:15

Percent Solids: 72.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1.599 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 14:38	JLS	TAL DEN
Total/NA	Prep	5035	DL		1.599 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B	DL	100	20 mL	20 mL	442899	12/28/18 18:46	JLS	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		5000			444201	01/14/19 19:49	JLW	TAL DEN

Client Sample ID: P-V1-191218-254

Lab Sample ID: 280-118473-3

Date Collected: 12/19/18 10:35

Matrix: Solid

Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-191218-254

Lab Sample ID: 280-118473-3

Date Collected: 12/19/18 10:35

Matrix: Solid

Date Received: 12/20/18 10:15

Percent Solids: 77.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		2.438 g	5 mL	442646	12/19/18 10:35	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	500	0.1 mL	5 mL	442742	12/28/18 19:27	SU	TAL DEN
Total/NA	Prep	3546			15.6 g	1 mL	442809	12/28/18 20:10	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		20			443571	01/08/19 18:39	AMB1	TAL DEN

Client Sample ID: V-V1-191218-271 — **Lab Sample ID: 280-118473-4**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-191218-271 — **Lab Sample ID: 280-118473-4**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 78.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.289 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 14:57	JLS	TAL DEN
Total/NA	Prep	8011			10.05 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		20			444201	01/14/19 20:27	JLW	TAL DEN

Client Sample ID: P-V1-191218-271 — **Lab Sample ID: 280-118473-5**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-191218-271 — **Lab Sample ID: 280-118473-5**
Date Collected: 12/19/18 14:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 80.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.498 g	5 mL	442646	12/19/18 14:20	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	2	0.1 mL	5 mL	442874	12/30/18 13:56	SU	TAL DEN
Total/NA	Prep	3546			16.1 g	1 mL	442809	12/28/18 20:10	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443571	01/08/19 17:38	AMB1	TAL DEN

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-191218-285 — **Lab Sample ID: 280-118473-6**
Date Collected: 12/19/18 15:20 — **Matrix: Solid**
Date Received: 12/20/18 10:15 — **Percent Solids: 96.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2.97 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN

Client Sample ID: V-V1-191218-285

Lab Sample ID: 280-118473-6
Date Collected: 12/19/18 15:20
Matrix: Solid
Date Received: 12/20/18 10:15
Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 15:16	JLS	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		10			444292	01/15/19 20:45	JLW	TAL DEN

Client Sample ID: P-V1-191218-285

Lab Sample ID: 280-118473-7
Date Collected: 12/19/18 15:20
Matrix: Solid
Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-191218-285

Lab Sample ID: 280-118473-7
Date Collected: 12/19/18 15:20
Matrix: Solid
Date Received: 12/20/18 10:15
Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		4.33 g	5 mL	442646	12/19/18 15:20	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	100	0.1 mL	5 mL	442742	12/28/18 19:03	SU	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	442809	12/28/18 20:10	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443571	01/08/19 17:58	AMB1	TAL DEN

Client Sample ID: V-V1-191258-285

Lab Sample ID: 280-118473-8
Date Collected: 12/19/18 15:20
Matrix: Solid
Date Received: 12/20/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: V-V1-191258-285

Lab Sample ID: 280-118473-8
Date Collected: 12/19/18 15:20
Matrix: Solid
Date Received: 12/20/18 10:15
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.348 g	1000 mL	442765	12/28/18 10:21	CAS	TAL DEN
Total/NA	Analysis	8260B		10	20 mL	20 mL	442899	12/28/18 15:35	JLS	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	442875	12/30/18 12:34	MJS	TAL DEN
Total/NA	Analysis	8011		20			444292	01/15/19 13:49	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Client Sample ID: P-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			442307	12/22/18 11:58	LMD	TAL DEN

Client Sample ID: P-V1-191258-285
Date Collected: 12/19/18 15:20
Date Received: 12/20/18 10:15

Lab Sample ID: 280-118473-9
Matrix: Solid
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		4.487 g	5 mL	442646	12/19/18 15:20	SU	TAL DEN
Total/NA	Analysis	8015D GRO	RA	2	0.1 mL	5 mL	443049	01/02/19 16:19	SU	TAL DEN
Total/NA	Prep	3546			16.5 g	1 mL	442809	12/28/18 20:10	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			443571	01/08/19 18:19	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-118473-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8113 9337 5181	COC No: COC1-VI-TA-20181219
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Special Instructions/Note:
			Preservation Code:		X	X	E	N	N	N	F	A	R	M	M	
TB-VI-191218-01	12/19/18	1500	G	W	N	N						X	X	-	X	
V-VI-191218-254	12/19/18	1035	G	S	N	N	X	X	X							
P-VI-191218-254	12/19/18	1035	G	S	N	N				X	X					
V-VI-191218-271	12/19/18	1420	G	S	N	N	X	X	X							
P-VI-191218-271	12/19/18	1920	G	S	N	N				X	X					
V-VI-191218-285	12/19/18	1520	G	S	N	N	X	X	X							
P-VI-191218-285	12/19/18	1520	G	S	N	N				X	X					
~~V-VI-191258-285~~ (JRL) V-VI-191258-285	12/19/18	1520	G	S	N	N	X	X	X							Dup
~~P-VI-191258-285~~ (JRL) P-VI-191258-285	12/19/18	1520	G	S	N	N				X	X					Dup
JRL			~~G~~ JRL													
			~~G~~ JRL													

280-118473 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Joshua Livingston	Date/Time: 12/19/18 1800	Company EA	Received by:
Relinquished by:	Date/Time:	Company	Received by:
Relinquished by:	Date/Time:	Company	Received by:

Received by:	Date/Time: 12/20/18 1015	Company	
Received by:	Date/Time:	Company	
Received by:	Date/Time:	Company	

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.4 to 4, IR #9, xfer by RDP 12-20-18

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-118473-1

Login Number: 118473
List Number: 1
Creator: Paul, Ryan D

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119077-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
1/25/2019 4:28:31 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119077-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119077-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The sample was received on 1/11/2019 9:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)
Sample RB-S8-060119-01 (280-119077-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/18/2019.

Dichlorodifluoromethane exceeded the RPD limit for LCSD 280-444778/4. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD each recovered within control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP
Sample RB-S8-060119-01 (280-119077-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 01/17/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)
Sample RB-S8-060119-01 (280-119077-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 01/14/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Sample RB-S8-060119-01 (280-119077-1) was analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 01/13/2019 and analyzed on 01/16/2019.

Per method comments, the analysis of the following samples was performed on silica gel cleaned extracts: RB-S8-060119-01 (280-119077-1), (LCS 280-444153/2-A), (LCS 280-444153/4-A), (LCSD 280-444153/11-A), (LCSD 280-444153/3-A) and (MB 280-444153/1-A). This is for preparation batch 280-444153 and analytical batch 280-444395.

Job ID: 280-119077-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-444153. A duplicate LCS (CLSD) was performed.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Client Sample ID: RB-S8-060119-01 **Lab Sample ID: 280-119077-1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	0.10	J	0.25	0.12	0.032	mg/L	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119077-1	RB-S8-060119-01	Water	01/06/19 10:05	01/11/19 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S8-060119-01
Date Collected: 01/06/19 10:05
Date Received: 01/11/19 09:15

Lab Sample ID: 280-119077-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/18/19 22:57	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/18/19 22:57	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 22:57	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/18/19 22:57	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/18/19 22:57	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/18/19 22:57	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/18/19 22:57	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/18/19 22:57	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/18/19 22:57	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/18/19 22:57	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 22:57	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/18/19 22:57	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		01/18/19 22:57	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 22:57	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 22:57	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/18/19 22:57	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 22:57	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/18/19 22:57	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/18/19 22:57	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/18/19 22:57	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 22:57	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 22:57	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 22:57	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 22:57	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 22:57	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 22:57	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 22:57	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/18/19 22:57	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/18/19 22:57	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 22:57	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/18/19 22:57	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/18/19 22:57	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/18/19 22:57	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/18/19 22:57	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 22:57	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S8-060119-01 — **Lab Sample ID: 280-119077-1**
Date Collected: 01/06/19 10:05 — **Matrix: Water**
Date Received: 01/11/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 22:57	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 22:57	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/18/19 22:57	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 22:57	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/18/19 22:57	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/18/19 22:57	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 22:57	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/18/19 22:57	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 22:57	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 22:57	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/18/19 22:57	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 22:57	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/18/19 22:57	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 22:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*108*		*89 - 112*		*01/18/19 22:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*01/18/19 22:57*	*1*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*		*01/18/19 22:57*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 119*		*01/18/19 22:57*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S8-060119-01 — **Lab Sample ID: 280-119077-1**
Date Collected: 01/06/19 10:05 — **Matrix: Water**
Date Received: 01/11/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/14/19 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*01/14/19 15:10*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S8-060119-01 — **Lab Sample ID: 280-119077-1**
Date Collected: 01/06/19 10:05 — **Matrix: Water**
Date Received: 01/11/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		01/17/19 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*70 - 130*	*01/17/19 11:27*	*01/17/19 18:40*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S8-060119-01
Date Collected: 01/06/19 10:05
Date Received: 01/11/19 09:15

Lab Sample ID: 280-119077-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.10**	**J**	0.25	0.12	0.032	mg/L		01/16/19 18:51	1
Motor Oil (C20-C38)	0.12	U	0.50	0.12	0.056	mg/L		01/16/19 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*77*		*56 - 125*	*01/13/19 11:30*	*01/16/19 18:51*	*1*
n-Octacosane	*98*		*60 - 142*	*01/13/19 11:30*	*01/16/19 18:51*	*1*

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119077-1	RB-S8-060119-01	108	104	102	105
LCS 280-444778/3	Lab Control Sample	101	101	95	100
LCSD 280-444778/4	Lab Control Sample Dup	105	106	107	106
MB 280-444778/5	Method Blank	110	102	103	106

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-119077-1	RB-S8-060119-01	96
LCS 280-444175/21	Lab Control Sample	94
MB 280-444175/22	Method Blank	93

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-119077-1	RB-S8-060119-01	106
LCS 280-444567/1-A	Lab Control Sample	102
LCSD 280-444567/2-A	Lab Control Sample Dup	107
MB 280-444567/3-A	Method Blank	98

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(56-125)	(60-142)
280-119077-1	RB-S8-060119-01	77	98
LCS 280-444153/2-A	Lab Control Sample	82	98
LCS 280-444153/4-A	Lab Control Sample	74	87
LCSD 280-444153/11-A	Lab Control Sample Dup	95	119
LCSD 280-444153/3-A	Lab Control Sample Dup	79	96
MB 280-444153/1-A	Method Blank	81	101

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-444778/5
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/18/19 21:26	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/18/19 21:26	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 21:26	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/18/19 21:26	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/18/19 21:26	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/18/19 21:26	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/18/19 21:26	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/18/19 21:26	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/18/19 21:26	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/18/19 21:26	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 21:26	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/18/19 21:26	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/18/19 21:26	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 21:26	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 21:26	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/18/19 21:26	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 21:26	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/18/19 21:26	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/18/19 21:26	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/18/19 21:26	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 21:26	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 21:26	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 21:26	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 21:26	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/18/19 21:26	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 21:26	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 21:26	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/18/19 21:26	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/18/19 21:26	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 21:26	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/18/19 21:26	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/18/19 21:26	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/18/19 21:26	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/18/19 21:26	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/18/19 21:26	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-444778/5
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 21:26	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 21:26	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/18/19 21:26	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 21:26	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/18/19 21:26	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/18/19 21:26	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/18/19 21:26	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/18/19 21:26	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/18/19 21:26	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/18/19 21:26	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/18/19 21:26	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/18/19 21:26	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/18/19 21:26	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/18/19 21:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*110*		*89 - 112*		*01/18/19 21:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*01/18/19 21:26*	*1*
4-Bromofluorobenzene (Surr)	*103*		*85 - 114*		*01/18/19 21:26*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 119*		*01/18/19 21:26*	*1*

Lab Sample ID: LCS 280-444778/3
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	20.2		ug/L		101	39 - 160
Benzene	5.00	4.91		ug/L		98	79 - 120
Bromobenzene	5.00	4.77		ug/L		95	80 - 120
Bromochloromethane	5.00	5.09		ug/L		102	78 - 123
Bromodichloromethane	5.00	4.86		ug/L		97	79 - 125
Bromoform	5.00	5.03		ug/L		101	66 - 130
Bromomethane	5.00	5.04		ug/L		101	53 - 141
2-Butanone (MEK)	20.0	18.3		ug/L		91	56 - 143
n-Butylbenzene	5.00	4.94		ug/L		99	75 - 128
sec-Butylbenzene	5.00	4.71		ug/L		94	77 - 126
tert-Butylbenzene	5.00	4.75		ug/L		95	78 - 124
Carbon disulfide	5.00	4.73		ug/L		95	64 - 133
Carbon tetrachloride	5.00	4.75		ug/L		95	72 - 136
Chlorobenzene	5.00	4.95		ug/L		99	82 - 118
Chloroethane	5.00	4.88		ug/L		98	60 - 138
Chloroform	5.00	4.96		ug/L		99	79 - 124
Chloromethane	5.00	4.79		ug/L		96	50 - 139
4-Chlorotoluene	5.00	4.75		ug/L		95	78 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-444778/3
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromochloromethane	5.00	5.04		ug/L		101	74 - 126
1,2-Dibromo-3-Chloropropane	5.00	5.52		ug/L		110	62 - 128
Dichlorodifluoromethane	5.00	3.98		ug/L		80	32 - 152
Dibromomethane	5.00	4.96		ug/L		99	79 - 123
Ethylene Dibromide	5.00	4.98		ug/L		100	77 - 121
1,2-Dichlorobenzene	5.00	4.89		ug/L		98	80 - 119
1,3-Dichlorobenzene	5.00	4.90		ug/L		98	80 - 119
1,4-Dichlorobenzene	5.00	4.80		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	4.93		ug/L		99	77 - 125
1,2-Dichloroethane	5.00	5.00		ug/L		100	73 - 128
1,1-Dichloroethene	5.00	4.91		ug/L		98	71 - 131
cis-1,2-Dichloroethene	5.00	4.88		ug/L		98	78 - 123
trans-1,2-Dichloroethene	5.00	5.04		ug/L		101	75 - 124
1,2-Dichloropropane	5.00	4.98		ug/L		100	78 - 122
1,3-Dichloropropane	5.00	5.01		ug/L		100	80 - 119
2,2-Dichloropropane	5.00	4.97		ug/L		99	60 - 139
1,1-Dichloropropene	5.00	4.81		ug/L		96	79 - 125
cis-1,3-Dichloropropene	5.00	5.19		ug/L		104	75 - 124
trans-1,3-Dichloropropene	5.00	5.03		ug/L		101	73 - 127
Ethylbenzene	5.00	4.81		ug/L		96	79 - 121
2-Hexanone	20.0	20.8		ug/L		104	57 - 139
Hexachlorobutadiene	5.00	5.22		ug/L		104	66 - 134
Isopropylbenzene	5.00	4.36		ug/L		87	72 - 131
4-Isopropyltoluene	5.00	4.48		ug/L		90	77 - 127
Methylene Chloride	5.00	4.68	J	ug/L		94	74 - 124
4-Methyl-2-pentanone (MIBK)	20.0	20.7		ug/L		103	67 - 130
Methyl tert-butyl ether	5.00	5.07		ug/L		101	71 - 124
Naphthalene	5.00	5.46		ug/L		109	61 - 128
N-Propylbenzene	5.00	4.75		ug/L		95	76 - 126
Styrene	5.00	4.89		ug/L		98	78 - 123
1,1,1,2-Tetrachloroethane	5.00	4.91		ug/L		98	78 - 124
1,1,2,2-Tetrachloroethane	5.00	4.83		ug/L		97	71 - 121
Tetrachloroethene	5.00	4.84		ug/L		97	74 - 129
Toluene	5.00	5.00		ug/L		100	80 - 121
1,2,3-Trichlorobenzene	5.00	5.55		ug/L		111	69 - 129
1,1,1-Trichloroethane	5.00	4.84		ug/L		97	74 - 131
1,1,2-Trichloroethane	5.00	5.14		ug/L		103	80 - 119
Trichloroethene	5.00	4.76		ug/L		95	79 - 123
Trichlorofluoromethane	5.00	4.65		ug/L		93	65 - 141
1,2,4-Trichlorobenzene	5.00	5.28		ug/L		106	69 - 130
1,2,3-Trichloropropane	5.00	5.00		ug/L		100	73 - 122
1,2,4-Trimethylbenzene	5.00	4.78		ug/L		96	76 - 124
1,3,5-Trimethylbenzene	5.00	4.77		ug/L		95	75 - 124
Vinyl chloride	5.00	4.88		ug/L		98	58 - 137
o-Xylene	5.00	4.93		ug/L		99	78 - 122
m-Xylene & p-Xylene	5.00	4.82		ug/L		96	80 - 121
2-Chlorotoluene	5.00	4.71		ug/L		94	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-444778/3
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*
Dibromofluoromethane (Surr)	*100*		*80 - 119*

Lab Sample ID: LCSD 280-444778/4
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone			20.0	20.3		ug/L		102	39 - 160	0	20
Benzene			5.00	5.21		ug/L		104	79 - 120	6	20
Bromobenzene			5.00	5.34		ug/L		107	80 - 120	11	20
Bromochloromethane			5.00	5.36		ug/L		107	78 - 123	5	20
Bromodichloromethane			5.00	5.20		ug/L		104	79 - 125	7	20
Bromoform			5.00	5.29		ug/L		106	66 - 130	5	20
Bromomethane			5.00	5.02		ug/L		100	53 - 141	0	20
2-Butanone (MEK)			20.0	18.9		ug/L		94	56 - 143	3	20
n-Butylbenzene			5.00	5.24		ug/L		105	75 - 128	6	20
sec-Butylbenzene			5.00	5.15		ug/L		103	77 - 126	9	20
tert-Butylbenzene			5.00	5.21		ug/L		104	78 - 124	9	20
Carbon disulfide			5.00	4.91		ug/L		98	64 - 133	4	20
Carbon tetrachloride			5.00	4.92		ug/L		98	72 - 136	4	20
Chlorobenzene			5.00	5.26		ug/L		105	82 - 118	6	20
Chloroethane			5.00	4.59		ug/L		92	60 - 138	6	20
Chloroform			5.00	5.26		ug/L		105	79 - 124	6	20
Chloromethane			5.00	4.19		ug/L		84	50 - 139	13	20
4-Chlorotoluene			5.00	5.32		ug/L		106	78 - 122	11	20
Dibromochloromethane			5.00	5.38		ug/L		108	74 - 126	6	20
1,2-Dibromo-3-Chloropropane			5.00	5.72		ug/L		114	62 - 128	3	20
Dichlorodifluoromethane			5.00	3.01	Q	ug/L		60	32 - 152	28	20
Dibromomethane			5.00	5.27		ug/L		105	79 - 123	6	20
Ethylene Dibromide			5.00	5.26		ug/L		105	77 - 121	5	20
1,2-Dichlorobenzene			5.00	5.39		ug/L		108	80 - 119	10	20
1,3-Dichlorobenzene			5.00	5.27		ug/L		105	80 - 119	7	20
1,4-Dichlorobenzene			5.00	5.32		ug/L		106	79 - 118	10	20
1,1-Dichloroethane			5.00	5.19		ug/L		104	77 - 125	5	20
1,2-Dichloroethane			5.00	5.27		ug/L		105	73 - 128	5	20
1,1-Dichloroethene			5.00	5.05		ug/L		101	71 - 131	3	20
cis-1,2-Dichloroethene			5.00	5.24		ug/L		105	78 - 123	7	20
trans-1,2-Dichloroethene			5.00	5.30		ug/L		106	75 - 124	5	20
1,2-Dichloropropane			5.00	5.27		ug/L		105	78 - 122	6	20
1,3-Dichloropropane			5.00	5.24		ug/L		105	80 - 119	4	20
2,2-Dichloropropane			5.00	5.05		ug/L		101	60 - 139	2	20
1,1-Dichloropropene			5.00	4.96		ug/L		99	79 - 125	3	20
cis-1,3-Dichloropropene			5.00	5.47		ug/L		109	75 - 124	5	20
trans-1,3-Dichloropropene			5.00	5.20		ug/L		104	73 - 127	3	20
Ethylbenzene			5.00	5.07		ug/L		101	79 - 121	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-444778/4
Matrix: Water
Analysis Batch: 444778

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Hexanone	20.0	21.1		ug/L		105	57 - 139	1	20
Hexachlorobutadiene	5.00	5.21		ug/L		104	66 - 134	0	20
Isopropylbenzene	5.00	4.86		ug/L		97	72 - 131	11	20
4-Isopropyltoluene	5.00	4.89		ug/L		98	77 - 127	9	20
Methylene Chloride	5.00	5.00		ug/L		100	74 - 124	7	20
4-Methyl-2-pentanone (MIBK)	20.0	21.5		ug/L		108	67 - 130	4	20
Methyl tert-butyl ether	5.00	5.41		ug/L		108	71 - 124	7	20
Naphthalene	5.00	5.50		ug/L		110	61 - 128	1	20
N-Propylbenzene	5.00	5.16		ug/L		103	76 - 126	8	20
Styrene	5.00	5.16		ug/L		103	78 - 123	5	20
1,1,1,2-Tetrachloroethane	5.00	5.30		ug/L		106	78 - 124	8	20
1,1,2,2-Tetrachloroethane	5.00	5.40		ug/L		108	71 - 121	11	20
Tetrachloroethene	5.00	4.93		ug/L		99	74 - 129	2	20
Toluene	5.00	5.29		ug/L		106	80 - 121	6	20
1,2,3-Trichlorobenzene	5.00	5.57		ug/L		111	69 - 129	0	20
1,1,1-Trichloroethane	5.00	5.09		ug/L		102	74 - 131	5	20
1,1,2-Trichloroethane	5.00	5.40		ug/L		108	80 - 119	5	20
Trichloroethene	5.00	5.03		ug/L		101	79 - 123	5	20
Trichlorofluoromethane	5.00	3.93		ug/L		79	65 - 141	17	20
1,2,4-Trichlorobenzene	5.00	5.42		ug/L		108	69 - 130	3	20
1,2,3-Trichloropropane	5.00	5.56		ug/L		111	73 - 122	11	20
1,2,4-Trimethylbenzene	5.00	5.39		ug/L		108	76 - 124	12	20
1,3,5-Trimethylbenzene	5.00	5.34		ug/L		107	75 - 124	11	20
Vinyl chloride	5.00	4.10		ug/L		82	58 - 137	17	20
o-Xylene	5.00	5.25		ug/L		105	78 - 122	6	20
m-Xylene & p-Xylene	5.00	5.14		ug/L		103	80 - 121	6	20
2-Chlorotoluene	5.00	5.29		ug/L		106	79 - 122	12	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*106*		*81 - 118*
4-Bromofluorobenzene (Surr)	*107*		*85 - 114*
Dibromofluoromethane (Surr)	*106*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-444175/22
Matrix: Water
Analysis Batch: 444175

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/14/19 13:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*82 - 110*		*01/14/19 13:11*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-444175/21
Matrix: Water
Analysis Batch: 444175

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	76.3		ug/L		97	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*94*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-444567/3-A
Matrix: Water
Analysis Batch: 444613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444567

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/17/19 17:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*98*		*70 - 130*	*01/17/19 11:27*	*01/17/19 17:42*	*1*

Lab Sample ID: LCS 280-444567/1-A
Matrix: Water
Analysis Batch: 444613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.212		ug/L		85	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*102*		*70 - 130*

Lab Sample ID: LCSD 280-444567/2-A
Matrix: Water
Analysis Batch: 444613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444567

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.236		ug/L		94	70 - 130	11	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*107*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-444153/1-A
Matrix: Water
Analysis Batch: 444395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444153

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		01/16/19 17:25	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		01/16/19 17:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	81		56 - 125	01/13/19 11:30	01/16/19 17:25	1
n-Octacosane	101		60 - 142	01/13/19 11:30	01/16/19 17:25	1

Lab Sample ID: LCS 280-444153/2-A
Matrix: Water
Analysis Batch: 444395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444153

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.00	1.76		mg/L		88	36 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	82		56 - 125
n-Octacosane	98		60 - 142

Lab Sample ID: LCS 280-444153/4-A
Matrix: Water
Analysis Batch: 444395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444153

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	5.02	3.92		mg/L		78	41 - 113

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	74		56 - 125
n-Octacosane	87		60 - 142

Lab Sample ID: LCSD 280-444153/11-A
Matrix: Water
Analysis Batch: 444395

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444153

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	5.02	5.21		mg/L		104	41 - 113	28	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl (Surr)	95		56 - 125
n-Octacosane	119		60 - 142

Lab Sample ID: LCSD 280-444153/3-A
Matrix: Water
Analysis Batch: 444395

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444153

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	2.00	1.89		mg/L		95	36 - 132	7	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl (Surr)	79		56 - 125
n-Octacosane	96		60 - 142

GC/MS VOA

Analysis Batch: 444778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	8260B	
MB 280-444778/5	Method Blank	Total/NA	Water	8260B	
LCS 280-444778/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-444778/4	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 444175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	8015D GRO	
MB 280-444175/22	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-444175/21	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 444153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	3510C	
MB 280-444153/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-444153/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-444153/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-444153/11-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-444153/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 444395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	8015D DRO	444153
MB 280-444153/1-A	Method Blank	Total/NA	Water	8015D DRO	444153
LCS 280-444153/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	444153
LCS 280-444153/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	444153
LCSD 280-444153/11-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	444153
LCSD 280-444153/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	444153

Prep Batch: 444567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	8011	
MB 280-444567/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-444567/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-444567/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 444613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119077-1	RB-S8-060119-01	Total/NA	Water	8011	444567
MB 280-444567/3-A	Method Blank	Total/NA	Water	8011	444567
LCS 280-444567/1-A	Lab Control Sample	Total/NA	Water	8011	444567
LCSD 280-444567/2-A	Lab Control Sample Dup	Total/NA	Water	8011	444567

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Client Sample ID: RB-S8-060119-01
Date Collected: 01/06/19 10:05
Date Received: 01/11/19 09:15

Lab Sample ID: 280-119077-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	444778	01/18/19 22:57	GO	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	444175	01/14/19 15:10	SU	TAL DEN
Total/NA	Prep	8011			34.3 mL	35 mL	444567	01/17/19 11:27	MJS	TAL DEN
Total/NA	Analysis	8011		1			444613	01/17/19 18:40	JLW	TAL DEN
Total/NA	Prep	3510C			1005.3 mL	1 mL	444153	01/13/19 11:30	AAG	TAL DEN
Total/NA	Analysis	8015D DRO		1			444395	01/16/19 18:51	AMB1	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119077-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8113 9337 5192	COC No: COC 1-58-TA-20190110
Client Contact: Pamela Moss	Phone: (575) 910-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				J/F	N	N	N	F	A	R	N	A		
RB-58-060119-01	01/06/19	1005	G	W	Y	Y						X	X	X	X	4	

280-119077 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS	Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	01/10/19 1800	EA		1-11-19 915	TA Den
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.3, +1.0, IR5, xfer by RDP 1-11-19

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119077-1

Login Number: 119077
List Number: 1
Creator: Staack, KiAundra A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119255-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/1/2019 6:27:40 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119255-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119255-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 1/17/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Sample V-S8-160119-419 (280-119255-2) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 01/16/2019 and analyzed on 01/24/2019.

The continuing calibration verification (CCV) associated with batch 280-445306 recovered above the upper control limit for Acetone, 2-Butanone (MEK), 2-Hexanone, 4-Methyl-2-pentanone (MIBK). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.
Acetone +29.8%D, 2-Butanone (MEK) +25.6%D, 2-Hexanone +30.3%D, 4-Methyl-2-pentanone (MIBK +20.7%D

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-S8-160119-01 (280-119255-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/25/2019.

The continuing calibration verification (CCV) associated with batch 280-445431 recovered above the upper control limit (20%) for Trichlorofluoromethane at 21.6%. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: TB-S8-160119-01 (280-119255-1) and (CCV 280-445431/2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Sample V-S8-160119-419 (280-119255-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 01/21/2019 and analyzed on 01/29/2019.

The following sample was diluted due to the nature of the sample matrix: V-S8-160119-419 (280-119255-2). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Job ID: 280-119255-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Compound 1,2,3-Trichloropropane, 1,2-Dibromo-3-Chloropropane, 1,2-Dibromopropane and 1,2-Dibromoethane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following sample: (CCV 280-445839/17). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S8-160119-01 (280-119255-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 01/23/2019 and analyzed on 01/29/2019.

Compound 1,2,3-Trichloropropane, 1,2-Dibromo-3-Chloropropane, 1,2-Dibromopropane and 1,2-Dibromoethane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following sample: (CCV 280-445839/17). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Sample P-S8-160119-419 (280-119255-3) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 01/18/2019 and analyzed on 01/21/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S8-160119-01 (280-119255-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 01/29/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample P-S8-160119-419 (280-119255-3) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/23/2019 and analyzed on 01/28/2019.

Per the method comments, 8015D_DRO_DOD5 analysis for the following samples was performed on extracts that were silica gel cleaned: P-S8-160119-419 (280-119255-3), (LCS 280-445176/2-A), (LCS 280-445176/3-A), (MB 280-445176/1-A), (280-119255-A-3-B MS), (280-119255-A-3-D MS), (280-119255-A-3-C MSD) and (280-119255-A-3-E MSD). This is for preparation batch 280-445176 and analytical batch 280-445704.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-445176/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S8-160119-419 (280-119255-2) and P-S8-160119-419 (280-119255-3) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 01/18/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Client Sample ID: TB-S8-160119-01 — Lab Sample ID: 280-119255-1

No Detections.

Client Sample ID: V-S8-160119-419 — Lab Sample ID: 280-119255-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.0	J	5.9	3.8	1.9	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S8-160119-419 — Lab Sample ID: 280-119255-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.1	J	8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119255-1	TB-S8-160119-01	Water	01/16/19 13:30	01/17/19 09:00
280-119255-2	V-S8-160119-419	Solid	01/16/19 11:05	01/17/19 09:00
280-119255-3	P-S8-160119-419	Solid	01/16/19 11:05	01/17/19 09:00

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S8-160119-01
Date Collected: 01/16/19 13:30
Date Received: 01/17/19 09:00

Lab Sample ID: 280-119255-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		01/25/19 13:50	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/25/19 13:50	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 13:50	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/25/19 13:50	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/25/19 13:50	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/25/19 13:50	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/25/19 13:50	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/25/19 13:50	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/25/19 13:50	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/25/19 13:50	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 13:50	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/25/19 13:50	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/25/19 13:50	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 13:50	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 13:50	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/25/19 13:50	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 13:50	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/25/19 13:50	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/25/19 13:50	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/25/19 13:50	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 13:50	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 13:50	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 13:50	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 13:50	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 13:50	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 13:50	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 13:50	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/25/19 13:50	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/25/19 13:50	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 13:50	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/25/19 13:50	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/25/19 13:50	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/25/19 13:50	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/25/19 13:50	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 13:50	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S8-160119-01
Date Collected: 01/16/19 13:30
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 13:50	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 13:50	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/25/19 13:50	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 13:50	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/25/19 13:50	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Trichlorofluoromethane	0.80	U Q	2.0	0.80	0.29	ug/L		01/25/19 13:50	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 13:50	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/25/19 13:50	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 13:50	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 13:50	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/25/19 13:50	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 13:50	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/25/19 13:50	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 13:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*01/25/19 13:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*		*81 - 118*		*01/25/19 13:50*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*01/25/19 13:50*	*1*
Dibromofluoromethane (Surr)	*88*		*80 - 119*		*01/25/19 13:50*	*1*

Client Sample ID: V-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-2
Matrix: Solid
Percent Solids: 97.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.9	U	5.9	1.9	0.66	ug/Kg	☼	01/24/19 13:05	1
1,1,1-Trichloroethane	1.9	U	5.9	1.9	0.62	ug/Kg	☼	01/24/19 13:05	1
1,1,2,2-Tetrachloroethane	1.9	U	5.9	1.9	0.72	ug/Kg	☼	01/24/19 13:05	1
1,1,2-Trichloroethane	3.8	U	5.9	3.8	1.0	ug/Kg	☼	01/24/19 13:05	1
1,1-Dichloroethane	0.95	U	5.9	0.95	0.25	ug/Kg	☼	01/24/19 13:05	1
1,1-Dichloroethene	1.9	U	5.9	1.9	0.70	ug/Kg	☼	01/24/19 13:05	1
1,1-Dichloropropene	1.9	U	5.9	1.9	0.64	ug/Kg	☼	01/24/19 13:05	1
1,2,3-Trichlorobenzene	1.9	U	5.9	1.9	0.89	ug/Kg	☼	01/24/19 13:05	1
1,2,3-Trichloropropane	3.8	U	5.9	3.8	0.96	ug/Kg	☼	01/24/19 13:05	1
1,2,4-Trichlorobenzene	1.9	U	5.9	1.9	0.87	ug/Kg	☼	01/24/19 13:05	1
1,2,4-Trimethylbenzene	3.8	U	5.9	3.8	0.69	ug/Kg	☼	01/24/19 13:05	1
1,2-Dibromo-3-Chloropropane	1.9	U	12	1.9	0.71	ug/Kg	☼	01/24/19 13:05	1
1,2-Dichlorobenzene	1.9	U	5.9	1.9	0.53	ug/Kg	☼	01/24/19 13:05	1
1,2-Dichloroethane	1.9	U	5.9	1.9	0.83	ug/Kg	☼	01/24/19 13:05	1
1,2-Dichloroethene, Total	1.9	U	5.9	1.9	0.46	ug/Kg	☼	01/24/19 13:05	1
1,2-Dichloropropane	1.9	U	5.9	1.9	0.65	ug/Kg	☼	01/24/19 13:05	1
1,3,5-Trimethylbenzene	1.9	U	5.9	1.9	0.68	ug/Kg	☼	01/24/19 13:05	1
1,3-Dichlorobenzene	1.9	U	5.9	1.9	0.57	ug/Kg	☼	01/24/19 13:05	1
1,3-Dichloropropane	1.9	U	5.9	1.9	0.61	ug/Kg	☼	01/24/19 13:05	1
1,4-Dichlorobenzene	1.9	U	5.9	1.9	0.93	ug/Kg	☼	01/24/19 13:05	1
2,2-Dichloropropane	1.9	U	5.9	1.9	0.52	ug/Kg	☼	01/24/19 13:05	1
2-Butanone (MEK)	7.6	U Q	24	7.6	2.2	ug/Kg	☼	01/24/19 13:05	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00

Lab Sample ID: 280-119255-2
Matrix: Solid
Percent Solids: 97.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.9	U	5.9	1.9	0.61	ug/Kg	☼	01/24/19 13:05	1
2-Hexanone	15	U Q	24	15	5.8	ug/Kg	☼	01/24/19 13:05	1
4-Chlorotoluene	1.9	U	5.9	1.9	0.93	ug/Kg	☼	01/24/19 13:05	1
4-Isopropyltoluene	1.9	U	5.9	1.9	0.58	ug/Kg	☼	01/24/19 13:05	1
4-Methyl-2-pentanone (MIBK)	15	U Q	24	15	5.2	ug/Kg	☼	01/24/19 13:05	1
Acetone	15	U M Q	24	15	6.4	ug/Kg	☼	01/24/19 13:05	1
Benzene	1.9	U	5.9	1.9	0.56	ug/Kg	☼	01/24/19 13:05	1
Bromobenzene	1.9	U	5.9	1.9	0.58	ug/Kg	☼	01/24/19 13:05	1
Bromoform	0.95	U	5.9	0.95	0.27	ug/Kg	☼	01/24/19 13:05	1
Bromomethane	1.9	U	12	1.9	0.59	ug/Kg	☼	01/24/19 13:05	1
Carbon disulfide	1.9	U	5.9	1.9	0.50	ug/Kg	☼	01/24/19 13:05	1
Carbon tetrachloride	1.9	U	5.9	1.9	0.75	ug/Kg	☼	01/24/19 13:05	1
Chlorobenzene	1.9	U	5.9	1.9	0.64	ug/Kg	☼	01/24/19 13:05	1
Bromochloromethane	0.95	U	5.9	0.95	0.36	ug/Kg	☼	01/24/19 13:05	1
Dibromochloromethane	1.9	U	5.9	1.9	0.68	ug/Kg	☼	01/24/19 13:05	1
Chloroethane	3.8	U	12	3.8	1.1	ug/Kg	☼	01/24/19 13:05	1
Chloroform	0.95	U	12	0.95	0.34	ug/Kg	☼	01/24/19 13:05	1
Chloromethane	1.9	U	12	1.9	0.91	ug/Kg	☼	01/24/19 13:05	1
cis-1,2-Dichloroethene	1.9	U	5.9	1.9	0.66	ug/Kg	☼	01/24/19 13:05	1
cis-1,3-Dichloropropene	3.8	U	5.9	3.8	1.5	ug/Kg	☼	01/24/19 13:05	1
Dibromomethane	3.8	U	5.9	3.8	1.0	ug/Kg	☼	01/24/19 13:05	1
Bromodichloromethane	0.95	U	5.9	0.95	0.26	ug/Kg	☼	01/24/19 13:05	1
Dichlorodifluoromethane	1.9	U Q	12	1.9	0.62	ug/Kg	☼	01/24/19 13:05	1
Ethylbenzene	1.9	U	5.9	1.9	0.80	ug/Kg	☼	01/24/19 13:05	1
Ethylene Dibromide	1.9	U	5.9	1.9	0.62	ug/Kg	☼	01/24/19 13:05	1
Hexachlorobutadiene	1.9	U	5.9	1.9	0.65	ug/Kg	☼	01/24/19 13:05	1
Isopropylbenzene	1.9	U	5.9	1.9	0.70	ug/Kg	☼	01/24/19 13:05	1
Methyl tert-butyl ether	0.95	U	24	0.95	0.40	ug/Kg	☼	01/24/19 13:05	1
Methylene Chloride	**3.0**	**J**	5.9	3.8	1.9	ug/Kg	☼	01/24/19 13:05	1
m-Xylene & p-Xylene	3.8	U	3.8	3.8	1.2	ug/Kg	☼	01/24/19 13:05	1
Naphthalene	1.9	U	5.9	1.9	0.75	ug/Kg	☼	01/24/19 13:05	1
n-Butylbenzene	1.9	U	5.9	1.9	0.66	ug/Kg	☼	01/24/19 13:05	1
N-Propylbenzene	1.9	U	5.9	1.9	0.69	ug/Kg	☼	01/24/19 13:05	1
o-Xylene	1.9	U	5.9	1.9	0.72	ug/Kg	☼	01/24/19 13:05	1
sec-Butylbenzene	1.9	U	5.9	1.9	0.91	ug/Kg	☼	01/24/19 13:05	1
Styrene	1.9	U	5.9	1.9	0.75	ug/Kg	☼	01/24/19 13:05	1
tert-Butylbenzene	1.9	U	5.9	1.9	0.59	ug/Kg	☼	01/24/19 13:05	1
Tetrachloroethene	1.9	U	5.9	1.9	0.70	ug/Kg	☼	01/24/19 13:05	1
Toluene	1.9	U	5.9	1.9	0.82	ug/Kg	☼	01/24/19 13:05	1
trans-1,2-Dichloroethene	0.95	U	5.9	0.95	0.46	ug/Kg	☼	01/24/19 13:05	1
trans-1,3-Dichloropropene	1.9	U	5.9	1.9	0.80	ug/Kg	☼	01/24/19 13:05	1
Trichloroethene	0.95	U	5.9	0.95	0.27	ug/Kg	☼	01/24/19 13:05	1
Trichlorofluoromethane	3.8	U	12	3.8	1.2	ug/Kg	☼	01/24/19 13:05	1
Vinyl chloride	3.8	U	5.9	3.8	1.6	ug/Kg	☼	01/24/19 13:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*93*		*85 - 116*	*01/16/19 11:05*	*01/24/19 13:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 136*	*01/16/19 11:05*	*01/24/19 13:05*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/16/19 11:05*	*01/24/19 13:05*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-2
Matrix: Solid
Percent Solids: 97.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	86		78 - 119	01/16/19 11:05	01/24/19 13:05	1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S8-160119-01
Date Collected: 01/16/19 13:30
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 18:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	90		82 - 110		01/29/19 18:41	1

Client Sample ID: P-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-3
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.39	mg/Kg	☼	01/21/19 16:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (Surr)	100		77 - 123	01/18/19 13:35	01/21/19 16:26	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S8-160119-01
Date Collected: 01/16/19 13:30
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/29/19 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	112		70 - 130	01/23/19 13:22	01/29/19 14:12	1

Client Sample ID: V-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-2
Matrix: Solid
Percent Solids: 97.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.39	U	1.0	0.39	0.15	ug/Kg	☼	01/29/19 17:39	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	0	D M	55 - 130	01/21/19 13:25	01/29/19 17:39	10

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S8-160119-419
Date Collected: 01/16/19 11:05
Date Received: 01/17/19 09:00
Lab Sample ID: 280-119255-3
Matrix: Solid
Percent Solids: 97.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.1**	**J**	8.2	4.1	1.4	mg/Kg	☼	01/28/19 21:26	1
Motor Oil (C20-C38)	24	U	24	24	8.0	mg/Kg	☼	01/28/19 21:26	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	75		45 - 130	01/23/19 14:35	01/28/19 21:26	1
n-Octacosane	75		25 - 162	01/23/19 14:35	01/28/19 21:26	1

General Chemistry

Client Sample ID: V-S8-160119-419 — **Lab Sample ID: 280-119255-2**
Date Collected: 01/16/19 11:05 — **Matrix: Solid**
Date Received: 01/17/19 09:00 — **Percent Solids: 97.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.2		0.1	0.05	0.1	%		01/18/19 15:59	1

Client Sample ID: P-S8-160119-419 — **Lab Sample ID: 280-119255-3**
Date Collected: 01/16/19 11:05 — **Matrix: Solid**
Date Received: 01/17/19 09:00 — **Percent Solids: 97.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	2.6		0.1	0.05	0.1	%		01/18/19 15:59	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119255-2	V-S8-160119-419	93	81	96	86
LCS 280-445344/2-A	Lab Control Sample	94	91	96	85
LCSD 280-445344/3-A	Lab Control Sample Dup	90	86	90	82
MB 280-445344/1-A	Method Blank	101	96	100	95

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119255-1	TB-S8-160119-01	97	84	95	88
LCS 280-445431/5	Lab Control Sample	99	90	96	90
MB 280-445431/4	Method Blank	100	100	92	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119255-3	P-S8-160119-419	100
LCS 280-444742/7-A	Lab Control Sample	101
MB 280-444742/8-A	Method Blank	103

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-119255-1	TB-S8-160119-01	90
LCS 280-445835/34	Lab Control Sample	95
MB 280-445835/35	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119255-2	V-S8-160119-419	0 D M
LCS 280-444907/1-A	Lab Control Sample	111
LCSD 280-444907/2-A	Lab Control Sample Dup	110
MB 280-444907/3-A	Method Blank	111

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-119255-1	TB-S8-160119-01	112
LCS 280-445188/2-A	Lab Control Sample	101
LCSD 280-445188/3-A	Lab Control Sample Dup	111
MB 280-445188/4-A	Method Blank	100

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-119255-3	P-S8-160119-419	75	75
280-119255-3 MS	P-S8-160119-419	80	85
280-119255-3 MS	P-S8-160119-419	83	100
280-119255-3 MSD	P-S8-160119-419	86	90
280-119255-3 MSD	P-S8-160119-419	60	69
LCS 280-445176/2-A	Lab Control Sample	86	88
LCS 280-445176/3-A	Lab Control Sample	83	89
MB 280-445176/1-A	Method Blank	84	93

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-445344/1-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445344

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		01/24/19 12:04	1
2-Butanone (MEK)	6.4	U M	20	6.4	1.8	ug/Kg		01/24/19 12:04	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		01/24/19 12:04	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		01/24/19 12:04	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		01/24/19 12:04	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		01/24/19 12:04	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		01/24/19 12:04	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		01/24/19 12:04	1
Acetone	13	U M	20	13	5.4	ug/Kg		01/24/19 12:04	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/24/19 12:04	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		01/24/19 12:04	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		01/24/19 12:04	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		01/24/19 12:04	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		01/24/19 12:04	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		01/24/19 12:04	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		01/24/19 12:04	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		01/24/19 12:04	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		01/24/19 12:04	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		01/24/19 12:04	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		01/24/19 12:04	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		01/24/19 12:04	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		01/24/19 12:04	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		01/24/19 12:04	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		01/24/19 12:04	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		01/24/19 12:04	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		01/24/19 12:04	1
2-Hexanone	13	U M	20	13	4.9	ug/Kg		01/24/19 12:04	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		01/24/19 12:04	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		01/24/19 12:04	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		01/24/19 12:04	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		01/24/19 12:04	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		01/24/19 12:04	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		01/24/19 12:04	1
4-Methyl-2-pentanone (MIBK)	13	U M	20	13	4.4	ug/Kg		01/24/19 12:04	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		01/24/19 12:04	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		01/24/19 12:04	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		01/24/19 12:04	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		01/24/19 12:04	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		01/24/19 12:04	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		01/24/19 12:04	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		01/24/19 12:04	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		01/24/19 12:04	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg		01/24/19 12:04	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		01/24/19 12:04	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		01/24/19 12:04	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		01/24/19 12:04	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		01/24/19 12:04	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		01/24/19 12:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445344/1-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445344

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		01/24/19 12:04	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		01/24/19 12:04	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		01/24/19 12:04	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		01/24/19 12:04	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		01/24/19 12:04	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		01/24/19 12:04	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/24/19 12:04	1
1,2,4-Trimethylbenzene	3.2	U M	5.0	3.2	0.58	ug/Kg		01/24/19 12:04	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		01/24/19 12:04	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		01/24/19 12:04	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		01/24/19 12:04	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		01/24/19 12:04	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		01/24/19 12:04	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		01/24/19 12:04	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		01/24/19 12:04	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		01/24/19 12:04	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		01/24/19 12:04	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		01/24/19 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*01/24/19 07:00*	*01/24/19 12:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*01/24/19 07:00*	*01/24/19 12:04*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*01/24/19 07:00*	*01/24/19 12:04*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 119*	*01/24/19 07:00*	*01/24/19 12:04*	*1*

Lab Sample ID: LCS 280-445344/2-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	52.9		ug/Kg		106	61 - 132
2-Butanone (MEK)	200	253		ug/Kg		126	51 - 148
1,2-Dichlorobenzene	50.0	53.7		ug/Kg		107	78 - 121
1,3-Dichlorobenzene	50.0	51.3		ug/Kg		103	77 - 121
4-Chlorotoluene	50.0	54.0		ug/Kg		108	72 - 124
1,4-Dichlorobenzene	50.0	52.0		ug/Kg		104	75 - 120
1,1-Dichloroethane	50.0	53.2		ug/Kg		106	76 - 125
1,2-Dichloroethane	50.0	54.0		ug/Kg		108	73 - 128
Acetone	200	259		ug/Kg		130	36 - 164
1,1-Dichloroethene	50.0	47.4		ug/Kg		95	70 - 131
Benzene	50.0	52.7		ug/Kg		105	77 - 121
Bromobenzene	50.0	55.1		ug/Kg		110	78 - 121
Bromoform	50.0	53.4		ug/Kg		107	67 - 132
Bromomethane	50.0	38.4		ug/Kg		77	53 - 143
1,2-Dichloropropane	50.0	57.2		ug/Kg		114	76 - 123
Carbon disulfide	50.0	49.1		ug/Kg		98	63 - 132
1,3-Dichloropropane	50.0	56.5		ug/Kg		113	77 - 121
Carbon tetrachloride	50.0	48.3		ug/Kg		97	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445344/2-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	51.1		ug/Kg		102	67 - 133
Chlorobenzene	50.0	52.1		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	52.4		ug/Kg		105	76 - 125
Bromochloromethane	50.0	51.6		ug/Kg		103	78 - 125
Dibromochloromethane	50.0	53.9		ug/Kg		108	74 - 126
Chloroethane	50.0	41.4		ug/Kg		83	59 - 139
Chloroform	50.0	52.4		ug/Kg		105	78 - 123
2-Hexanone	200	253		ug/Kg		126	53 - 145
Chloromethane	50.0	46.4		ug/Kg		93	50 - 136
cis-1,2-Dichloroethene	50.0	52.4		ug/Kg		105	77 - 123
cis-1,3-Dichloropropene	50.0	59.0		ug/Kg		118	74 - 126
4-Isopropyltoluene	50.0	53.8		ug/Kg		108	73 - 127
Dibromomethane	50.0	54.4		ug/Kg		109	78 - 125
Bromodichloromethane	50.0	53.8		ug/Kg		108	75 - 127
4-Methyl-2-pentanone (MIBK)	200	238		ug/Kg		119	65 - 135
Dichlorodifluoromethane	50.0	43.6		ug/Kg		87	29 - 149
Ethylbenzene	50.0	53.6		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	55.5		ug/Kg		111	78 - 122
Hexachlorobutadiene	50.0	49.7		ug/Kg		99	61 - 135
Isopropylbenzene	50.0	54.1		ug/Kg		108	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.0		ug/Kg		102	78 - 125
Methyl tert-butyl ether	50.0	49.8		ug/Kg		100	73 - 125
1,1,2,2-Tetrachloroethane	50.0	56.5		ug/Kg		113	70 - 124
Methylene Chloride	50.0	54.1		ug/Kg		108	70 - 128
Naphthalene	50.0	55.7		ug/Kg		111	62 - 129
1,2,3-Trichlorobenzene	50.0	54.1		ug/Kg		108	66 - 130
n-Butylbenzene	50.0	57.8		ug/Kg		116	70 - 128
1,1,1-Trichloroethane	50.0	50.8		ug/Kg		102	73 - 130
N-Propylbenzene	50.0	54.5		ug/Kg		109	73 - 125
1,1,2-Trichloroethane	50.0	56.2		ug/Kg		112	78 - 121
sec-Butylbenzene	50.0	50.0		ug/Kg		100	73 - 126
Styrene	50.0	51.8		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	50.0	56.3		ug/Kg		113	67 - 129
tert-Butylbenzene	50.0	52.6		ug/Kg		105	73 - 125
1,2,3-Trichloropropane	50.0	57.7		ug/Kg		115	73 - 125
Tetrachloroethene	50.0	48.9		ug/Kg		98	73 - 128
1,2,4-Trimethylbenzene	50.0	53.9		ug/Kg		108	75 - 123
Toluene	50.0	54.5		ug/Kg		109	77 - 121
1,3,5-Trimethylbenzene	50.0	54.9		ug/Kg		110	73 - 124
trans-1,2-Dichloroethene	50.0	52.3		ug/Kg		105	74 - 125
trans-1,3-Dichloropropene	50.0	55.0		ug/Kg		110	71 - 130
o-Xylene	50.0	53.6		ug/Kg		107	77 - 123
Trichloroethene	50.0	51.2		ug/Kg		102	77 - 123
m-Xylene & p-Xylene	50.0	51.4		ug/Kg		103	77 - 124
Trichlorofluoromethane	50.0	47.4	M	ug/Kg		95	62 - 140
Vinyl chloride	50.0	41.7		ug/Kg		83	56 - 135
2-Chlorotoluene	50.0	52.9		ug/Kg		106	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445344/2-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445344

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*94*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*85*		*78 - 119*

Lab Sample ID: LCSD 280-445344/3-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445344

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	52.0		ug/Kg		104	61 - 132	2	20
2-Butanone (MEK)			200	244		ug/Kg		122	51 - 148	4	20
1,2-Dichlorobenzene			50.0	51.0		ug/Kg		102	78 - 121	5	20
1,3-Dichlorobenzene			50.0	49.0		ug/Kg		98	77 - 121	5	20
4-Chlorotoluene			50.0	52.2		ug/Kg		104	72 - 124	3	20
1,4-Dichlorobenzene			50.0	49.8		ug/Kg		100	75 - 120	4	20
1,1-Dichloroethane			50.0	50.5		ug/Kg		101	76 - 125	5	20
1,2-Dichloroethane			50.0	49.7		ug/Kg		99	73 - 128	8	20
Acetone			200	257		ug/Kg		128	36 - 164	1	20
1,1-Dichloroethene			50.0	44.9		ug/Kg		90	70 - 131	6	20
Benzene			50.0	50.0		ug/Kg		100	77 - 121	5	20
Bromobenzene			50.0	51.9		ug/Kg		104	78 - 121	6	20
Bromoform			50.0	51.0		ug/Kg		102	67 - 132	5	20
Bromomethane			50.0	38.0		ug/Kg		76	53 - 143	1	20
1,2-Dichloropropane			50.0	53.4		ug/Kg		107	76 - 123	7	20
Carbon disulfide			50.0	46.3		ug/Kg		93	63 - 132	6	20
1,3-Dichloropropane			50.0	54.1		ug/Kg		108	77 - 121	4	20
Carbon tetrachloride			50.0	44.2		ug/Kg		88	70 - 135	9	20
2,2-Dichloropropane			50.0	47.0		ug/Kg		94	67 - 133	8	20
Chlorobenzene			50.0	49.4		ug/Kg		99	79 - 120	5	20
1,1-Dichloropropene			50.0	47.6		ug/Kg		95	76 - 125	10	20
Bromochloromethane			50.0	49.3		ug/Kg		99	78 - 125	5	20
Dibromochloromethane			50.0	51.2		ug/Kg		102	74 - 126	5	20
Chloroethane			50.0	41.4		ug/Kg		83	59 - 139	0	20
Chloroform			50.0	48.6		ug/Kg		97	78 - 123	7	20
2-Hexanone			200	245		ug/Kg		123	53 - 145	3	20
Chloromethane			50.0	45.7		ug/Kg		91	50 - 136	1	20
cis-1,2-Dichloroethene			50.0	49.8		ug/Kg		100	77 - 123	5	20
cis-1,3-Dichloropropene			50.0	55.7		ug/Kg		111	74 - 126	6	20
4-Isopropyltoluene			50.0	50.5		ug/Kg		101	73 - 127	6	20
Dibromomethane			50.0	51.2		ug/Kg		102	78 - 125	6	20
Bromodichloromethane			50.0	49.6		ug/Kg		99	75 - 127	8	20
4-Methyl-2-pentanone (MIBK)			200	222		ug/Kg		111	65 - 135	7	20
Dichlorodifluoromethane			50.0	41.3		ug/Kg		83	29 - 149	5	20
Ethylbenzene			50.0	51.0		ug/Kg		102	76 - 122	5	20
Ethylene Dibromide			50.0	53.0		ug/Kg		106	78 - 122	5	20
Hexachlorobutadiene			50.0	47.0		ug/Kg		94	61 - 135	6	20
Isopropylbenzene			50.0	51.1		ug/Kg		102	68 - 134	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445344/3-A
Matrix: Solid
Analysis Batch: 445306

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445344

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	49.0		ug/Kg		98	78 - 125	4	20
Methyl tert-butyl ether	50.0	48.5		ug/Kg		97	73 - 125	3	20
1,1,2,2-Tetrachloroethane	50.0	54.1		ug/Kg		108	70 - 124	4	20
Methylene Chloride	50.0	52.0		ug/Kg		104	70 - 128	4	20
Naphthalene	50.0	54.4		ug/Kg		109	62 - 129	2	20
1,2,3-Trichlorobenzene	50.0	51.9		ug/Kg		104	66 - 130	4	20
n-Butylbenzene	50.0	54.4		ug/Kg		109	70 - 128	6	20
1,1,1-Trichloroethane	50.0	46.7		ug/Kg		93	73 - 130	8	20
N-Propylbenzene	50.0	51.4		ug/Kg		103	73 - 125	6	20
1,1,2-Trichloroethane	50.0	52.8		ug/Kg		106	78 - 121	6	20
sec-Butylbenzene	50.0	49.3		ug/Kg		99	73 - 126	2	20
Styrene	50.0	49.6		ug/Kg		99	76 - 124	4	20
1,2,4-Trichlorobenzene	50.0	53.0		ug/Kg		106	67 - 129	6	20
tert-Butylbenzene	50.0	49.4		ug/Kg		99	73 - 125	6	20
1,2,3-Trichloropropane	50.0	53.7		ug/Kg		107	73 - 125	7	20
Tetrachloroethene	50.0	45.1		ug/Kg		90	73 - 128	8	20
1,2,4-Trimethylbenzene	50.0	50.2		ug/Kg		100	75 - 123	7	20
Toluene	50.0	49.6		ug/Kg		99	77 - 121	9	20
1,3,5-Trimethylbenzene	50.0	51.6		ug/Kg		103	73 - 124	6	20
trans-1,2-Dichloroethene	50.0	49.9		ug/Kg		100	74 - 125	5	20
trans-1,3-Dichloropropene	50.0	50.2		ug/Kg		100	71 - 130	9	20
o-Xylene	50.0	51.7		ug/Kg		103	77 - 123	4	20
Trichloroethene	50.0	47.5		ug/Kg		95	77 - 123	7	20
m-Xylene & p-Xylene	50.0	50.6		ug/Kg		101	77 - 124	2	20
Trichlorofluoromethane	50.0	45.6		ug/Kg		91	62 - 140	4	20
Vinyl chloride	50.0	41.1		ug/Kg		82	56 - 135	1	20
2-Chlorotoluene	50.0	50.1		ug/Kg		100	75 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*90*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*
4-Bromofluorobenzene (Surr)	*90*		*79 - 119*
Dibromofluoromethane (Surr)	*82*		*78 - 119*

Lab Sample ID: MB 280-445431/4
Matrix: Water
Analysis Batch: 445431

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/25/19 11:27	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/25/19 11:27	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 11:27	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/25/19 11:27	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 11:27	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 11:27	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/25/19 11:27	1
Acetone	6.4	U	10	6.4	1.9	ug/L		01/25/19 11:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445431/4
Matrix: Water
Analysis Batch: 445431

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/25/19 11:27	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/25/19 11:27	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 11:27	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/25/19 11:27	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 11:27	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/25/19 11:27	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 11:27	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/25/19 11:27	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 11:27	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 11:27	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/25/19 11:27	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/25/19 11:27	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/25/19 11:27	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/25/19 11:27	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 11:27	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/25/19 11:27	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/25/19 11:27	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/25/19 11:27	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/25/19 11:27	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/25/19 11:27	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 11:27	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 11:27	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/25/19 11:27	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 11:27	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/25/19 11:27	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/25/19 11:27	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 11:27	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/25/19 11:27	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/25/19 11:27	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/25/19 11:27	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/25/19 11:27	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/25/19 11:27	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 11:27	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445431/4
Matrix: Water
Analysis Batch: 445431

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/25/19 11:27	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 11:27	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/25/19 11:27	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/25/19 11:27	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/25/19 11:27	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/25/19 11:27	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/25/19 11:27	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/25/19 11:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*01/25/19 11:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*81 - 118*		*01/25/19 11:27*	*1*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*01/25/19 11:27*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*01/25/19 11:27*	*1*

Lab Sample ID: LCS 280-445431/5
Matrix: Water
Analysis Batch: 445431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.12	J	ug/L		82	62 - 128
2-Butanone (MEK)	20.0	17.6		ug/L		88	56 - 143
1,2-Dichlorobenzene	5.00	4.61		ug/L		92	80 - 119
1,3-Dichlorobenzene	5.00	4.57		ug/L		91	80 - 119
4-Chlorotoluene	5.00	4.62		ug/L		92	78 - 122
1,4-Dichlorobenzene	5.00	4.53		ug/L		91	79 - 118
1,1-Dichloroethane	5.00	4.91		ug/L		98	77 - 125
1,2-Dichloroethane	5.00	5.14		ug/L		103	73 - 128
Acetone	20.0	20.3		ug/L		102	39 - 160
1,1-Dichloroethene	5.00	4.87		ug/L		97	71 - 131
Benzene	5.00	4.75		ug/L		95	79 - 120
Bromobenzene	5.00	4.62		ug/L		92	80 - 120
Bromoform	5.00	4.73		ug/L		95	66 - 130
Bromomethane	5.00	5.85		ug/L		117	53 - 141
1,2-Dichloropropane	5.00	4.96		ug/L		99	78 - 122
Carbon disulfide	5.00	4.90		ug/L		98	64 - 133
1,3-Dichloropropane	5.00	4.72		ug/L		94	80 - 119
Carbon tetrachloride	5.00	5.03		ug/L		101	72 - 136
2,2-Dichloropropane	5.00	5.18		ug/L		104	60 - 139
Chlorobenzene	5.00	4.59		ug/L		92	82 - 118
1,1-Dichloropropene	5.00	4.92		ug/L		98	79 - 125
Bromochloromethane	5.00	4.95		ug/L		99	78 - 123
Dibromochloromethane	5.00	4.83		ug/L		97	74 - 126
Chloroethane	5.00	5.72		ug/L		114	60 - 138
Chloroform	5.00	5.02		ug/L		100	79 - 124
2-Hexanone	20.0	16.3		ug/L		81	57 - 139
Chloromethane	5.00	5.24		ug/L		105	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445431/5
Matrix: Water
Analysis Batch: 445431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.73		ug/L		95	78 - 123
cis-1,3-Dichloropropene	5.00	4.44		ug/L		89	75 - 124
4-Isopropyltoluene	5.00	4.86		ug/L		97	77 - 127
Dibromomethane	5.00	4.94		ug/L		99	79 - 123
Bromodichloromethane	5.00	5.02		ug/L		100	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	18.4		ug/L		92	67 - 130
Dichlorodifluoromethane	5.00	5.81		ug/L		116	32 - 152
Ethylbenzene	5.00	4.71		ug/L		94	79 - 121
Ethylene Dibromide	5.00	4.65		ug/L		93	77 - 121
Hexachlorobutadiene	5.00	4.66		ug/L		93	66 - 134
Isopropylbenzene	5.00	4.35		ug/L		87	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.84		ug/L		97	78 - 124
Methyl tert-butyl ether	5.00	4.85	J	ug/L		97	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.54		ug/L		91	71 - 121
Methylene Chloride	5.00	4.69	J	ug/L		94	74 - 124
Naphthalene	5.00	3.68		ug/L		74	61 - 128
1,2,3-Trichlorobenzene	5.00	4.14		ug/L		83	69 - 129
n-Butylbenzene	5.00	4.85		ug/L		97	75 - 128
1,1,1-Trichloroethane	5.00	5.16		ug/L		103	74 - 131
N-Propylbenzene	5.00	4.46		ug/L		89	76 - 126
1,1,2-Trichloroethane	5.00	5.04		ug/L		101	80 - 119
sec-Butylbenzene	5.00	4.78		ug/L		96	77 - 126
Styrene	5.00	4.38		ug/L		88	78 - 123
1,2,4-Trichlorobenzene	5.00	3.86		ug/L		77	69 - 130
tert-Butylbenzene	5.00	4.54		ug/L		91	78 - 124
1,2,3-Trichloropropane	5.00	4.56		ug/L		91	73 - 122
Tetrachloroethene	5.00	4.59		ug/L		92	74 - 129
1,2,4-Trimethylbenzene	5.00	4.71		ug/L		94	76 - 124
Toluene	5.00	5.10		ug/L		102	80 - 121
1,3,5-Trimethylbenzene	5.00	4.74		ug/L		95	75 - 124
trans-1,2-Dichloroethene	5.00	4.98		ug/L		100	75 - 124
trans-1,3-Dichloropropene	5.00	4.62		ug/L		92	73 - 127
o-Xylene	5.00	4.92		ug/L		98	78 - 122
Trichloroethene	5.00	4.64		ug/L		93	79 - 123
m-Xylene & p-Xylene	5.00	4.84		ug/L		97	80 - 121
Trichlorofluoromethane	5.00	6.40		ug/L		128	65 - 141
Vinyl chloride	5.00	5.99		ug/L		120	58 - 137
2-Chlorotoluene	5.00	4.72		ug/L		94	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*90*		*81 - 118*
4-Bromofluorobenzene (Surr)	*96*		*85 - 114*
Dibromofluoromethane (Surr)	*90*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-444742/8-A
Matrix: Solid
Analysis Batch: 446248

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444742

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		01/21/19 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*	*01/18/19 13:35*	*01/21/19 12:04*	*1*

Lab Sample ID: LCS 280-444742/7-A
Matrix: Solid
Analysis Batch: 446248

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444742

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	5.50	4.66		mg/Kg		85	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*101*		*77 - 123*

Lab Sample ID: MB 280-445835/35
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*01/29/19 13:21*	*1*

Lab Sample ID: LCS 280-445835/34
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	78.4	72.0		ug/L		92	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*95*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-444907/3-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444907

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/29/19 13:53	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-444907/3-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444907

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	111		55 - 130	01/21/19 13:25	01/29/19 13:53	1

Lab Sample ID: LCS 280-444907/1-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.666		ug/Kg		76	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	111		55 - 130

Lab Sample ID: LCSD 280-444907/2-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444907

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.691		ug/Kg		79	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	110		55 - 130

Lab Sample ID: MB 280-445188/4-A
Matrix: Water
Analysis Batch: 445302

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445188

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/24/19 12:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	100		70 - 130	01/23/19 13:22	01/24/19 12:20	1

Lab Sample ID: LCS 280-445188/2-A
Matrix: Water
Analysis Batch: 445302

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445188

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.218		ug/L		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	101		70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-445188/3-A
Matrix: Water
Analysis Batch: 445302

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445188

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.227		ug/L		91	70 - 130	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*111*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-445176/1-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445176

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.08	J	7.2	3.6	1.2	mg/Kg		01/28/19 20:26	1
Motor Oil (C20-C38)	21	U	22	21	7.0	mg/Kg		01/28/19 20:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*45 - 130*	*01/23/19 14:35*	*01/28/19 20:26*	*1*
n-Octacosane	*93*		*25 - 162*	*01/23/19 14:35*	*01/28/19 20:26*	*1*

Lab Sample ID: LCS 280-445176/2-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			119	110		mg/Kg		92	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*88*		*25 - 162*

Lab Sample ID: LCS 280-445176/3-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	279		mg/Kg		85	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*89*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-119255-3 MS
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: P-S8-160119-419
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.1	J	129	116		mg/Kg	☼	88	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*80*		*45 - 130*
n-Octacosane	*85*		*25 - 162*

Lab Sample ID: 280-119255-3 MS
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: P-S8-160119-419
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	24	U	305	285		mg/Kg	☼	94	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*100*		*25 - 162*

Lab Sample ID: 280-119255-3 MSD
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: P-S8-160119-419
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	2.1	J	130	125		mg/Kg	☼	94	38 - 132	7	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*90*		*25 - 162*

Lab Sample ID: 280-119255-3 MSD
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: P-S8-160119-419
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	24	U	318	211		mg/Kg	☼	66	45 - 130	30	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*60*		*45 - 130*
n-Octacosane	*69*		*25 - 162*

GC/MS VOA

Analysis Batch: 445306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-2	V-S8-160119-419	Total/NA	Solid	8260B	445344
MB 280-445344/1-A	Method Blank	Total/NA	Solid	8260B	445344
LCS 280-445344/2-A	Lab Control Sample	Total/NA	Solid	8260B	445344
LCSD 280-445344/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445344

Prep Batch: 445344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-2	V-S8-160119-419	Total/NA	Solid	5035	
MB 280-445344/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445344/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445344/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 445431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-1	TB-S8-160119-01	Total/NA	Water	8260B	
MB 280-445431/4	Method Blank	Total/NA	Water	8260B	
LCS 280-445431/5	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Prep Batch: 444742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-3	P-S8-160119-419	Total/NA	Solid	5035	
MB 280-444742/8-A	Method Blank	Total/NA	Solid	5035	
LCS 280-444742/7-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 444885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-3	P-S8-160119-419	Total/NA	Solid	8015D GRO	444742

Analysis Batch: 445835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-1	TB-S8-160119-01	Total/NA	Water	8015D GRO	
MB 280-445835/35	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-445835/34	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 446248

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-444742/8-A	Method Blank	Total/NA	Solid	8015D GRO	444742
LCS 280-444742/7-A	Lab Control Sample	Total/NA	Solid	8015D GRO	444742

GC Semi VOA

Prep Batch: 444907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-2	V-S8-160119-419	Total/NA	Solid	8011	
MB 280-444907/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-444907/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-444907/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 445176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-3	P-S8-160119-419	Total/NA	Solid	3546	
MB 280-445176/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-119255-3 MS	P-S8-160119-419	Total/NA	Solid	3546	
280-119255-3 MS	P-S8-160119-419	Total/NA	Solid	3546	
280-119255-3 MSD	P-S8-160119-419	Total/NA	Solid	3546	
280-119255-3 MSD	P-S8-160119-419	Total/NA	Solid	3546	

Prep Batch: 445188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-1	TB-S8-160119-01	Total/NA	Water	8011	
MB 280-445188/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-445188/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-445188/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 445302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-445188/4-A	Method Blank	Total/NA	Water	8011	445188
LCS 280-445188/2-A	Lab Control Sample	Total/NA	Water	8011	445188
LCSD 280-445188/3-A	Lab Control Sample Dup	Total/NA	Water	8011	445188

Analysis Batch: 445704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-3	P-S8-160119-419	Total/NA	Solid	8015D DRO	445176
MB 280-445176/1-A	Method Blank	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
280-119255-3 MS	P-S8-160119-419	Total/NA	Solid	8015D DRO	445176
280-119255-3 MS	P-S8-160119-419	Total/NA	Solid	8015D DRO	445176
280-119255-3 MSD	P-S8-160119-419	Total/NA	Solid	8015D DRO	445176
280-119255-3 MSD	P-S8-160119-419	Total/NA	Solid	8015D DRO	445176

Analysis Batch: 445839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-1	TB-S8-160119-01	Total/NA	Water	8011	445188
280-119255-2	V-S8-160119-419	Total/NA	Solid	8011	444907
MB 280-444907/3-A	Method Blank	Total/NA	Solid	8011	444907
LCS 280-444907/1-A	Lab Control Sample	Total/NA	Solid	8011	444907
LCSD 280-444907/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	444907

General Chemistry

Analysis Batch: 444771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119255-2	V-S8-160119-419	Total/NA	Solid	Moisture	
280-119255-3	P-S8-160119-419	Total/NA	Solid	Moisture	

Client Sample ID: TB-S8-160119-01

Lab Sample ID: 280-119255-1

Date Collected: 01/16/19 13:30

Matrix: Water

Date Received: 01/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	445431	01/25/19 13:50	RSN	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	445835	01/29/19 18:41	SU	TAL DEN
Total/NA	Prep	8011			35.1 mL	35 mL	445188	01/23/19 13:22	SU	TAL DEN
Total/NA	Analysis	8011		1			445839	01/29/19 14:12	JLW	TAL DEN

Client Sample ID: V-S8-160119-419

Lab Sample ID: 280-119255-2

Date Collected: 01/16/19 11:05

Matrix: Solid

Date Received: 01/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			444771	01/18/19 15:59	KES	TAL DEN

Client Sample ID: V-S8-160119-419

Lab Sample ID: 280-119255-2

Date Collected: 01/16/19 11:05

Matrix: Solid

Date Received: 01/17/19 09:00

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.307 g	5 mL	445344	01/16/19 11:05	JLS	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445306	01/24/19 13:05	JLS	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	444907	01/21/19 13:25	MJS	TAL DEN
Total/NA	Analysis	8011		10			445839	01/29/19 17:39	JLW	TAL DEN

Client Sample ID: P-S8-160119-419

Lab Sample ID: 280-119255-3

Date Collected: 01/16/19 11:05

Matrix: Solid

Date Received: 01/17/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			444771	01/18/19 15:59	KES	TAL DEN

Client Sample ID: P-S8-160119-419

Lab Sample ID: 280-119255-3

Date Collected: 01/16/19 11:05

Matrix: Solid

Date Received: 01/17/19 09:00

Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.381 g	5 mL	444742	01/18/19 13:35	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	444885	01/21/19 16:26	SU	TAL DEN
Total/NA	Prep	3546			15.1 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/28/19 21:26	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119255-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8113 9337 5207
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com	COC No: COC1-58-TA-20190116
Company: EA Engineering, Science, and Technology			Page: 1 of 1
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO	Analysis Requested	Job #:
City: Greenwood Village	TAT Requested (days): Per PO		
State, Zip: CO, 80111			
Phone: 303-690-9143(Tel)	PO #: 16065		
Email: pmoss@eaest.com	WO #: 82735DM02.1017		
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071		
Site: Kirtland BFF	SSOW#: —		

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X
TB-58-160119-01	01/16/19	1330	G	W	N							X	X	-	X	6
V-58-160119-419	01/16/19	1105	G	S	N	N	X	X	X	-						5
P-58-160119-419	01/16/19	1105	G	S	N	N	-			X	X	-				3

JR

280-119255 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Joshua Livingston	Date/Time: 01/16/19 1800	Company EA	Received by:	Date/Time: 1-17-19 900	Company TA Den		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 0.1, +1.0 Vials 1-17-19

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119255-1

Login Number: 119255
List Number: 1
Creator: Dunlap, Krista M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119347-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/27/2019 12:31:04 AM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119347-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119347-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 1/19/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S8-180119-475 (280-119347-2), V-S8-180119-499 (280-119347-4), V-S8-180119-514 (280-119347-6) and V-S8-180159-514 (280-119347-8) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 01/18/2019 and analyzed on 01/29/2019 and 01/30/2019.

4-Bromofluorobenzene (Surr) failed the surrogate recovery criteria high for V-S8-180119-475 (280-119347-2) in preparation batch 280-445812 and analytical batch 280-445808 . Associated results have been flagged "Q". Refer to the QC report for details. Evidence of matrix interference was obvious by looking at the chromatogram. The sample was extracted and analyzed by medium level due to the high concentration of multiple target compounds. Different analytes from each set of data have been reported.

4-Bromofluorobenzene (Surr) @ 140%; upper control limit = 119%

The following samples required a dilution due to the nature of the sample matrix: V-S8-180119-475 (280-119347-2). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information. This is for analysis batch 280-445903.

Naphthalene and Toluene were detected in method blank MB 280-445812/3-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". Refer to the QC report for details. This is considered acceptable because the detections were less than one-half the LOQ.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-445808. Associated results have been flagged "Q". The failing compounds are considered poor performing compounds and standard variances allow up to 30%D. As such, the data have been qualified and reported. The following samples are associated: V-S8-180119-475 (280-119347-2), V-S8-180119-499 (280-119347-4), V-S8-180119-514 (280-119347-6), V-S8-180159-514 (280-119347-8) and (CCV 280-445808/2).

2-Butanone (MEK) @ -25.3%D
2-Hexanone @ -21.3%D
Acetone @ -28.4%D

Job ID: 280-119347-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Toluene was detected in method blank MB 280-445898/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.
This is for the MLE analysis of sample V-S8-180119-475 (280-119347-2).

Chloromethane failed the recovery criteria low for LCS 280-445898/2-A. Associated results have been flagged "Q". This is not indicative of a systematic control problem because this was a random marginal exceedance. As such, the results have been qualified and reported.
1,2,3-Trichlorobenzene, 2-Butanone (MEK), Chloromethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride exceeded the RPD limit for LCSD 280-445898/3-A. Associated results have been flagged "Q". Refer to the QC report for details. This is for the MLE analysis of sample V-S8-180119-475 (280-119347-2).
Chloromethane 48%D (50-130)%D, Marginal Exceedance limits = 10-181%D.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-445903: 2-Butanone (MEK) and Chloromethane. These two compounds are considered "poor performers". These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. The associated samples were non-detect for the affected analytes. This is for the MLE analysis of sample V-S8-180119-475 (280-119347-2).
Chloromethane -21.0%D; 2-Butanone (MEK) -22.9%D

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S8-180119-01 (280-119347-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 01/28/2019.

Toluene-d8 (Surr) failed the surrogate recovery criteria high for TB-S8-180119-01 (280-119347-1). Associated results have been flagged "Q". Refer to the QC report for details. This sample did not contain any detections for target analytes associated to Toluene-d8 (Surr); therefore, re-extraction and/or re-analysis was not performed.

1,1,2-Trichloroethane failed the recovery criteria high for LCS 280-445631/5. Associated results have been flagged "Q". Refer to the QC report for details. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S8-180119-475 (280-119347-2), V-S8-180119-499 (280-119347-4), V-S8-180119-514 (280-119347-6) and V-S8-180159-514 (280-119347-8) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 01/21/2019 and analyzed on 01/29/2019.

The following sample was diluted due to the nature of the sample matrix: V-S8-180119-475 (280-119347-2). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Compound 1,2,3-Trichloropropane, 1,2-Dibromo-3-Chloropropane, 1,2-Dibromopropane and 1,2-Dibromoethane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following samples: (CCV 280-445839/17), (280-119347-A-8-B MS) and (280-119347-A-8-C MSD). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

Compound 1,2-Dibromopropane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following sample: V-S8-180159-514 (280-119347-8). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Job ID: 280-119347-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Sample TB-S8-180119-01 (280-119347-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 01/31/2019 and analyzed on 02/01/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S8-180119-475 (280-119347-3), P-S8-180119-499 (280-119347-5), P-S8-180119-514 (280-119347-7) and P-S8-180159-514 (280-119347-9) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 01/24/2019 and analyzed on 01/28/2019.

Gasoline Range Organics (GRO)-C6-C10 failed the recovery criteria high for the MSD of sample P-S8-180119-475 (280-119347-3) in batch 280-445732. Associated results have been flagged "J1". Refer to the QC report for details. The acceptable LCS data indicate that the analytical system was operating within control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S8-180119-01 (280-119347-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 01/29/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S8-180119-475 (280-119347-3), P-S8-180119-499 (280-119347-5), P-S8-180119-514 (280-119347-7) and P-S8-180159-514 (280-119347-9) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/23/2019 and analyzed on 01/28/2019 and 01/29/2019.

Per the method comments, 8015D_DRO_DOD5 analysis for the following samples was performed on extracts that were silica gel cleaned: P-S8-180119-475 (280-119347-3), P-S8-180119-499 (280-119347-5), P-S8-180119-514 (280-119347-7), P-S8-180159-514 (280-119347-9), (LCS 280-445176/2-A), (LCS 280-445176/3-A), (MB 280-445176/1-A), (280-119255-A-3-A), (280-119255-A-3-B MS), (280-119255-A-3-D MS), (280-119255-A-3-C MSD) and (280-119255-A-3-E MSD). This is for preparation batch 280-445176 and analytical batch 280-445704

Diesel Range Organics [C10-C28] was detected in method blank MB 280-445176/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S8-180119-475 (280-119347-2), P-S8-180119-475 (280-119347-3), V-S8-180119-499 (280-119347-4), P-S8-180119-499 (280-119347-5), V-S8-180119-514 (280-119347-6), P-S8-180119-514 (280-119347-7), V-S8-180159-514 (280-119347-8) and P-S8-180159-514 (280-119347-9) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 01/22/2019.

The initial oven temperature was not recorded for Percent Moisture analytical batch 280-445009. This did not affect the data, as the oven temperature doesn't vary much. The samples were placed in the oven by a day crew analyst and the batch was started at 15:33. The samples would have been put in the oven not long after that and were not taken out until the next day at 14:30, so the samples were in the oven well over the required 12 hours.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: TB-S8-180119-01 — Lab Sample ID: 280-119347-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	4.5	J	10	6.4	1.9	ug/L	1		8260B	Total/NA

Client Sample ID: V-S8-180119-475 — Lab Sample ID: 280-119347-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,3,5-Trimethylbenzene	150	Q	5.0	1.6	0.57	ug/Kg	1	☼	8260B	Total/NA
2-Hexanone	260	Q	20	13	4.9	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	17	Q	5.0	1.6	0.49	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	130		20	13	4.4	ug/Kg	1	☼	8260B	Total/NA
Benzene	23		5.0	1.6	0.47	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	45		5.0	1.6	0.67	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	29	Q	5.0	1.6	0.59	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	150	Q	5.0	1.6	0.56	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	130	Q	5.0	1.6	0.58	ug/Kg	1	☼	8260B	Total/NA
tert-Butylbenzene	15	Q	5.0	1.6	0.50	ug/Kg	1	☼	8260B	Total/NA
Toluene	66		5.0	1.6	0.69	ug/Kg	1	☼	8260B	Total/NA
Naphthalene - DL	440	J D	5500	870	410	ug/Kg	10	☼	8260B	Total/NA
Ethylene Dibromide	1.7	D M	1.1	0.43	0.17	ug/Kg	10	☼	8011	Total/NA

Client Sample ID: P-S8-180119-475 — Lab Sample ID: 280-119347-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	13	J1	1.4	1.3	0.39	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	3.2	J	8.0	4.0	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S8-180119-499 — Lab Sample ID: 280-119347-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	3.5	J Q	18	5.6	1.6	ug/Kg	1	☼	8260B	Total/NA
Acetone	7.7	J Q	18	11	4.7	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.4	J	4.4	2.8	1.4	ug/Kg	1	☼	8260B	Total/NA
Toluene	1.1	J	4.4	1.4	0.61	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S8-180119-499 — Lab Sample ID: 280-119347-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.2	J	8.7	4.3	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S8-180119-514 — Lab Sample ID: 280-119347-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,1,2,2-Tetrachloroethane	2.0	J	5.1	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
1,2,3-Trichloropropane	0.99	J	5.1	3.2	0.82	ug/Kg	1	☼	8260B	Total/NA
2-Hexanone	15	J Q	20	13	5.0	ug/Kg	1	☼	8260B	Total/NA
Acetone	41	Q	20	13	5.5	ug/Kg	1	☼	8260B	Total/NA
Benzene	1.4	J	5.1	1.6	0.48	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	0.81	J	5.1	1.6	0.60	ug/Kg	1	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: V-S8-180119-514 (Continued) — Lab Sample ID: 280-119347-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.3	J	5.1	3.2	1.6	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	2.0	J	3.2	3.2	1.1	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.74	J	5.1	1.6	0.59	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	0.70	J	5.1	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
Toluene	3.5	J	5.1	1.6	0.70	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S8-180119-514 — Lab Sample ID: 280-119347-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.4	J	8.9	4.4	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S8-180159-514 — Lab Sample ID: 280-119347-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.5	J Q	18	12	4.8	ug/Kg	1	☼	8260B	Total/NA
Benzene	1.4	J	4.5	1.4	0.42	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	0.68	J	4.5	1.4	0.53	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	2.1	J	2.9	2.9	0.94	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.65	J	4.5	1.4	0.52	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	0.71	J	4.5	1.4	0.55	ug/Kg	1	☼	8260B	Total/NA
Toluene	3.8	J	4.5	1.4	0.62	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S8-180159-514 — Lab Sample ID: 280-119347-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.4	J	9.1	4.5	1.5	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119347-1	TB-S8-180119-01	Water	01/18/19 14:00	01/19/19 09:00
280-119347-2	V-S8-180119-475	Solid	01/18/19 10:45	01/19/19 09:00
280-119347-3	P-S8-180119-475	Solid	01/18/19 10:45	01/19/19 09:00
280-119347-4	V-S8-180119-499	Solid	01/18/19 15:05	01/19/19 09:00
280-119347-5	P-S8-180119-499	Solid	01/18/19 15:05	01/19/19 09:00
280-119347-6	V-S8-180119-514	Solid	01/18/19 16:25	01/19/19 09:00
280-119347-7	P-S8-180119-514	Solid	01/18/19 16:25	01/19/19 09:00
280-119347-8	V-S8-180159-514	Solid	01/18/19 16:25	01/19/19 09:00
280-119347-9	P-S8-180159-514	Solid	01/18/19 16:25	01/19/19 09:00

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S8-180119-01
Date Collected: 01/18/19 14:00
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**4.5**	**J**	10	6.4	1.9	ug/L		01/28/19 10:01	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/28/19 10:01	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
Bromoform	0.40	U Q	1.0	0.40	0.19	ug/L		01/28/19 10:01	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/28/19 10:01	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/28/19 10:01	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/28/19 10:01	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/28/19 10:01	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/28/19 10:01	1
Chlorobenzene	0.40	U Q	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/28/19 10:01	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/28/19 10:01	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 10:01	1
Dibromochloromethane	0.40	U Q	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/28/19 10:01	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/28/19 10:01	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
Ethylene Dibromide	0.40	U Q	1.0	0.40	0.18	ug/L		01/28/19 10:01	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 10:01	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/28/19 10:01	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/28/19 10:01	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/28/19 10:01	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/28/19 10:01	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/28/19 10:01	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 10:01	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 10:01	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/28/19 10:01	1
1,3-Dichloropropane	0.80	U Q	1.0	0.80	0.22	ug/L		01/28/19 10:01	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/28/19 10:01	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 10:01	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 10:01	1
Ethylbenzene	0.40	U Q	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
2-Hexanone	4.0	U Q	5.0	4.0	1.7	ug/L		01/28/19 10:01	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/28/19 10:01	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 10:01	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/28/19 10:01	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/28/19 10:01	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/28/19 10:01	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/28/19 10:01	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/28/19 10:01	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Styrene	0.40	U Q	1.0	0.40	0.17	ug/L		01/28/19 10:01	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S8-180119-01
Date Collected: 01/18/19 14:00
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U Q	1.0	0.80	0.21	ug/L		01/28/19 10:01	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 10:01	1
Tetrachloroethene	0.40	U Q	1.0	0.40	0.20	ug/L		01/28/19 10:01	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 10:01	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
1,1,2-Trichloroethane	0.80	U Q	1.0	0.80	0.27	ug/L		01/28/19 10:01	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/28/19 10:01	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 10:01	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/28/19 10:01	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 10:01	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 10:01	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/28/19 10:01	1
o-Xylene	0.40	U Q	1.0	0.40	0.19	ug/L		01/28/19 10:01	1
m-Xylene & p-Xylene	0.80	U Q	2.0	0.80	0.34	ug/L		01/28/19 10:01	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 10:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*117*	*Q*	*89 - 112*		*01/28/19 10:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*81 - 118*		*01/28/19 10:01*	*1*
4-Bromofluorobenzene (Surr)	*109*		*85 - 114*		*01/28/19 10:01*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*01/28/19 10:01*	*1*

Client Sample ID: V-S8-180119-475
Date Collected: 01/18/19 10:45
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-2
Matrix: Solid
Percent Solids: 88.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg	☼	01/29/19 13:28	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg	☼	01/29/19 13:28	1
1,1,2,2-Tetrachloroethane	1.6	U M Q	5.0	1.6	0.61	ug/Kg	☼	01/29/19 13:28	1
1,1,2-Trichloroethane	3.2	U M	5.0	3.2	0.88	ug/Kg	☼	01/29/19 13:28	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg	☼	01/29/19 13:28	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	01/29/19 13:28	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg	☼	01/29/19 13:28	1
1,2,3-Trichlorobenzene	1.6	U M Q	5.0	1.6	0.75	ug/Kg	☼	01/29/19 13:28	1
1,2,3-Trichloropropane	3.2	U M Q	5.0	3.2	0.81	ug/Kg	☼	01/29/19 13:28	1
1,2,4-Trichlorobenzene	1.6	U M Q	5.0	1.6	0.73	ug/Kg	☼	01/29/19 13:28	1
1,2-Dibromo-3-Chloropropane	1.6	U M Q	10	1.6	0.60	ug/Kg	☼	01/29/19 13:28	1
1,2-Dichlorobenzene	1.6	U Q	5.0	1.6	0.45	ug/Kg	☼	01/29/19 13:28	1
1,2-Dichloroethane	1.6	U M	5.0	1.6	0.70	ug/Kg	☼	01/29/19 13:28	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg	☼	01/29/19 13:28	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg	☼	01/29/19 13:28	1
1,3,5-Trimethylbenzene	**150**	**Q**	5.0	1.6	0.57	ug/Kg	☼	01/29/19 13:28	1
1,3-Dichlorobenzene	1.6	U Q	5.0	1.6	0.48	ug/Kg	☼	01/29/19 13:28	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg	☼	01/29/19 13:28	1
1,4-Dichlorobenzene	1.6	U Q	5.0	1.6	0.78	ug/Kg	☼	01/29/19 13:28	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg	☼	01/29/19 13:28	1
2-Chlorotoluene	1.6	U M Q	5.0	1.6	0.51	ug/Kg	☼	01/29/19 13:28	1
2-Hexanone	**260**	**Q**	20	13	4.9	ug/Kg	☼	01/29/19 13:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-180119-475
Date Collected: 01/18/19 10:45
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-2
Matrix: Solid
Percent Solids: 88.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Chlorotoluene	1.6	U M Q	5.0	1.6	0.78	ug/Kg	☼	01/29/19 13:28	1
4-Isopropyltoluene	**17**	**Q**	5.0	1.6	0.49	ug/Kg	☼	01/29/19 13:28	1
4-Methyl-2-pentanone (MIBK)	**130**		20	13	4.4	ug/Kg	☼	01/29/19 13:28	1
Benzene	**23**		5.0	1.6	0.47	ug/Kg	☼	01/29/19 13:28	1
Bromobenzene	1.6	U Q	5.0	1.6	0.49	ug/Kg	☼	01/29/19 13:28	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg	☼	01/29/19 13:28	1
Bromomethane	1.6	U M	10	1.6	0.50	ug/Kg	☼	01/29/19 13:28	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg	☼	01/29/19 13:28	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg	☼	01/29/19 13:28	1
Chlorobenzene	1.6	U M	5.0	1.6	0.54	ug/Kg	☼	01/29/19 13:28	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg	☼	01/29/19 13:28	1
Dibromochloromethane	1.6	U M	5.0	1.6	0.57	ug/Kg	☼	01/29/19 13:28	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg	☼	01/29/19 13:28	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg	☼	01/29/19 13:28	1
Chloromethane	1.6	U M	10	1.6	0.77	ug/Kg	☼	01/29/19 13:28	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg	☼	01/29/19 13:28	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg	☼	01/29/19 13:28	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg	☼	01/29/19 13:28	1
Bromodichloromethane	0.80	U M	5.0	0.80	0.22	ug/Kg	☼	01/29/19 13:28	1
Dichlorodifluoromethane	1.6	U Q	10	1.6	0.52	ug/Kg	☼	01/29/19 13:28	1
Ethylbenzene	**45**		5.0	1.6	0.67	ug/Kg	☼	01/29/19 13:28	1
Ethylene Dibromide	1.6	U M	5.0	1.6	0.52	ug/Kg	☼	01/29/19 13:28	1
Hexachlorobutadiene	1.6	U Q	5.0	1.6	0.55	ug/Kg	☼	01/29/19 13:28	1
Isopropylbenzene	**29**	**Q**	5.0	1.6	0.59	ug/Kg	☼	01/29/19 13:28	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg	☼	01/29/19 13:28	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg	☼	01/29/19 13:28	1
n-Butylbenzene	**150**	**Q**	5.0	1.6	0.56	ug/Kg	☼	01/29/19 13:28	1
N-Propylbenzene	**130**	**Q**	5.0	1.6	0.58	ug/Kg	☼	01/29/19 13:28	1
Styrene	1.6	U M	5.0	1.6	0.63	ug/Kg	☼	01/29/19 13:28	1
tert-Butylbenzene	**15**	**Q**	5.0	1.6	0.50	ug/Kg	☼	01/29/19 13:28	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	01/29/19 13:28	1
Toluene	**66**		5.0	1.6	0.69	ug/Kg	☼	01/29/19 13:28	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg	☼	01/29/19 13:28	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg	☼	01/29/19 13:28	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg	☼	01/29/19 13:28	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg	☼	01/29/19 13:28	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg	☼	01/29/19 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*01/18/19 10:45*	*01/29/19 13:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*71 - 136*	*01/18/19 10:45*	*01/29/19 13:28*	*1*
4-Bromofluorobenzene (Surr)	*140*	*Q*	*79 - 119*	*01/18/19 10:45*	*01/29/19 13:28*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 119*	*01/18/19 10:45*	*01/29/19 13:28*	*1*

Client Sample ID: V-S8-180119-499
Date Collected: 01/18/19 15:05
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-4
Matrix: Solid
Percent Solids: 89.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.4	U	4.4	1.4	0.49	ug/Kg	☼	01/29/19 12:20	1
1,1,1-Trichloroethane	1.4	U	4.4	1.4	0.46	ug/Kg	☼	01/29/19 12:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-180119-499
Date Collected: 01/18/19 15:05
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-4
Matrix: Solid
Percent Solids: 89.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	1.4	U M	4.4	1.4	0.54	ug/Kg	☼	01/29/19 12:20	1
1,1,2-Trichloroethane	2.8	U	4.4	2.8	0.77	ug/Kg	☼	01/29/19 12:20	1
1,1-Dichloroethane	0.70	U	4.4	0.70	0.18	ug/Kg	☼	01/29/19 12:20	1
1,1-Dichloroethene	1.4	U	4.4	1.4	0.52	ug/Kg	☼	01/29/19 12:20	1
1,1-Dichloropropene	1.4	U	4.4	1.4	0.47	ug/Kg	☼	01/29/19 12:20	1
1,2,3-Trichlorobenzene	1.4	U	4.4	1.4	0.66	ug/Kg	☼	01/29/19 12:20	1
1,2,3-Trichloropropane	2.8	U	4.4	2.8	0.71	ug/Kg	☼	01/29/19 12:20	1
1,2,4-Trichlorobenzene	1.4	U	4.4	1.4	0.64	ug/Kg	☼	01/29/19 12:20	1
1,2,4-Trimethylbenzene	2.8	U	4.4	2.8	0.51	ug/Kg	☼	01/29/19 12:20	1
1,2-Dibromo-3-Chloropropane	1.4	U	8.8	1.4	0.53	ug/Kg	☼	01/29/19 12:20	1
1,2-Dichlorobenzene	1.4	U	4.4	1.4	0.40	ug/Kg	☼	01/29/19 12:20	1
1,2-Dichloroethane	1.4	U	4.4	1.4	0.61	ug/Kg	☼	01/29/19 12:20	1
1,2-Dichloroethene, Total	1.4	U	4.4	1.4	0.34	ug/Kg	☼	01/29/19 12:20	1
1,2-Dichloropropane	1.4	U M	4.4	1.4	0.48	ug/Kg	☼	01/29/19 12:20	1
1,3,5-Trimethylbenzene	1.4	U	4.4	1.4	0.50	ug/Kg	☼	01/29/19 12:20	1
1,3-Dichlorobenzene	1.4	U	4.4	1.4	0.42	ug/Kg	☼	01/29/19 12:20	1
1,3-Dichloropropane	1.4	U	4.4	1.4	0.45	ug/Kg	☼	01/29/19 12:20	1
1,4-Dichlorobenzene	1.4	U	4.4	1.4	0.68	ug/Kg	☼	01/29/19 12:20	1
2,2-Dichloropropane	1.4	U	4.4	1.4	0.39	ug/Kg	☼	01/29/19 12:20	1
2-Butanone (MEK)	**3.5**	**J Q**	18	5.6	1.6	ug/Kg	☼	01/29/19 12:20	1
2-Chlorotoluene	1.4	U	4.4	1.4	0.45	ug/Kg	☼	01/29/19 12:20	1
2-Hexanone	11	U M Q	18	11	4.3	ug/Kg	☼	01/29/19 12:20	1
4-Chlorotoluene	1.4	U	4.4	1.4	0.68	ug/Kg	☼	01/29/19 12:20	1
4-Isopropyltoluene	1.4	U	4.4	1.4	0.43	ug/Kg	☼	01/29/19 12:20	1
4-Methyl-2-pentanone (MIBK)	11	U	18	11	3.8	ug/Kg	☼	01/29/19 12:20	1
Acetone	**7.7**	**J Q**	18	11	4.7	ug/Kg	☼	01/29/19 12:20	1
Benzene	1.4	U	4.4	1.4	0.41	ug/Kg	☼	01/29/19 12:20	1
Bromobenzene	1.4	U	4.4	1.4	0.43	ug/Kg	☼	01/29/19 12:20	1
Bromoform	0.70	U	4.4	0.70	0.20	ug/Kg	☼	01/29/19 12:20	1
Bromomethane	1.4	U M	8.8	1.4	0.44	ug/Kg	☼	01/29/19 12:20	1
Carbon disulfide	1.4	U	4.4	1.4	0.37	ug/Kg	☼	01/29/19 12:20	1
Carbon tetrachloride	1.4	U	4.4	1.4	0.55	ug/Kg	☼	01/29/19 12:20	1
Chlorobenzene	1.4	U	4.4	1.4	0.47	ug/Kg	☼	01/29/19 12:20	1
Bromochloromethane	0.70	U	4.4	0.70	0.26	ug/Kg	☼	01/29/19 12:20	1
Dibromochloromethane	1.4	U	4.4	1.4	0.50	ug/Kg	☼	01/29/19 12:20	1
Chloroethane	2.8	U	8.8	2.8	0.78	ug/Kg	☼	01/29/19 12:20	1
Chloroform	0.70	U	8.8	0.70	0.25	ug/Kg	☼	01/29/19 12:20	1
Chloromethane	1.4	U	8.8	1.4	0.68	ug/Kg	☼	01/29/19 12:20	1
cis-1,2-Dichloroethene	1.4	U	4.4	1.4	0.49	ug/Kg	☼	01/29/19 12:20	1
cis-1,3-Dichloropropene	2.8	U	4.4	2.8	1.1	ug/Kg	☼	01/29/19 12:20	1
Dibromomethane	2.8	U	4.4	2.8	0.74	ug/Kg	☼	01/29/19 12:20	1
Bromodichloromethane	0.70	U	4.4	0.70	0.19	ug/Kg	☼	01/29/19 12:20	1
Dichlorodifluoromethane	1.4	U Q	8.8	1.4	0.46	ug/Kg	☼	01/29/19 12:20	1
Ethylbenzene	1.4	U M	4.4	1.4	0.59	ug/Kg	☼	01/29/19 12:20	1
Ethylene Dibromide	1.4	U	4.4	1.4	0.46	ug/Kg	☼	01/29/19 12:20	1
Hexachlorobutadiene	1.4	U	4.4	1.4	0.48	ug/Kg	☼	01/29/19 12:20	1
Isopropylbenzene	1.4	U	4.4	1.4	0.52	ug/Kg	☼	01/29/19 12:20	1
Methyl tert-butyl ether	0.70	U	18	0.70	0.30	ug/Kg	☼	01/29/19 12:20	1
Methylene Chloride	**2.4**	**J**	4.4	2.8	1.4	ug/Kg	☼	01/29/19 12:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-180119-499 — **Lab Sample ID: 280-119347-4**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	2.8	U M	2.8	2.8	0.91	ug/Kg	☼	01/29/19 12:20	1
Naphthalene	1.4	U	4.4	1.4	0.55	ug/Kg	☼	01/29/19 12:20	1
n-Butylbenzene	1.4	U	4.4	1.4	0.49	ug/Kg	☼	01/29/19 12:20	1
N-Propylbenzene	1.4	U	4.4	1.4	0.51	ug/Kg	☼	01/29/19 12:20	1
o-Xylene	1.4	U	4.4	1.4	0.54	ug/Kg	☼	01/29/19 12:20	1
sec-Butylbenzene	1.4	U	4.4	1.4	0.68	ug/Kg	☼	01/29/19 12:20	1
Styrene	1.4	U	4.4	1.4	0.55	ug/Kg	☼	01/29/19 12:20	1
tert-Butylbenzene	1.4	U	4.4	1.4	0.44	ug/Kg	☼	01/29/19 12:20	1
Tetrachloroethene	1.4	U	4.4	1.4	0.52	ug/Kg	☼	01/29/19 12:20	1
Toluene	**1.1**	**J**	4.4	1.4	0.61	ug/Kg	☼	01/29/19 12:20	1
trans-1,2-Dichloroethene	0.70	U	4.4	0.70	0.34	ug/Kg	☼	01/29/19 12:20	1
trans-1,3-Dichloropropene	1.4	U	4.4	1.4	0.59	ug/Kg	☼	01/29/19 12:20	1
Trichloroethene	0.70	U	4.4	0.70	0.20	ug/Kg	☼	01/29/19 12:20	1
Trichlorofluoromethane	2.8	U	8.8	2.8	0.91	ug/Kg	☼	01/29/19 12:20	1
Vinyl chloride	2.8	U	4.4	2.8	1.2	ug/Kg	☼	01/29/19 12:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/18/19 15:05*	*01/29/19 12:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*01/18/19 15:05*	*01/29/19 12:20*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/18/19 15:05*	*01/29/19 12:20*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 119*	*01/18/19 15:05*	*01/29/19 12:20*	*1*

Client Sample ID: V-S8-180119-514 — **Lab Sample ID: 280-119347-6**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 83.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	5.1	1.6	0.57	ug/Kg	☼	01/29/19 12:43	1
1,1,1-Trichloroethane	1.6	U	5.1	1.6	0.53	ug/Kg	☼	01/29/19 12:43	1
1,1,2,2-Tetrachloroethane	**2.0**	**J**	5.1	1.6	0.62	ug/Kg	☼	01/29/19 12:43	1
1,1,2-Trichloroethane	3.2	U	5.1	3.2	0.89	ug/Kg	☼	01/29/19 12:43	1
1,1-Dichloroethane	0.81	U	5.1	0.81	0.21	ug/Kg	☼	01/29/19 12:43	1
1,1-Dichloroethene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	01/29/19 12:43	1
1,1-Dichloropropene	1.6	U	5.1	1.6	0.55	ug/Kg	☼	01/29/19 12:43	1
1,2,3-Trichlorobenzene	1.6	U	5.1	1.6	0.76	ug/Kg	☼	01/29/19 12:43	1
1,2,3-Trichloropropane	**0.99**	**J**	5.1	3.2	0.82	ug/Kg	☼	01/29/19 12:43	1
1,2,4-Trichlorobenzene	1.6	U	5.1	1.6	0.74	ug/Kg	☼	01/29/19 12:43	1
1,2,4-Trimethylbenzene	3.2	U	5.1	3.2	0.59	ug/Kg	☼	01/29/19 12:43	1
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.61	ug/Kg	☼	01/29/19 12:43	1
1,2-Dichlorobenzene	1.6	U	5.1	1.6	0.46	ug/Kg	☼	01/29/19 12:43	1
1,2-Dichloroethane	1.6	U	5.1	1.6	0.71	ug/Kg	☼	01/29/19 12:43	1
1,2-Dichloroethene, Total	1.6	U	5.1	1.6	0.40	ug/Kg	☼	01/29/19 12:43	1
1,2-Dichloropropane	1.6	U	5.1	1.6	0.56	ug/Kg	☼	01/29/19 12:43	1
1,3,5-Trimethylbenzene	1.6	U	5.1	1.6	0.58	ug/Kg	☼	01/29/19 12:43	1
1,3-Dichlorobenzene	1.6	U	5.1	1.6	0.49	ug/Kg	☼	01/29/19 12:43	1
1,3-Dichloropropane	1.6	U	5.1	1.6	0.52	ug/Kg	☼	01/29/19 12:43	1
1,4-Dichlorobenzene	1.6	U	5.1	1.6	0.79	ug/Kg	☼	01/29/19 12:43	1
2,2-Dichloropropane	1.6	U	5.1	1.6	0.45	ug/Kg	☼	01/29/19 12:43	1
2-Butanone (MEK)	6.5	U Q	20	6.5	1.9	ug/Kg	☼	01/29/19 12:43	1
2-Chlorotoluene	1.6	U	5.1	1.6	0.52	ug/Kg	☼	01/29/19 12:43	1
2-Hexanone	**15**	**J Q**	20	13	5.0	ug/Kg	☼	01/29/19 12:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-180119-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-6
Matrix: Solid
Percent Solids: 83.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Chlorotoluene	1.6	U	5.1	1.6	0.79	ug/Kg	☼	01/29/19 12:43	1
4-Isopropyltoluene	1.6	U	5.1	1.6	0.50	ug/Kg	☼	01/29/19 12:43	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg	☼	01/29/19 12:43	1
Acetone	**41**	**Q**	20	13	5.5	ug/Kg	☼	01/29/19 12:43	1
Benzene	**1.4**	**J**	5.1	1.6	0.48	ug/Kg	☼	01/29/19 12:43	1
Bromobenzene	1.6	U	5.1	1.6	0.50	ug/Kg	☼	01/29/19 12:43	1
Bromoform	0.81	U	5.1	0.81	0.23	ug/Kg	☼	01/29/19 12:43	1
Bromomethane	1.6	U	10	1.6	0.51	ug/Kg	☼	01/29/19 12:43	1
Carbon disulfide	1.6	U	5.1	1.6	0.43	ug/Kg	☼	01/29/19 12:43	1
Carbon tetrachloride	1.6	U	5.1	1.6	0.64	ug/Kg	☼	01/29/19 12:43	1
Chlorobenzene	1.6	U	5.1	1.6	0.55	ug/Kg	☼	01/29/19 12:43	1
Bromochloromethane	0.81	U	5.1	0.81	0.30	ug/Kg	☼	01/29/19 12:43	1
Dibromochloromethane	1.6	U	5.1	1.6	0.58	ug/Kg	☼	01/29/19 12:43	1
Chloroethane	3.2	U	10	3.2	0.90	ug/Kg	☼	01/29/19 12:43	1
Chloroform	0.81	U	10	0.81	0.29	ug/Kg	☼	01/29/19 12:43	1
Chloromethane	1.6	U	10	1.6	0.78	ug/Kg	☼	01/29/19 12:43	1
cis-1,2-Dichloroethene	1.6	U	5.1	1.6	0.57	ug/Kg	☼	01/29/19 12:43	1
cis-1,3-Dichloropropene	3.2	U	5.1	3.2	1.3	ug/Kg	☼	01/29/19 12:43	1
Dibromomethane	3.2	U	5.1	3.2	0.85	ug/Kg	☼	01/29/19 12:43	1
Bromodichloromethane	0.81	U	5.1	0.81	0.22	ug/Kg	☼	01/29/19 12:43	1
Dichlorodifluoromethane	1.6	U Q	10	1.6	0.53	ug/Kg	☼	01/29/19 12:43	1
Ethylbenzene	1.6	U	5.1	1.6	0.68	ug/Kg	☼	01/29/19 12:43	1
Ethylene Dibromide	1.6	U	5.1	1.6	0.53	ug/Kg	☼	01/29/19 12:43	1
Hexachlorobutadiene	1.6	U	5.1	1.6	0.56	ug/Kg	☼	01/29/19 12:43	1
Isopropylbenzene	**0.81**	**J**	5.1	1.6	0.60	ug/Kg	☼	01/29/19 12:43	1
Methyl tert-butyl ether	0.81	U	20	0.81	0.34	ug/Kg	☼	01/29/19 12:43	1
Methylene Chloride	**3.3**	**J**	5.1	3.2	1.6	ug/Kg	☼	01/29/19 12:43	1
m-Xylene & p-Xylene	**2.0**	**J**	3.2	3.2	1.1	ug/Kg	☼	01/29/19 12:43	1
Naphthalene	1.6	U	5.1	1.6	0.64	ug/Kg	☼	01/29/19 12:43	1
n-Butylbenzene	1.6	U	5.1	1.6	0.57	ug/Kg	☼	01/29/19 12:43	1
N-Propylbenzene	**0.74**	**J**	5.1	1.6	0.59	ug/Kg	☼	01/29/19 12:43	1
o-Xylene	**0.70**	**J**	5.1	1.6	0.62	ug/Kg	☼	01/29/19 12:43	1
sec-Butylbenzene	1.6	U	5.1	1.6	0.78	ug/Kg	☼	01/29/19 12:43	1
Styrene	1.6	U	5.1	1.6	0.64	ug/Kg	☼	01/29/19 12:43	1
tert-Butylbenzene	1.6	U	5.1	1.6	0.51	ug/Kg	☼	01/29/19 12:43	1
Tetrachloroethene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	01/29/19 12:43	1
Toluene	**3.5**	**J**	5.1	1.6	0.70	ug/Kg	☼	01/29/19 12:43	1
trans-1,2-Dichloroethene	0.81	U	5.1	0.81	0.40	ug/Kg	☼	01/29/19 12:43	1
trans-1,3-Dichloropropene	1.6	U	5.1	1.6	0.68	ug/Kg	☼	01/29/19 12:43	1
Trichloroethene	0.81	U	5.1	0.81	0.23	ug/Kg	☼	01/29/19 12:43	1
Trichlorofluoromethane	3.2	U	10	3.2	1.1	ug/Kg	☼	01/29/19 12:43	1
Vinyl chloride	3.2	U	5.1	3.2	1.4	ug/Kg	☼	01/29/19 12:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/18/19 16:25*	*01/29/19 12:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*01/18/19 16:25*	*01/29/19 12:43*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/18/19 16:25*	*01/29/19 12:43*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 119*	*01/18/19 16:25*	*01/29/19 12:43*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: V-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-8
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.4	U	4.5	1.4	0.50	ug/Kg	☼	01/29/19 13:06	1
1,1,1-Trichloroethane	1.4	U	4.5	1.4	0.47	ug/Kg	☼	01/29/19 13:06	1
1,1,2,2-Tetrachloroethane	1.4	U M	4.5	1.4	0.55	ug/Kg	☼	01/29/19 13:06	1
1,1,2-Trichloroethane	2.9	U M	4.5	2.9	0.79	ug/Kg	☼	01/29/19 13:06	1
1,1-Dichloroethane	0.72	U	4.5	0.72	0.19	ug/Kg	☼	01/29/19 13:06	1
1,1-Dichloroethene	1.4	U	4.5	1.4	0.53	ug/Kg	☼	01/29/19 13:06	1
1,1-Dichloropropene	1.4	U	4.5	1.4	0.49	ug/Kg	☼	01/29/19 13:06	1
1,2,3-Trichlorobenzene	1.4	U	4.5	1.4	0.68	ug/Kg	☼	01/29/19 13:06	1
1,2,3-Trichloropropane	2.9	U M	4.5	2.9	0.73	ug/Kg	☼	01/29/19 13:06	1
1,2,4-Trichlorobenzene	1.4	U	4.5	1.4	0.66	ug/Kg	☼	01/29/19 13:06	1
1,2,4-Trimethylbenzene	2.9	U M	4.5	2.9	0.52	ug/Kg	☼	01/29/19 13:06	1
1,2-Dibromo-3-Chloropropane	1.4	U	9.0	1.4	0.54	ug/Kg	☼	01/29/19 13:06	1
1,2-Dichlorobenzene	1.4	U	4.5	1.4	0.41	ug/Kg	☼	01/29/19 13:06	1
1,2-Dichloroethane	1.4	U	4.5	1.4	0.63	ug/Kg	☼	01/29/19 13:06	1
1,2-Dichloroethene, Total	1.4	U	4.5	1.4	0.35	ug/Kg	☼	01/29/19 13:06	1
1,2-Dichloropropane	1.4	U M	4.5	1.4	0.50	ug/Kg	☼	01/29/19 13:06	1
1,3,5-Trimethylbenzene	1.4	U M	4.5	1.4	0.51	ug/Kg	☼	01/29/19 13:06	1
1,3-Dichlorobenzene	1.4	U	4.5	1.4	0.43	ug/Kg	☼	01/29/19 13:06	1
1,3-Dichloropropane	1.4	U	4.5	1.4	0.46	ug/Kg	☼	01/29/19 13:06	1
1,4-Dichlorobenzene	1.4	U	4.5	1.4	0.70	ug/Kg	☼	01/29/19 13:06	1
2,2-Dichloropropane	1.4	U	4.5	1.4	0.40	ug/Kg	☼	01/29/19 13:06	1
2-Butanone (MEK)	5.8	U Q	18	5.8	1.6	ug/Kg	☼	01/29/19 13:06	1
2-Chlorotoluene	1.4	U	4.5	1.4	0.46	ug/Kg	☼	01/29/19 13:06	1
2-Hexanone	12	U M Q	18	12	4.4	ug/Kg	☼	01/29/19 13:06	1
4-Chlorotoluene	1.4	U	4.5	1.4	0.70	ug/Kg	☼	01/29/19 13:06	1
4-Isopropyltoluene	1.4	U M	4.5	1.4	0.44	ug/Kg	☼	01/29/19 13:06	1
4-Methyl-2-pentanone (MIBK)	12	U	18	12	3.9	ug/Kg	☼	01/29/19 13:06	1
Acetone	**5.5**	**J Q**	18	12	4.8	ug/Kg	☼	01/29/19 13:06	1
Benzene	**1.4**	**J**	4.5	1.4	0.42	ug/Kg	☼	01/29/19 13:06	1
Bromobenzene	1.4	U	4.5	1.4	0.44	ug/Kg	☼	01/29/19 13:06	1
Bromoform	0.72	U	4.5	0.72	0.21	ug/Kg	☼	01/29/19 13:06	1
Bromomethane	1.4	U M	9.0	1.4	0.45	ug/Kg	☼	01/29/19 13:06	1
Carbon disulfide	1.4	U	4.5	1.4	0.38	ug/Kg	☼	01/29/19 13:06	1
Carbon tetrachloride	1.4	U	4.5	1.4	0.57	ug/Kg	☼	01/29/19 13:06	1
Chlorobenzene	1.4	U	4.5	1.4	0.49	ug/Kg	☼	01/29/19 13:06	1
Bromochloromethane	0.72	U	4.5	0.72	0.27	ug/Kg	☼	01/29/19 13:06	1
Dibromochloromethane	1.4	U	4.5	1.4	0.51	ug/Kg	☼	01/29/19 13:06	1
Chloroethane	2.9	U	9.0	2.9	0.80	ug/Kg	☼	01/29/19 13:06	1
Chloroform	0.72	U	9.0	0.72	0.26	ug/Kg	☼	01/29/19 13:06	1
Chloromethane	1.4	U M	9.0	1.4	0.69	ug/Kg	☼	01/29/19 13:06	1
cis-1,2-Dichloroethene	1.4	U	4.5	1.4	0.50	ug/Kg	☼	01/29/19 13:06	1
cis-1,3-Dichloropropene	2.9	U	4.5	2.9	1.2	ug/Kg	☼	01/29/19 13:06	1
Dibromomethane	2.9	U	4.5	2.9	0.76	ug/Kg	☼	01/29/19 13:06	1
Bromodichloromethane	0.72	U	4.5	0.72	0.20	ug/Kg	☼	01/29/19 13:06	1
Dichlorodifluoromethane	1.4	U Q	9.0	1.4	0.47	ug/Kg	☼	01/29/19 13:06	1
Ethylbenzene	1.4	U	4.5	1.4	0.60	ug/Kg	☼	01/29/19 13:06	1
Ethylene Dibromide	1.4	U	4.5	1.4	0.47	ug/Kg	☼	01/29/19 13:06	1
Hexachlorobutadiene	1.4	U	4.5	1.4	0.50	ug/Kg	☼	01/29/19 13:06	1
Isopropylbenzene	**0.68**	**J**	4.5	1.4	0.53	ug/Kg	☼	01/29/19 13:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-8
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methyl tert-butyl ether	0.72	U	18	0.72	0.31	ug/Kg	☼	01/29/19 13:06	1
Methylene Chloride	2.9	U M	4.5	2.9	1.4	ug/Kg	☼	01/29/19 13:06	1
m-Xylene & p-Xylene	**2.1**	**J**	2.9	2.9	0.94	ug/Kg	☼	01/29/19 13:06	1
Naphthalene	1.4	U	4.5	1.4	0.57	ug/Kg	☼	01/29/19 13:06	1
n-Butylbenzene	1.4	U M	4.5	1.4	0.50	ug/Kg	☼	01/29/19 13:06	1
N-Propylbenzene	**0.65**	**J**	4.5	1.4	0.52	ug/Kg	☼	01/29/19 13:06	1
o-Xylene	**0.71**	**J**	4.5	1.4	0.55	ug/Kg	☼	01/29/19 13:06	1
sec-Butylbenzene	1.4	U	4.5	1.4	0.69	ug/Kg	☼	01/29/19 13:06	1
Styrene	1.4	U	4.5	1.4	0.57	ug/Kg	☼	01/29/19 13:06	1
tert-Butylbenzene	1.4	U	4.5	1.4	0.45	ug/Kg	☼	01/29/19 13:06	1
Tetrachloroethene	1.4	U	4.5	1.4	0.53	ug/Kg	☼	01/29/19 13:06	1
Toluene	**3.8**	**J**	4.5	1.4	0.62	ug/Kg	☼	01/29/19 13:06	1
trans-1,2-Dichloroethene	0.72	U	4.5	0.72	0.35	ug/Kg	☼	01/29/19 13:06	1
trans-1,3-Dichloropropene	1.4	U	4.5	1.4	0.60	ug/Kg	☼	01/29/19 13:06	1
Trichloroethene	0.72	U	4.5	0.72	0.21	ug/Kg	☼	01/29/19 13:06	1
Trichlorofluoromethane	2.9	U	9.0	2.9	0.94	ug/Kg	☼	01/29/19 13:06	1
Vinyl chloride	2.9	U	4.5	2.9	1.2	ug/Kg	☼	01/29/19 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/18/19 16:25*	*01/29/19 13:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*	*01/18/19 16:25*	*01/29/19 13:06*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/18/19 16:25*	*01/29/19 13:06*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 119*	*01/18/19 16:25*	*01/29/19 13:06*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S8-180119-475
Date Collected: 01/18/19 10:45
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-2
Matrix: Solid
Percent Solids: 88.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	14000	U M	16000	14000	4400	ug/Kg	☼	01/30/19 14:16	10
2-Butanone (MEK)	7000	U M Q	11000	7000	3200	ug/Kg	☼	01/30/19 14:16	10
sec-Butylbenzene	870	U	2700	870	410	ug/Kg	☼	01/30/19 14:16	10
Naphthalene	**440**	**J D**	5500	870	410	ug/Kg	☼	01/30/19 14:16	10
1,2,4-Trimethylbenzene	870	U	2700	870	340	ug/Kg	☼	01/30/19 14:16	10
o-Xylene	870	U	1400	870	380	ug/Kg	☼	01/30/19 14:16	10
m-Xylene & p-Xylene	1700	U	2700	1700	850	ug/Kg	☼	01/30/19 14:16	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*	*D*	*85 - 116*	*01/18/19 10:45*	*01/30/19 14:16*	*10*
1,2-Dichloroethane-d4 (Surr)	*87*	*D*	*71 - 136*	*01/18/19 10:45*	*01/30/19 14:16*	*10*
4-Bromofluorobenzene (Surr)	*109*	*D*	*79 - 119*	*01/18/19 10:45*	*01/30/19 14:16*	*10*
Dibromofluoromethane (Surr)	*86*	*D*	*78 - 119*	*01/18/19 10:45*	*01/30/19 14:16*	*10*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S8-180119-01
Date Collected: 01/18/19 14:00
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*90*		*82 - 110*		*01/29/19 23:30*	*1*

Client Sample ID: P-S8-180119-475
Date Collected: 01/18/19 10:45
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-3
Matrix: Solid
Percent Solids: 90.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**13**	**J1**	1.4	1.3	0.39	mg/Kg	☼	01/28/19 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*89*		*77 - 123*	*01/24/19 14:57*	*01/28/19 20:54*	*1*

Client Sample ID: P-S8-180119-499
Date Collected: 01/18/19 15:05
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-5
Matrix: Solid
Percent Solids: 87.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.6	1.4	0.42	mg/Kg	☼	01/28/19 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*87*		*77 - 123*	*01/24/19 14:57*	*01/28/19 22:06*	*1*

Client Sample ID: P-S8-180119-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-7
Matrix: Solid
Percent Solids: 88.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.40	mg/Kg	☼	01/28/19 22:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*92*		*77 - 123*	*01/24/19 14:57*	*01/28/19 22:30*	*1*

Client Sample ID: P-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-9
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.41	mg/Kg	☼	01/28/19 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*86*		*77 - 123*	*01/24/19 14:57*	*01/28/19 22:54*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S8-180119-01
Date Collected: 01/18/19 14:00
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/01/19 01:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*124*		*70 - 130*	*01/31/19 13:23*	*02/01/19 01:01*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-S8-180119-475 — **Lab Sample ID: 280-119347-2**
Date Collected: 01/18/19 10:45 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 88.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	**1.7**	**D M**	1.1	0.43	0.17	ug/Kg	☼	01/29/19 17:59	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*0*	*D*	*55 - 130*	*01/21/19 13:25*	*01/29/19 17:59*	*10*

Client Sample ID: V-S8-180119-499 — **Lab Sample ID: 280-119347-4**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	01/29/19 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*103*		*55 - 130*	*01/21/19 13:25*	*01/29/19 18:18*	*1*

Client Sample ID: V-S8-180119-514 — **Lab Sample ID: 280-119347-6**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 83.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.045	U	0.12	0.045	0.018	ug/Kg	☼	01/29/19 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*96*	*M*	*55 - 130*	*01/21/19 13:25*	*01/29/19 18:37*	*1*

Client Sample ID: V-S8-180159-514 — **Lab Sample ID: 280-119347-8**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 85.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.044	U	0.12	0.044	0.018	ug/Kg	☼	01/29/19 18:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*95*	*M*	*55 - 130*	*01/21/19 13:25*	*01/29/19 18:56*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S8-180119-475 — **Lab Sample ID: 280-119347-3**
Date Collected: 01/18/19 10:45 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 90.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.2**	**J**	8.0	4.0	1.4	mg/Kg	☼	01/28/19 23:06	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	01/28/19 23:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*82*		*45 - 130*	*01/23/19 14:35*	*01/28/19 23:06*	*1*
n-Octacosane	*85*		*25 - 162*	*01/23/19 14:35*	*01/28/19 23:06*	*1*

Client Sample ID: P-S8-180119-499 — **Lab Sample ID: 280-119347-5**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 87.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.2**	**J**	8.7	4.3	1.5	mg/Kg	☼	01/28/19 23:26	1
Motor Oil (C20-C38)	25	U	26	25	8.5	mg/Kg	☼	01/28/19 23:26	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	80		45 - 130	01/23/19 14:35	01/28/19 23:26	1
n-Octacosane	85		25 - 162	01/23/19 14:35	01/28/19 23:26	1

Client Sample ID: P-S8-180119-514 — **Lab Sample ID: 280-119347-7**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 88.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.4	J	8.9	4.4	1.5	mg/Kg	☼	01/29/19 00:46	1
Motor Oil (C20-C38)	26	U	27	26	8.7	mg/Kg	☼	01/29/19 00:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	68		45 - 130	01/23/19 14:35	01/29/19 00:46	1
n-Octacosane	71		25 - 162	01/23/19 14:35	01/29/19 00:46	1

Client Sample ID: P-S8-180159-514 — **Lab Sample ID: 280-119347-9**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 87.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	3.4	J	9.1	4.5	1.5	mg/Kg	☼	01/28/19 23:46	1
Motor Oil (C20-C38)	27	U	27	27	8.9	mg/Kg	☼	01/28/19 23:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	77		45 - 130	01/23/19 14:35	01/28/19 23:46	1
n-Octacosane	85		25 - 162	01/23/19 14:35	01/28/19 23:46	1

General Chemistry

Client Sample ID: V-S8-180119-475 — **Lab Sample ID: 280-119347-2**
Date Collected: 01/18/19 10:45 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 88.3**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.7		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: P-S8-180119-475 — **Lab Sample ID: 280-119347-3**
Date Collected: 01/18/19 10:45 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 90.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.5		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: V-S8-180119-499 — **Lab Sample ID: 280-119347-4**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.8		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: P-S8-180119-499 — **Lab Sample ID: 280-119347-5**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 87.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.8		0.1	0.05	0.1	%		01/22/19 13:12	1

General Chemistry

Client Sample ID: V-S8-180119-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-6
Matrix: Solid
Percent Solids: 83.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	16.5		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: P-S8-180119-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-7
Matrix: Solid
Percent Solids: 88.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	11.6		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: V-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-8
Matrix: Solid
Percent Solids: 85.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	14.6		0.1	0.05	0.1	%		01/22/19 13:12	1

Client Sample ID: P-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00
Lab Sample ID: 280-119347-9
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.5		0.1	0.05	0.1	%		01/22/19 13:12	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119347-2	V-S8-180119-475	101	80	140 Q	89
280-119347-2 - DL	V-S8-180119-475	95 D	87 D	109 D	86 D
280-119347-4	V-S8-180119-499	97	88	96	97
280-119347-6	V-S8-180119-514	99	88	96	95
280-119347-8	V-S8-180159-514	98	86	97	93
LCS 280-445812/1-A	Lab Control Sample	98	85	96	94
LCS 280-445898/2-A	Lab Control Sample	103	92	109	97
LCSD 280-445812/2-A	Lab Control Sample Dup	98	85	97	95
LCSD 280-445898/3-A	Lab Control Sample Dup	105	100	108	106
MB 280-445812/3-A	Method Blank	97	90	96	99
MB 280-445898/1-A	Method Blank	103	100	107	111

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119347-1	TB-S8-180119-01	117 Q	87	109	96
LCS 280-445631/5	Lab Control Sample	103	91	97	95
LCSD 280-445631/6	Lab Control Sample Dup	107	92	99	95
MB 280-445631/4	Method Blank	103	86	93	95

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119347-3	P-S8-180119-475	89
280-119347-3 MS	P-S8-180119-475	90
280-119347-3 MSD	P-S8-180119-475	92
280-119347-5	P-S8-180119-499	87
280-119347-7	P-S8-180119-514	92
280-119347-9	P-S8-180159-514	86
LCS 280-445374/1-A	Lab Control Sample	96
MB 280-445374/2-A	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-119347-1	TB-S8-180119-01	90
LCS 280-445835/34	Lab Control Sample	95
MB 280-445835/35	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119347-2	V-S8-180119-475	0 D
280-119347-4	V-S8-180119-499	103
280-119347-6	V-S8-180119-514	96 M
280-119347-8	V-S8-180159-514	95 M
280-119347-8 MS	V-S8-180159-514	100 M
280-119347-8 MSD	V-S8-180159-514	103 M
LCS 280-444907/1-A	Lab Control Sample	111
LCSD 280-444907/2-A	Lab Control Sample Dup	110
MB 280-444907/3-A	Method Blank	111

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-119347-1	TB-S8-180119-01	124
LCS 280-446117/1-A	Lab Control Sample	110
LCSD 280-446117/2-A	Lab Control Sample Dup	115
MB 280-446117/3-A	Method Blank	114

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-119347-3	P-S8-180119-475	82	85

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-119347-5	P-S8-180119-499	80	85								
280-119347-7	P-S8-180119-514	68	71								
280-119347-9	P-S8-180159-514	77	85								
LCS 280-445176/2-A	Lab Control Sample	86	88								
LCS 280-445176/3-A	Lab Control Sample	83	89								
MB 280-445176/1-A	Method Blank	84	93								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-445631/4
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		01/28/19 07:55	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		01/28/19 07:55	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 07:55	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		01/28/19 07:55	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 07:55	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		01/28/19 07:55	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		01/28/19 07:55	1
Acetone	6.4	U	10	6.4	1.9	ug/L		01/28/19 07:55	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		01/28/19 07:55	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		01/28/19 07:55	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 07:55	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		01/28/19 07:55	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/28/19 07:55	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		01/28/19 07:55	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		01/28/19 07:55	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		01/28/19 07:55	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		01/28/19 07:55	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 07:55	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		01/28/19 07:55	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		01/28/19 07:55	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		01/28/19 07:55	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		01/28/19 07:55	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 07:55	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		01/28/19 07:55	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		01/28/19 07:55	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		01/28/19 07:55	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		01/28/19 07:55	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		01/28/19 07:55	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 07:55	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 07:55	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		01/28/19 07:55	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 07:55	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		01/28/19 07:55	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		01/28/19 07:55	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 07:55	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		01/28/19 07:55	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445631/4
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		01/28/19 07:55	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		01/28/19 07:55	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		01/28/19 07:55	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		01/28/19 07:55	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 07:55	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		01/28/19 07:55	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 07:55	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		01/28/19 07:55	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		01/28/19 07:55	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		01/28/19 07:55	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		01/28/19 07:55	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		01/28/19 07:55	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		01/28/19 07:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*89 - 112*		*01/28/19 07:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*86*		*81 - 118*		*01/28/19 07:55*	*1*
4-Bromofluorobenzene (Surr)	*93*		*85 - 114*		*01/28/19 07:55*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 119*		*01/28/19 07:55*	*1*

Lab Sample ID: LCS 280-445631/5
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.44		ug/L		109	62 - 128
2-Butanone (MEK)	20.0	21.9		ug/L		109	56 - 143
1,2-Dichlorobenzene	5.00	4.95		ug/L		99	80 - 119
1,3-Dichlorobenzene	5.00	4.75		ug/L		95	80 - 119
4-Chlorotoluene	5.00	4.99		ug/L		100	78 - 122
1,4-Dichlorobenzene	5.00	4.82		ug/L		96	79 - 118
1,1-Dichloroethane	5.00	5.57		ug/L		111	77 - 125
1,2-Dichloroethane	5.00	5.60		ug/L		112	73 - 128
Acetone	20.0	20.1		ug/L		101	39 - 160
1,1-Dichloroethene	5.00	5.84		ug/L		117	71 - 131
Benzene	5.00	5.49		ug/L		110	79 - 120
Bromobenzene	5.00	5.18		ug/L		104	80 - 120
Bromoform	5.00	5.19		ug/L		104	66 - 130
Bromomethane	5.00	6.28		ug/L		126	53 - 141
1,2-Dichloropropane	5.00	5.81		ug/L		116	78 - 122
Carbon disulfide	5.00	5.94		ug/L		119	64 - 133
1,3-Dichloropropane	5.00	5.37		ug/L		107	80 - 119
Carbon tetrachloride	5.00	5.23		ug/L		105	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445631/5
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.40		ug/L		108	60 - 139
Chlorobenzene	5.00	4.96		ug/L		99	82 - 118
1,1-Dichloropropene	5.00	5.53		ug/L		111	79 - 125
Bromochloromethane	5.00	5.69		ug/L		114	78 - 123
Dibromochloromethane	5.00	5.32		ug/L		106	74 - 126
Chloroethane	5.00	6.20		ug/L		124	60 - 138
Chloroform	5.00	5.50		ug/L		110	79 - 124
2-Hexanone	20.0	20.5		ug/L		102	57 - 139
Chloromethane	5.00	5.74		ug/L		115	50 - 139
cis-1,2-Dichloroethene	5.00	5.60		ug/L		112	78 - 123
cis-1,3-Dichloropropene	5.00	5.17		ug/L		103	75 - 124
4-Isopropyltoluene	5.00	4.93		ug/L		99	77 - 127
Dibromomethane	5.00	5.53		ug/L		111	79 - 123
Bromodichloromethane	5.00	5.42		ug/L		108	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.8		ug/L		119	67 - 130
Dichlorodifluoromethane	5.00	6.04		ug/L		121	32 - 152
Ethylbenzene	5.00	4.97		ug/L		99	79 - 121
Ethylene Dibromide	5.00	5.23		ug/L		105	77 - 121
Hexachlorobutadiene	5.00	4.53		ug/L		91	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.12		ug/L		102	78 - 124
Methyl tert-butyl ether	5.00	5.76		ug/L		115	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.38		ug/L		108	71 - 121
Methylene Chloride	5.00	5.51		ug/L		110	74 - 124
Naphthalene	5.00	4.78		ug/L		96	61 - 128
1,2,3-Trichlorobenzene	5.00	4.83		ug/L		97	69 - 129
n-Butylbenzene	5.00	4.89		ug/L		98	75 - 128
1,1,1-Trichloroethane	5.00	5.42		ug/L		108	74 - 131
N-Propylbenzene	5.00	4.80		ug/L		96	76 - 126
1,1,2-Trichloroethane	5.00	5.99	Q	ug/L		120	80 - 119
sec-Butylbenzene	5.00	4.97		ug/L		99	77 - 126
Styrene	5.00	4.89		ug/L		98	78 - 123
1,2,4-Trichlorobenzene	5.00	4.26		ug/L		85	69 - 130
tert-Butylbenzene	5.00	4.75		ug/L		95	78 - 124
1,2,3-Trichloropropane	5.00	5.34		ug/L		107	73 - 122
Tetrachloroethene	5.00	4.85		ug/L		97	74 - 129
1,2,4-Trimethylbenzene	5.00	4.82		ug/L		96	76 - 124
Toluene	5.00	5.69		ug/L		114	80 - 121
1,3,5-Trimethylbenzene	5.00	4.93		ug/L		99	75 - 124
trans-1,2-Dichloroethene	5.00	5.73		ug/L		115	75 - 124
trans-1,3-Dichloropropene	5.00	5.21		ug/L		104	73 - 127
o-Xylene	5.00	5.48		ug/L		110	78 - 122
Trichloroethene	5.00	5.27		ug/L		105	79 - 123
m-Xylene & p-Xylene	5.00	5.07		ug/L		101	80 - 121
Trichlorofluoromethane	5.00	6.21		ug/L		124	65 - 141
Vinyl chloride	5.00	6.35		ug/L		127	58 - 137
2-Chlorotoluene	5.00	4.96		ug/L		99	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445631/5
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*91*		*81 - 118*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*
Dibromofluoromethane (Surr)	*95*		*80 - 119*

Lab Sample ID: LCSD 280-445631/6
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			5.00	4.63	J	ug/L		93	62 - 128	16	20
2-Butanone (MEK)			20.0	18.1		ug/L		91	56 - 143	19	20
1,2-Dichlorobenzene			5.00	4.73		ug/L		95	80 - 119	5	20
1,3-Dichlorobenzene			5.00	4.70		ug/L		94	80 - 119	1	20
4-Chlorotoluene			5.00	4.86		ug/L		97	78 - 122	3	20
1,4-Dichlorobenzene			5.00	4.63		ug/L		93	79 - 118	4	20
1,1-Dichloroethane			5.00	5.13		ug/L		103	77 - 125	8	20
1,2-Dichloroethane			5.00	5.03		ug/L		101	73 - 128	11	20
Acetone			20.0	17.5		ug/L		88	39 - 160	14	20
1,1-Dichloroethene			5.00	5.43		ug/L		109	71 - 131	7	20
Benzene			5.00	5.13		ug/L		103	79 - 120	7	20
Bromobenzene			5.00	4.90		ug/L		98	80 - 120	6	20
Bromoform			5.00	4.65		ug/L		93	66 - 130	11	20
Bromomethane			5.00	5.68		ug/L		114	53 - 141	10	20
1,2-Dichloropropane			5.00	5.39		ug/L		108	78 - 122	7	20
Carbon disulfide			5.00	5.58		ug/L		112	64 - 133	6	20
1,3-Dichloropropane			5.00	4.91		ug/L		98	80 - 119	9	20
Carbon tetrachloride			5.00	4.85		ug/L		97	72 - 136	8	20
2,2-Dichloropropane			5.00	5.06		ug/L		101	60 - 139	6	20
Chlorobenzene			5.00	4.74		ug/L		95	82 - 118	5	20
1,1-Dichloropropene			5.00	5.22		ug/L		104	79 - 125	6	20
Bromochloromethane			5.00	5.21		ug/L		104	78 - 123	9	20
Dibromochloromethane			5.00	4.78		ug/L		96	74 - 126	11	20
Chloroethane			5.00	5.56		ug/L		111	60 - 138	11	20
Chloroform			5.00	5.05		ug/L		101	79 - 124	8	20
2-Hexanone			20.0	19.1		ug/L		96	57 - 139	7	20
Chloromethane			5.00	5.22		ug/L		104	50 - 139	9	20
cis-1,2-Dichloroethene			5.00	5.14		ug/L		103	78 - 123	9	20
cis-1,3-Dichloropropene			5.00	4.73		ug/L		95	75 - 124	9	20
4-Isopropyltoluene			5.00	4.88		ug/L		98	77 - 127	1	20
Dibromomethane			5.00	5.10		ug/L		102	79 - 123	8	20
Bromodichloromethane			5.00	5.02		ug/L		100	79 - 125	8	20
4-Methyl-2-pentanone (MIBK)			20.0	20.7		ug/L		104	67 - 130	14	20
Dichlorodifluoromethane			5.00	5.16		ug/L		103	32 - 152	16	20
Ethylbenzene			5.00	4.79		ug/L		96	79 - 121	4	20
Ethylene Dibromide			5.00	4.84		ug/L		97	77 - 121	8	20
Hexachlorobutadiene			5.00	4.49		ug/L		90	66 - 134	1	20
Isopropylbenzene			5.00	4.58		ug/L		92	72 - 131	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445631/6
Matrix: Water
Analysis Batch: 445631

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			5.00	4.83		ug/L		97	78 - 124	6	20
Methyl tert-butyl ether			5.00	5.21		ug/L		104	71 - 124	10	20
1,1,2,2-Tetrachloroethane			5.00	4.86		ug/L		97	71 - 121	10	20
Methylene Chloride			5.00	5.01		ug/L		100	74 - 124	10	20
Naphthalene			5.00	4.36		ug/L		87	61 - 128	9	20
1,2,3-Trichlorobenzene			5.00	4.72		ug/L		94	69 - 129	2	20
n-Butylbenzene			5.00	4.77		ug/L		95	75 - 128	3	20
1,1,1-Trichloroethane			5.00	4.94		ug/L		99	74 - 131	9	20
N-Propylbenzene			5.00	4.62		ug/L		92	76 - 126	4	20
1,1,2-Trichloroethane			5.00	5.46		ug/L		109	80 - 119	9	20
sec-Butylbenzene			5.00	4.82		ug/L		96	77 - 126	3	20
Styrene			5.00	4.55		ug/L		91	78 - 123	7	20
1,2,4-Trichlorobenzene			5.00	4.09		ug/L		82	69 - 130	4	20
tert-Butylbenzene			5.00	4.53		ug/L		91	78 - 124	5	20
1,2,3-Trichloropropane			5.00	4.53		ug/L		91	73 - 122	16	20
Tetrachloroethene			5.00	4.70		ug/L		94	74 - 129	3	20
1,2,4-Trimethylbenzene			5.00	4.79		ug/L		96	76 - 124	1	20
Toluene			5.00	5.44		ug/L		109	80 - 121	5	20
1,3,5-Trimethylbenzene			5.00	4.82		ug/L		96	75 - 124	2	20
trans-1,2-Dichloroethene			5.00	5.33		ug/L		107	75 - 124	7	20
trans-1,3-Dichloropropene			5.00	4.97		ug/L		99	73 - 127	5	20
o-Xylene			5.00	5.08		ug/L		102	78 - 122	8	20
Trichloroethene			5.00	4.89		ug/L		98	79 - 123	7	20
m-Xylene & p-Xylene			5.00	4.91		ug/L		98	80 - 121	3	20
Trichlorofluoromethane			5.00	5.79		ug/L		116	65 - 141	7	20
Vinyl chloride			5.00	5.93		ug/L		119	58 - 137	7	20
2-Chlorotoluene			5.00	4.87		ug/L		97	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*92*		*81 - 118*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*
Dibromofluoromethane (Surr)	*95*		*80 - 119*

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		01/29/19 11:58	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		01/29/19 11:58	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		01/29/19 11:58	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		01/29/19 11:58	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		01/29/19 11:58	1
Acetone	13	U	20	13	5.4	ug/Kg		01/29/19 11:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		01/29/19 11:58	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		01/29/19 11:58	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		01/29/19 11:58	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		01/29/19 11:58	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		01/29/19 11:58	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		01/29/19 11:58	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		01/29/19 11:58	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		01/29/19 11:58	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		01/29/19 11:58	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		01/29/19 11:58	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		01/29/19 11:58	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		01/29/19 11:58	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		01/29/19 11:58	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		01/29/19 11:58	1
Naphthalene	0.639	J	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		01/29/19 11:58	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		01/29/19 11:58	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		01/29/19 11:58	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		01/29/19 11:58	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		01/29/19 11:58	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		01/29/19 11:58	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		01/29/19 11:58	1
Toluene	0.827	J	5.0	1.6	0.69	ug/Kg		01/29/19 11:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		01/29/19 11:58	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		01/29/19 11:58	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		01/29/19 11:58	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	53.1		ug/Kg		106	61 - 132
2-Butanone (MEK)	200	164		ug/Kg		82	51 - 148
1,2-Dichlorobenzene	50.0	54.3		ug/Kg		109	78 - 121
1,3-Dichlorobenzene	50.0	53.8		ug/Kg		108	77 - 121
4-Chlorotoluene	50.0	54.6		ug/Kg		109	72 - 124
1,4-Dichlorobenzene	50.0	53.9		ug/Kg		108	75 - 120
1,1-Dichloroethane	50.0	46.3		ug/Kg		93	76 - 125
1,2-Dichloroethane	50.0	43.1		ug/Kg		86	73 - 128
Acetone	200	157		ug/Kg		78	36 - 164
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131
Benzene	50.0	48.2		ug/Kg		96	77 - 121
Bromobenzene	50.0	53.4		ug/Kg		107	78 - 121
Bromoform	50.0	54.3		ug/Kg		109	67 - 132
Bromomethane	50.0	47.1		ug/Kg		94	53 - 143
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123
Carbon disulfide	50.0	52.7		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	53.0		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	48.3		ug/Kg		97	70 - 135
2,2-Dichloropropane	50.0	48.4		ug/Kg		97	67 - 133
Chlorobenzene	50.0	52.1		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	48.9		ug/Kg		98	76 - 125
Bromochloromethane	50.0	53.3		ug/Kg		107	78 - 125
Dibromochloromethane	50.0	52.5		ug/Kg		105	74 - 126
Chloroethane	50.0	44.9		ug/Kg		90	59 - 139
Chloroform	50.0	46.2		ug/Kg		92	78 - 123
2-Hexanone	200	176		ug/Kg		88	53 - 145
Chloromethane	50.0	51.2		ug/Kg		102	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	50.0	50.6		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	56.6		ug/Kg		113	74 - 126
4-Isopropyltoluene	50.0	53.8		ug/Kg		108	73 - 127
Dibromomethane	50.0	50.0		ug/Kg		100	78 - 125
Bromodichloromethane	50.0	52.3		ug/Kg		105	75 - 127
4-Methyl-2-pentanone (MIBK)	200	177		ug/Kg		89	65 - 135
Dichlorodifluoromethane	50.0	60.4		ug/Kg		121	29 - 149
Ethylbenzene	50.0	53.5		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	56.3		ug/Kg		113	78 - 122
Hexachlorobutadiene	50.0	53.9		ug/Kg		108	61 - 135
Isopropylbenzene	50.0	52.7		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.2		ug/Kg		106	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.8		ug/Kg		102	70 - 124
Methylene Chloride	50.0	49.7		ug/Kg		99	70 - 128
Naphthalene	50.0	58.5		ug/Kg		117	62 - 129
1,2,3-Trichlorobenzene	50.0	59.1		ug/Kg		118	66 - 130
n-Butylbenzene	50.0	52.3		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	50.0	46.8		ug/Kg		94	73 - 130
N-Propylbenzene	50.0	54.2		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	56.1		ug/Kg		112	78 - 121
sec-Butylbenzene	50.0	53.3		ug/Kg		107	73 - 126
Styrene	50.0	54.2		ug/Kg		108	76 - 124
1,2,4-Trichlorobenzene	50.0	58.5		ug/Kg		117	67 - 129
tert-Butylbenzene	50.0	52.0		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	50.0	49.0		ug/Kg		98	73 - 125
Tetrachloroethene	50.0	53.9		ug/Kg		108	73 - 128
1,2,4-Trimethylbenzene	50.0	52.7		ug/Kg		105	75 - 123
Toluene	50.0	51.1		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	50.0	51.2		ug/Kg		102	73 - 124
trans-1,2-Dichloroethene	50.0	51.5		ug/Kg		103	74 - 125
trans-1,3-Dichloropropene	50.0	52.4		ug/Kg		105	71 - 130
o-Xylene	50.0	55.1		ug/Kg		110	77 - 123
Trichloroethene	50.0	51.6		ug/Kg		103	77 - 123
m-Xylene & p-Xylene	50.0	54.0		ug/Kg		108	77 - 124
Trichlorofluoromethane	50.0	44.4		ug/Kg		89	62 - 140
Vinyl chloride	50.0	48.4		ug/Kg		97	56 - 135
2-Chlorotoluene	50.0	53.2		ug/Kg		106	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	51.1		ug/Kg		102	61 - 132	4	20
2-Butanone (MEK)	200	156		ug/Kg		78	51 - 148	5	20
1,2-Dichlorobenzene	50.0	53.6		ug/Kg		107	78 - 121	1	20
1,3-Dichlorobenzene	50.0	53.4		ug/Kg		107	77 - 121	1	20
4-Chlorotoluene	50.0	54.0		ug/Kg		108	72 - 124	1	20
1,4-Dichlorobenzene	50.0	53.0		ug/Kg		106	75 - 120	2	20
1,1-Dichloroethane	50.0	46.5		ug/Kg		93	76 - 125	0	20
1,2-Dichloroethane	50.0	43.4		ug/Kg		87	73 - 128	1	20
Acetone	200	148		ug/Kg		74	36 - 164	6	20
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131	0	20
Benzene	50.0	48.6		ug/Kg		97	77 - 121	1	20
Bromobenzene	50.0	53.9		ug/Kg		108	78 - 121	1	20
Bromoform	50.0	52.7		ug/Kg		105	67 - 132	3	20
Bromomethane	50.0	47.9		ug/Kg		96	53 - 143	2	20
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123	0	20
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132	0	20
1,3-Dichloropropane	50.0	51.7		ug/Kg		103	77 - 121	2	20
Carbon tetrachloride	50.0	48.8		ug/Kg		98	70 - 135	1	20
2,2-Dichloropropane	50.0	48.6		ug/Kg		97	67 - 133	1	20
Chlorobenzene	50.0	51.1		ug/Kg		102	79 - 120	2	20
1,1-Dichloropropene	50.0	48.8		ug/Kg		98	76 - 125	0	20
Bromochloromethane	50.0	52.9		ug/Kg		106	78 - 125	1	20
Dibromochloromethane	50.0	52.1		ug/Kg		104	74 - 126	1	20
Chloroethane	50.0	43.6		ug/Kg		87	59 - 139	3	20
Chloroform	50.0	46.5		ug/Kg		93	78 - 123	1	20
2-Hexanone	200	168		ug/Kg		84	53 - 145	5	20
Chloromethane	50.0	51.9		ug/Kg		104	50 - 136	1	20
cis-1,2-Dichloroethene	50.0	51.0		ug/Kg		102	77 - 123	1	20
cis-1,3-Dichloropropene	50.0	55.5		ug/Kg		111	74 - 126	2	20
4-Isopropyltoluene	50.0	53.3		ug/Kg		107	73 - 127	1	20
Dibromomethane	50.0	49.1		ug/Kg		98	78 - 125	2	20
Bromodichloromethane	50.0	51.2		ug/Kg		102	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)	200	172		ug/Kg		86	65 - 135	3	20
Dichlorodifluoromethane	50.0	61.1		ug/Kg		122	29 - 149	1	20
Ethylbenzene	50.0	52.3		ug/Kg		105	76 - 122	2	20
Ethylene Dibromide	50.0	55.1		ug/Kg		110	78 - 122	2	20
Hexachlorobutadiene	50.0	53.4		ug/Kg		107	61 - 135	1	20
Isopropylbenzene	50.0	52.1		ug/Kg		104	68 - 134	1	20
1,1,1,2-Tetrachloroethane	50.0	53.2		ug/Kg		106	78 - 125	0	20
Methyl tert-butyl ether	50.0	50.3		ug/Kg		101	73 - 125	0	20
1,1,2,2-Tetrachloroethane	50.0	49.9		ug/Kg		100	70 - 124	2	20
Methylene Chloride	50.0	48.9		ug/Kg		98	70 - 128	1	20
Naphthalene	50.0	56.9		ug/Kg		114	62 - 129	3	20
1,2,3-Trichlorobenzene	50.0	57.8		ug/Kg		116	66 - 130	2	20
n-Butylbenzene	50.0	52.0		ug/Kg		104	70 - 128	1	20
1,1,1-Trichloroethane	50.0	46.8		ug/Kg		94	73 - 130	0	20
N-Propylbenzene	50.0	53.2		ug/Kg		106	73 - 125	2	20
1,1,2-Trichloroethane	50.0	55.8		ug/Kg		112	78 - 121	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			50.0	53.5		ug/Kg		107	73 - 126	0	20
Styrene			50.0	52.9		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	57.0		ug/Kg		114	67 - 129	3	20
tert-Butylbenzene			50.0	51.9		ug/Kg		104	73 - 125	0	20
1,2,3-Trichloropropane			50.0	47.9		ug/Kg		96	73 - 125	2	20
Tetrachloroethene			50.0	53.6		ug/Kg		107	73 - 128	0	20
1,2,4-Trimethylbenzene			50.0	52.1		ug/Kg		104	75 - 123	1	20
Toluene			50.0	50.7		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	51.1		ug/Kg		102	73 - 124	0	20
trans-1,2-Dichloroethene			50.0	51.4		ug/Kg		103	74 - 125	0	20
trans-1,3-Dichloropropene			50.0	52.3		ug/Kg		105	71 - 130	0	20
o-Xylene			50.0	53.8		ug/Kg		108	77 - 123	2	20
Trichloroethene			50.0	51.6		ug/Kg		103	77 - 123	0	20
m-Xylene & p-Xylene			50.0	52.3		ug/Kg		105	77 - 124	3	20
Trichlorofluoromethane			50.0	45.2		ug/Kg		90	62 - 140	2	20
Vinyl chloride			50.0	48.9		ug/Kg		98	56 - 135	1	20
2-Chlorotoluene			50.0	52.6		ug/Kg		105	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		01/30/19 13:19	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		01/30/19 13:19	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		01/30/19 13:19	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		01/30/19 13:19	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		01/30/19 13:19	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
Acetone	1300	U	1500	1300	400	ug/Kg		01/30/19 13:19	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		01/30/19 13:19	1
Benzene	160	U	250	160	45	ug/Kg		01/30/19 13:19	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		01/30/19 13:19	1
Bromobenzene	40	U	250	40	19	ug/Kg		01/30/19 13:19	1
Bromoform	160	U	250	160	160	ug/Kg		01/30/19 13:19	1
Bromomethane	160	U	500	160	44	ug/Kg		01/30/19 13:19	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		01/30/19 13:19	1
Carbon disulfide	160	U	250	160	64	ug/Kg		01/30/19 13:19	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		01/30/19 13:19	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		01/30/19 13:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
Chlorobenzene	80	U	250	80	30	ug/Kg		01/30/19 13:19	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		01/30/19 13:19	1
Bromochloromethane	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		01/30/19 13:19	1
Chloroethane	160	U	500	160	44	ug/Kg		01/30/19 13:19	1
Chloroform	160	U	250	160	46	ug/Kg		01/30/19 13:19	1
2-Hexanone	640	U	1000	640	220	ug/Kg		01/30/19 13:19	1
Chloromethane	160	U M	500	160	50	ug/Kg		01/30/19 13:19	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		01/30/19 13:19	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		01/30/19 13:19	1
Dibromomethane	80	U	250	80	30	ug/Kg		01/30/19 13:19	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		01/30/19 13:19	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		01/30/19 13:19	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		01/30/19 13:19	1
Ethylbenzene	80	U	250	80	34	ug/Kg		01/30/19 13:19	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		01/30/19 13:19	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		01/30/19 13:19	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		01/30/19 13:19	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		01/30/19 13:19	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		01/30/19 13:19	1
Methylene Chloride	160	U	250	160	69	ug/Kg		01/30/19 13:19	1
Naphthalene	80	U	500	80	38	ug/Kg		01/30/19 13:19	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		01/30/19 13:19	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		01/30/19 13:19	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		01/30/19 13:19	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		01/30/19 13:19	1
Styrene	80	U	250	80	26	ug/Kg		01/30/19 13:19	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		01/30/19 13:19	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		01/30/19 13:19	1
Toluene	45.9	J	250	80	39	ug/Kg		01/30/19 13:19	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		01/30/19 13:19	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		01/30/19 13:19	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
o-Xylene	80	U	130	80	35	ug/Kg		01/30/19 13:19	1
Trichloroethene	80	U	250	80	23	ug/Kg		01/30/19 13:19	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		01/30/19 13:19	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		01/30/19 13:19	1
Vinyl chloride	80	U	500	80	27	ug/Kg		01/30/19 13:19	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		01/30/19 13:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		85 - 116	01/30/19 07:53	01/30/19 13:19	1
1,2-Dichloroethane-d4 (Surr)	100		71 - 136	01/30/19 07:53	01/30/19 13:19	1
4-Bromofluorobenzene (Surr)	107		79 - 119	01/30/19 07:53	01/30/19 13:19	1
Dibromofluoromethane (Surr)	111		78 - 119	01/30/19 07:53	01/30/19 13:19	1

Lab Sample ID: LCS 280-445898/2-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1990		ug/Kg		100	61 - 132
2-Butanone (MEK)	8000	6350		ug/Kg		79	51 - 148
1,2-Dichlorobenzene	2000	2110		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	2000	2110		ug/Kg		105	77 - 121
4-Chlorotoluene	2000	2260		ug/Kg		113	72 - 124
1,4-Dichlorobenzene	2000	2150		ug/Kg		108	75 - 120
1,1-Dichloroethane	2000	1760		ug/Kg		88	76 - 125
1,2-Dichloroethane	2000	1840		ug/Kg		92	73 - 128
Acetone	8000	5540		ug/Kg		69	36 - 164
1,1-Dichloroethene	2000	1850		ug/Kg		93	70 - 131
Benzene	2000	1900		ug/Kg		95	77 - 121
Bromobenzene	2000	2080		ug/Kg		104	78 - 121
Bromoform	2000	1860		ug/Kg		93	67 - 132
Bromomethane	2000	1450		ug/Kg		72	53 - 143
1,2-Dichloropropane	2000	1890		ug/Kg		95	76 - 123
Carbon disulfide	2000	1860		ug/Kg		93	63 - 132
1,3-Dichloropropane	2000	1960		ug/Kg		98	77 - 121
Carbon tetrachloride	2000	1810		ug/Kg		91	70 - 135
2,2-Dichloropropane	2000	1800		ug/Kg		90	67 - 133
Chlorobenzene	2000	2020		ug/Kg		101	79 - 120
1,1-Dichloropropene	2000	1910		ug/Kg		96	76 - 125
Bromochloromethane	2000	1870		ug/Kg		93	78 - 125
Dibromochloromethane	2000	2070		ug/Kg		104	74 - 126
Chloroethane	2000	1590		ug/Kg		79	59 - 139
Chloroform	2000	1850		ug/Kg		92	78 - 123
2-Hexanone	8000	7100		ug/Kg		89	53 - 145
Chloromethane	2000	954	Q	ug/Kg		48	50 - 136
cis-1,2-Dichloroethene	2000	1900		ug/Kg		95	77 - 123
cis-1,3-Dichloropropene	2000	2170		ug/Kg		109	74 - 126
4-Isopropyltoluene	2000	2310		ug/Kg		116	73 - 127
Dibromomethane	2000	1870		ug/Kg		93	78 - 125
Bromodichloromethane	2000	2010		ug/Kg		101	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	7070		ug/Kg		88	65 - 135
Dichlorodifluoromethane	2000	1170		ug/Kg		58	29 - 149
Ethylbenzene	2000	2020		ug/Kg		101	76 - 122
Ethylene Dibromide	2000	2050		ug/Kg		103	78 - 122
Hexachlorobutadiene	2000	2010		ug/Kg		100	61 - 135
Isopropylbenzene	2000	2210		ug/Kg		111	68 - 134

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445898/2-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	2000	1860		ug/Kg		93	78 - 125
Methyl tert-butyl ether	2000	1740		ug/Kg		87	73 - 125
1,1,2,2-Tetrachloroethane	2000	2100		ug/Kg		105	70 - 124
Methylene Chloride	2000	1710		ug/Kg		86	70 - 128
Naphthalene	2000	2150		ug/Kg		108	62 - 129
1,2,3-Trichlorobenzene	2000	1920		ug/Kg		96	66 - 130
n-Butylbenzene	2000	2340		ug/Kg		117	70 - 128
1,1,1-Trichloroethane	2000	1840		ug/Kg		92	73 - 130
N-Propylbenzene	2000	2280		ug/Kg		114	73 - 125
1,1,2-Trichloroethane	2000	2210		ug/Kg		111	78 - 121
sec-Butylbenzene	2000	2300		ug/Kg		115	73 - 126
Styrene	2000	2100		ug/Kg		105	76 - 124
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		97	67 - 129
tert-Butylbenzene	2000	2080		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	2000	2060		ug/Kg		103	73 - 125
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128
1,2,4-Trimethylbenzene	2000	2140		ug/Kg		107	75 - 123
Toluene	2000	2030		ug/Kg		101	77 - 121
1,3,5-Trimethylbenzene	2000	2210		ug/Kg		111	73 - 124
trans-1,2-Dichloroethene	2000	1910		ug/Kg		95	74 - 125
trans-1,3-Dichloropropene	2000	2180		ug/Kg		109	71 - 130
o-Xylene	2000	2000		ug/Kg		100	77 - 123
Trichloroethene	2000	2010		ug/Kg		101	77 - 123
m-Xylene & p-Xylene	2000	2020		ug/Kg		101	77 - 124
Trichlorofluoromethane	2000	1550		ug/Kg		77	62 - 140
Vinyl chloride	2000	1170		ug/Kg		58	56 - 135
2-Chlorotoluene	2000	2120		ug/Kg		106	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*109*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	2330		ug/Kg		116	61 - 132	15	20
2-Butanone (MEK)	8000	4890	Q	ug/Kg		61	51 - 148	26	20
1,2-Dichlorobenzene	2000	2250		ug/Kg		112	78 - 121	6	20
1,3-Dichlorobenzene	2000	2130		ug/Kg		107	77 - 121	1	20
4-Chlorotoluene	2000	2170		ug/Kg		109	72 - 124	4	20
1,4-Dichlorobenzene	2000	2130		ug/Kg		106	75 - 120	1	20
1,1-Dichloroethane	2000	1980		ug/Kg		99	76 - 125	12	20
1,2-Dichloroethane	2000	1850		ug/Kg		93	73 - 128	1	20
Acetone	8000	5790		ug/Kg		72	36 - 164	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	2000	2170		ug/Kg		108	70 - 131	16	20
Benzene	2000	1970		ug/Kg		98	77 - 121	3	20
Bromobenzene	2000	2020		ug/Kg		101	78 - 121	3	20
Bromoform	2000	1920		ug/Kg		96	67 - 132	3	20
Bromomethane	2000	1680		ug/Kg		84	53 - 143	15	20
1,2-Dichloropropane	2000	1940		ug/Kg		97	76 - 123	3	20
Carbon disulfide	2000	2180		ug/Kg		109	63 - 132	16	20
1,3-Dichloropropane	2000	1800		ug/Kg		90	77 - 121	8	20
Carbon tetrachloride	2000	2070		ug/Kg		103	70 - 135	13	20
2,2-Dichloropropane	2000	2170		ug/Kg		109	67 - 133	19	20
Chlorobenzene	2000	1980		ug/Kg		99	79 - 120	2	20
1,1-Dichloropropene	2000	1980		ug/Kg		99	76 - 125	3	20
Bromochloromethane	2000	2060		ug/Kg		103	78 - 125	10	20
Dibromochloromethane	2000	2010		ug/Kg		101	74 - 126	3	20
Chloroethane	2000	1640		ug/Kg		82	59 - 139	3	20
Chloroform	2000	2010		ug/Kg		100	78 - 123	8	20
2-Hexanone	8000	6600		ug/Kg		82	53 - 145	7	20
Chloromethane	2000	1310	Q	ug/Kg		66	50 - 136	32	20
cis-1,2-Dichloroethene	2000	2080		ug/Kg		104	77 - 123	9	20
cis-1,3-Dichloropropene	2000	1940		ug/Kg		97	74 - 126	11	20
4-Isopropyltoluene	2000	2300		ug/Kg		115	73 - 127	1	20
Dibromomethane	2000	1950		ug/Kg		97	78 - 125	4	20
Bromodichloromethane	2000	1980		ug/Kg		99	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)	8000	7280		ug/Kg		91	65 - 135	3	20
Dichlorodifluoromethane	2000	1520	Q	ug/Kg		76	29 - 149	26	20
Ethylbenzene	2000	2080		ug/Kg		104	76 - 122	3	20
Ethylene Dibromide	2000	1940		ug/Kg		97	78 - 122	6	20
Hexachlorobutadiene	2000	2070		ug/Kg		104	61 - 135	3	20
Isopropylbenzene	2000	2230		ug/Kg		112	68 - 134	1	20
1,1,1,2-Tetrachloroethane	2000	2040		ug/Kg		102	78 - 125	9	20
Methyl tert-butyl ether	2000	2110		ug/Kg		106	73 - 125	19	20
1,1,2,2-Tetrachloroethane	2000	2150		ug/Kg		107	70 - 124	2	20
Methylene Chloride	2000	2040		ug/Kg		102	70 - 128	18	20
Naphthalene	2000	2530		ug/Kg		127	62 - 129	16	20
1,2,3-Trichlorobenzene	2000	2380	Q	ug/Kg		119	66 - 130	22	20
n-Butylbenzene	2000	2340		ug/Kg		117	70 - 128	0	20
1,1,1-Trichloroethane	2000	2140		ug/Kg		107	73 - 130	15	20
N-Propylbenzene	2000	2320		ug/Kg		116	73 - 125	2	20
1,1,2-Trichloroethane	2000	2050		ug/Kg		102	78 - 121	8	20
sec-Butylbenzene	2000	2250		ug/Kg		112	73 - 126	2	20
Styrene	2000	2100		ug/Kg		105	76 - 124	0	20
1,2,4-Trichlorobenzene	2000	2310		ug/Kg		115	67 - 129	18	20
tert-Butylbenzene	2000	1940		ug/Kg		97	73 - 125	7	20
1,2,3-Trichloropropane	2000	2100		ug/Kg		105	73 - 125	2	20
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128	0	20
1,2,4-Trimethylbenzene	2000	2190		ug/Kg		110	75 - 123	2	20
Toluene	2000	2010		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene	2000	2240		ug/Kg		112	73 - 124	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
trans-1,2-Dichloroethene			2000	2210		ug/Kg		111	74 - 125	15	20
trans-1,3-Dichloropropene			2000	1890		ug/Kg		94	71 - 130	14	20
o-Xylene			2000	2130		ug/Kg		106	77 - 123	6	20
Trichloroethene			2000	1990		ug/Kg		100	77 - 123	1	20
m-Xylene & p-Xylene			2000	2060		ug/Kg		103	77 - 124	2	20
Trichlorofluoromethane			2000	1910	Q	ug/Kg		96	62 - 140	21	20
Vinyl chloride			2000	1580	Q	ug/Kg		79	56 - 135	30	20
2-Chlorotoluene			2000	2210		ug/Kg		110	75 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*
4-Bromofluorobenzene (Surr)	*108*		*79 - 119*
Dibromofluoromethane (Surr)	*106*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-445374/2-A
Matrix: Solid
Analysis Batch: 445732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445374

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		01/28/19 20:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*	*01/24/19 14:57*	*01/28/19 20:30*	*1*

Lab Sample ID: LCS 280-445374/1-A
Matrix: Solid
Analysis Batch: 445732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445374

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			4.28	4.08		mg/Kg		95	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*

Lab Sample ID: 280-119347-3 MS
Matrix: Solid
Analysis Batch: 445732

Client Sample ID: P-S8-180119-475
Prep Type: Total/NA
Prep Batch: 445374

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10	13	J1	4.59	18.1		mg/Kg	☼	119	79 - 122		

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: 280-119347-3 MS
Matrix: Solid
Analysis Batch: 445732

Client Sample ID: P-S8-180119-475
Prep Type: Total/NA
Prep Batch: 445374

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	90		77 - 123

Lab Sample ID: 280-119347-3 MSD
Matrix: Solid
Analysis Batch: 445732

Client Sample ID: P-S8-180119-475
Prep Type: Total/NA
Prep Batch: 445374

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	13	J1	4.67	19.5	J1	mg/Kg	☼	148	79 - 122	8	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (Surr)	92		77 - 123

Lab Sample ID: MB 280-445835/35
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 13:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	94		82 - 110		01/29/19 13:21	1

Lab Sample ID: LCS 280-445835/34
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	72.0		ug/L		92	78 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	95		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-444907/3-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444907

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		01/29/19 13:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	111		55 - 130	01/21/19 13:25	01/29/19 13:53	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-444907/1-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444907

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.666		ug/Kg		76	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*111*		*55 - 130*

Lab Sample ID: LCSD 280-444907/2-A
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444907

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.691		ug/Kg		79	70 - 130	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*55 - 130*

Lab Sample ID: 280-119347-8 MS
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: V-S8-180159-514
Prep Type: Total/NA
Prep Batch: 444907

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.044	U	1.02	0.764	M	ug/Kg	☼	75	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*100*	*M*	*55 - 130*

Lab Sample ID: 280-119347-8 MSD
Matrix: Solid
Analysis Batch: 445839

Client Sample ID: V-S8-180159-514
Prep Type: Total/NA
Prep Batch: 444907

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.044	U	1.03	0.773	M	ug/Kg	☼	75	70 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*103*	*M*	*55 - 130*

Lab Sample ID: MB 280-446117/3-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446117

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/31/19 19:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*114*		*70 - 130*	*01/31/19 13:23*	*01/31/19 19:14*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-446117/1-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446117

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.193		ug/L		77	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*70 - 130*

Lab Sample ID: LCSD 280-446117/2-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446117

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.211		ug/L		84	70 - 130	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*115*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-445176/1-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445176

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.08	J	7.2	3.6	1.2	mg/Kg		01/28/19 20:26	1
Motor Oil (C20-C38)	21	U	22	21	7.0	mg/Kg		01/28/19 20:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*45 - 130*	*01/23/19 14:35*	*01/28/19 20:26*	*1*
n-Octacosane	*93*		*25 - 162*	*01/23/19 14:35*	*01/28/19 20:26*	*1*

Lab Sample ID: LCS 280-445176/2-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			119	110		mg/Kg		92	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*88*		*25 - 162*

Lab Sample ID: LCS 280-445176/3-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	279		mg/Kg		85	39 - 106		

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	83		45 - 130
n-Octacosane	89		25 - 162

GC/MS VOA

Analysis Batch: 445631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-1	TB-S8-180119-01	Total/NA	Water	8260B	
MB 280-445631/4	Method Blank	Total/NA	Water	8260B	
LCS 280-445631/5	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-445631/6	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 445808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2	V-S8-180119-475	Total/NA	Solid	8260B	445812
280-119347-4	V-S8-180119-499	Total/NA	Solid	8260B	445812
280-119347-6	V-S8-180119-514	Total/NA	Solid	8260B	445812
280-119347-8	V-S8-180159-514	Total/NA	Solid	8260B	445812
MB 280-445812/3-A	Method Blank	Total/NA	Solid	8260B	445812
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	8260B	445812
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445812

Prep Batch: 445812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2	V-S8-180119-475	Total/NA	Solid	5035	
280-119347-4	V-S8-180119-499	Total/NA	Solid	5035	
280-119347-6	V-S8-180119-514	Total/NA	Solid	5035	
280-119347-8	V-S8-180159-514	Total/NA	Solid	5035	
MB 280-445812/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 445898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2 - DL	V-S8-180119-475	Total/NA	Solid	5035	
MB 280-445898/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445898/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445898/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 445903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2 - DL	V-S8-180119-475	Total/NA	Solid	8260B	445898
MB 280-445898/1-A	Method Blank	Total/NA	Solid	8260B	445898
LCS 280-445898/2-A	Lab Control Sample	Total/NA	Solid	8260B	445898
LCSD 280-445898/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445898

GC VOA

Prep Batch: 445374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-3	P-S8-180119-475	Total/NA	Solid	5035	
280-119347-5	P-S8-180119-499	Total/NA	Solid	5035	
280-119347-7	P-S8-180119-514	Total/NA	Solid	5035	
280-119347-9	P-S8-180159-514	Total/NA	Solid	5035	
MB 280-445374/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445374/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-119347-3 MS	P-S8-180119-475	Total/NA	Solid	5035	

GC VOA (Continued)

Prep Batch: 445374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-3 MSD	P-S8-180119-475	Total/NA	Solid	5035	

Analysis Batch: 445732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-3	P-S8-180119-475	Total/NA	Solid	8015D GRO	445374
280-119347-5	P-S8-180119-499	Total/NA	Solid	8015D GRO	445374
280-119347-7	P-S8-180119-514	Total/NA	Solid	8015D GRO	445374
280-119347-9	P-S8-180159-514	Total/NA	Solid	8015D GRO	445374
MB 280-445374/2-A	Method Blank	Total/NA	Solid	8015D GRO	445374
LCS 280-445374/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	445374
280-119347-3 MS	P-S8-180119-475	Total/NA	Solid	8015D GRO	445374
280-119347-3 MSD	P-S8-180119-475	Total/NA	Solid	8015D GRO	445374

Analysis Batch: 445835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-1	TB-S8-180119-01	Total/NA	Water	8015D GRO	
MB 280-445835/35	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-445835/34	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 444907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2	V-S8-180119-475	Total/NA	Solid	8011	
280-119347-4	V-S8-180119-499	Total/NA	Solid	8011	
280-119347-6	V-S8-180119-514	Total/NA	Solid	8011	
280-119347-8	V-S8-180159-514	Total/NA	Solid	8011	
MB 280-444907/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-444907/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-444907/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-119347-8 MS	V-S8-180159-514	Total/NA	Solid	8011	
280-119347-8 MSD	V-S8-180159-514	Total/NA	Solid	8011	

Prep Batch: 445176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-3	P-S8-180119-475	Total/NA	Solid	3546	
280-119347-5	P-S8-180119-499	Total/NA	Solid	3546	
280-119347-7	P-S8-180119-514	Total/NA	Solid	3546	
280-119347-9	P-S8-180159-514	Total/NA	Solid	3546	
MB 280-445176/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 445704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-3	P-S8-180119-475	Total/NA	Solid	8015D DRO	445176
280-119347-5	P-S8-180119-499	Total/NA	Solid	8015D DRO	445176
280-119347-7	P-S8-180119-514	Total/NA	Solid	8015D DRO	445176
280-119347-9	P-S8-180159-514	Total/NA	Solid	8015D DRO	445176
MB 280-445176/1-A	Method Blank	Total/NA	Solid	8015D DRO	445176

GC Semi VOA (Continued)

Analysis Batch: 445704 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176

Analysis Batch: 445839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2	V-S8-180119-475	Total/NA	Solid	8011	444907
280-119347-4	V-S8-180119-499	Total/NA	Solid	8011	444907
280-119347-6	V-S8-180119-514	Total/NA	Solid	8011	444907
280-119347-8	V-S8-180159-514	Total/NA	Solid	8011	444907
MB 280-444907/3-A	Method Blank	Total/NA	Solid	8011	444907
LCS 280-444907/1-A	Lab Control Sample	Total/NA	Solid	8011	444907
LCSD 280-444907/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	444907
280-119347-8 MS	V-S8-180159-514	Total/NA	Solid	8011	444907
280-119347-8 MSD	V-S8-180159-514	Total/NA	Solid	8011	444907

Prep Batch: 446117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-1	TB-S8-180119-01	Total/NA	Water	8011	
MB 280-446117/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-446117/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-446117/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 446154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-1	TB-S8-180119-01	Total/NA	Water	8011	446117
MB 280-446117/3-A	Method Blank	Total/NA	Water	8011	446117
LCS 280-446117/1-A	Lab Control Sample	Total/NA	Water	8011	446117
LCSD 280-446117/2-A	Lab Control Sample Dup	Total/NA	Water	8011	446117

General Chemistry

Analysis Batch: 445009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119347-2	V-S8-180119-475	Total/NA	Solid	Moisture	
280-119347-3	P-S8-180119-475	Total/NA	Solid	Moisture	
280-119347-4	V-S8-180119-499	Total/NA	Solid	Moisture	
280-119347-5	P-S8-180119-499	Total/NA	Solid	Moisture	
280-119347-6	V-S8-180119-514	Total/NA	Solid	Moisture	
280-119347-7	P-S8-180119-514	Total/NA	Solid	Moisture	
280-119347-8	V-S8-180159-514	Total/NA	Solid	Moisture	
280-119347-9	P-S8-180159-514	Total/NA	Solid	Moisture	

Client Sample ID: TB-S8-180119-01

Lab Sample ID: 280-119347-1

Date Collected: 01/18/19 14:00

Matrix: Water

Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	445631	01/28/19 10:01	MD	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	445835	01/29/19 23:30	SU	TAL DEN
Total/NA	Prep	8011			35.1 mL	35 mL	446117	01/31/19 13:23	MJS	TAL DEN
Total/NA	Analysis	8011		1			446154	02/01/19 01:01	JLW	TAL DEN

Client Sample ID: V-S8-180119-475

Lab Sample ID: 280-119347-2

Date Collected: 01/18/19 10:45

Matrix: Solid

Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: V-S8-180119-475

Lab Sample ID: 280-119347-2

Date Collected: 01/18/19 10:45

Matrix: Solid

Date Received: 01/19/19 09:00

Percent Solids: 88.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.668 g	5 mL	445812	01/18/19 10:45	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 13:28	GPM	TAL DEN
Total/NA	Prep	5035	DL		5.2 g	1000 mL	445898	01/18/19 10:45	CAS	TAL DEN
Total/NA	Analysis	8260B	DL	10	20 mL	20 mL	445903	01/30/19 14:16	JLS	TAL DEN
Total/NA	Prep	8011			10.10 g	35 mL	444907	01/21/19 13:25	MJS	TAL DEN
Total/NA	Analysis	8011		10			445839	01/29/19 17:59	JLW	TAL DEN

Client Sample ID: P-S8-180119-475

Lab Sample ID: 280-119347-3

Date Collected: 01/18/19 10:45

Matrix: Solid

Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: P-S8-180119-475

Lab Sample ID: 280-119347-3

Date Collected: 01/18/19 10:45

Matrix: Solid

Date Received: 01/19/19 09:00

Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.017 g	5 mL	445374	01/24/19 14:57	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	445732	01/28/19 20:54	SU	TAL DEN
Total/NA	Prep	3546			16.6 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/28/19 23:06	AMB1	TAL DEN

Client Sample ID: V-S8-180119-499 — **Lab Sample ID: 280-119347-4**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: V-S8-180119-499 — **Lab Sample ID: 280-119347-4**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 89.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.386 g	5 mL	445812	01/18/19 15:05	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 12:20	GPM	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	444907	01/21/19 13:25	MJS	TAL DEN
Total/NA	Analysis	8011		1			445839	01/29/19 18:18	JLW	TAL DEN

Client Sample ID: P-S8-180119-499 — **Lab Sample ID: 280-119347-5**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: P-S8-180119-499 — **Lab Sample ID: 280-119347-5**
Date Collected: 01/18/19 15:05 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 87.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.007 g	5 mL	445374	01/24/19 14:57	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	445732	01/28/19 22:06	SU	TAL DEN
Total/NA	Prep	3546			15.9 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/28/19 23:26	AMB1	TAL DEN

Client Sample ID: V-S8-180119-514 — **Lab Sample ID: 280-119347-6**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: V-S8-180119-514 — **Lab Sample ID: 280-119347-6**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.904 g	5 mL	445812	01/18/19 16:25	GPM	TAL DEN

Client Sample ID: V-S8-180119-514 — **Lab Sample ID: 280-119347-6**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 83.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 12:43	GPM	TAL DEN
Total/NA	Prep	8011			10.00 g	35 mL	444907	01/21/19 13:25	MJS	TAL DEN
Total/NA	Analysis	8011		1			445839	01/29/19 18:37	JLW	TAL DEN

Client Sample ID: P-S8-180119-514 — **Lab Sample ID: 280-119347-7**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: P-S8-180119-514 — **Lab Sample ID: 280-119347-7**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 88.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.070 g	5 mL	445374	01/24/19 14:57	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	445732	01/28/19 22:30	SU	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 00:46	AMB1	TAL DEN

Client Sample ID: V-S8-180159-514 — **Lab Sample ID: 280-119347-8**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: V-S8-180159-514 — **Lab Sample ID: 280-119347-8**
Date Collected: 01/18/19 16:25 — **Matrix: Solid**
Date Received: 01/19/19 09:00 — **Percent Solids: 85.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.493 g	5 mL	445812	01/18/19 16:25	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 13:06	GPM	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	444907	01/21/19 13:25	MJS	TAL DEN
Total/NA	Analysis	8011		1			445839	01/29/19 18:56	JLW	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Client Sample ID: P-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445009	01/22/19 13:12	SGB	TAL DEN

Client Sample ID: P-S8-180159-514
Date Collected: 01/18/19 16:25
Date Received: 01/19/19 09:00

Lab Sample ID: 280-119347-9
Matrix: Solid
Percent Solids: 87.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.090 g	5 mL	445374	01/24/19 14:57	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	445732	01/28/19 22:54	SU	TAL DEN
Total/NA	Prep	3546			15.1 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/28/19 23:46	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119347-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

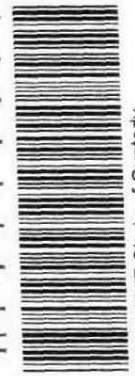
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8113 9537 5218	COC No: COC1-58-TA-20190118
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-690-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
TB-58-180119-01	01/18/19	1400	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-58-180119-475	01/18/19	1045	G	S	N	N	X	X	X	—	—	—	—	—	—	3	
P-58-180119-475	01/18/19	1045	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-58-180119-499	01/18/19	1505	G	S	N	N	X	X	X	—	—	—	—	—	—	3	
P-58-180119-499	01/18/19	1505	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-58-180119-514	01/18/19	1625	G	S	N	N	X	X	X	—	—	—	—	—	—	3	
P-58-180119-514	01/18/19	1625	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
V-58-180159-514	01/18/19	1625	G	S	N	N	X	X	X	—	—	—	—	—	—	3	Dup
P-58-180159-514	01/18/19	1625	G	S	N	N	—	—	—	X	X	—	—	—	—	3	Dup
DRL																	



Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	01/18/19 1800	EA		01-19-19 0900	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.1 to.7 IR9 IR0 01-19-19

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119347-1

Login Number: 119347
List Number: 1
Creator: Dunlap, Krista M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119377-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/28/2019 7:04:49 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119377-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119377-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 1/22/2019 at 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7º C.

Receipt Exceptions

One of two Sodium Thiosulfate preserved Voa Vials requesting EDB analysis for sample TB-S7-210119-01 (280-119377-2) was received partially frozen and broken. Volume could not be salvaged from the broken container, therefore, the Voa Vial was disposed of. It can be noted that sufficient volume is available from the remaining Voa Vial and the laboratory will proceed with the analysis.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Sample V-S7-210119-420 (280-119377-3) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 01/21/2019 and analyzed on 01/29/2019.

Naphthalene and Toluene were detected in method blank MB 280-445812/3-A at levels that were less than one half the LOQ; therefore, corrective action was deemed unnecessary. The values should be considered estimates, and have been flagged “J” in accordance with the DoD QSM.

The initial calibration verification (ICV) result for Dichlorodifluoromethane (28.6%D) in batch 280-445655 was above the upper control limit. The associated sample (V-S7-210119-420 (280-119377-3) results were non-detects, and have been reported as qualified data.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-445808. The failing compounds are considered poor performing compounds and standard variances allow up to 30%D. Report data with NCM and flags. Sample V-S7-210119-420 (280-119377-3) is associated with this CCV.

2-Butanone (MEK) @ -25.3%D
2-Hexanone @ -21.3%D
Acetone @ -28.4%D

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Job ID: 280-119377-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Samples RB-S7-200119-01 (280-119377-1) and TB-S7-210119-01 (280-119377-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 02/02/2019.

The analytes 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, Carbon disulfide and Naphthalene were detected in method blank MB 280-446338/5 at levels that were less than one half the LOQ; therefore, corrective action was deemed unnecessary. The values should be considered estimates, and have been flagged “J” in accordance with the DoD QSM.

The following compound was outside control limits in the continuing calibration verification (CCV) associated with batch 280-446338: 1,2-Dibromo-3-Chloropropane @ -27.1%D. The failing compound is considered a poor performing compound and standard variances allow for up to 30%D. Sample RB-S7-200119-01 (280-119377-1) is associated with this CCV and is "non-detect" for this analyte.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Sample V-S7-210119-420 (280-119377-3) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/04/2019 and analyzed on 02/26/2019.

The recovery for surrogate 1,2-Dibromopropane exceeded the surrogate recovery criteria in sample V-S7-210119-420 (280-119377-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP

Samples RB-S7-200119-01 (280-119377-1) and TB-S7-210119-01 (280-119377-2) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 01/31/2019 and analyzed on 02/01/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Sample P-S7-210119-420 (280-119377-4) was analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 01/24/2019 and analyzed on 01/29/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples RB-S7-200119-01 (280-119377-1) and TB-S7-210119-01 (280-119377-2) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 01/29/2019 and 01/30/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Sample P-S7-210119-420 (280-119377-4) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/23/2019 and analyzed on 01/29/2019.

Per the method comments, 8015D_DRO_DOD5 analysis for the following samples was performed on extracts that were silica gel cleaned: RB-S7-200119-01 (280-119377-1), P-S7-210119-420 (280-119377-4), (LCS 280-445176/2-A), (LCS 280-445176/3-A), (LCS 280-445396/2-A), (LCS 280-445396/4-A), (LCSD 280-445396/3-A), (LCSD 280-445396/5-A), (MB 280-445176/1-A), (MB 280-445396/1-A), (280-119255-A-3-A), (280-119255-A-3-B MS), (280-119255-A-3-D MS), (280-119255-A-3-C MSD) and (280-119255-A-3-E MSD).

Diesel Range Organics [C10-C28] was detected in method blank MB 280-445176/1-A at a level that was less than one half the LOQ; therefore, corrective action was deemed unnecessary. The value should be considered an estimate, and has been flagged “J” in accordance with the DoD QSM.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-119377-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

DIESEL RANGE ORGANICS (DRO)

Sample RB-S7-200119-01 (280-119377-1) was analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 01/24/2019 and analyzed on 01/28/2019.

Diesel Range Organics [C10-C28] and Motor Oil (C20-C38) were detected in method blank MB 280-445396/1-A at levels that were less than one half the LOQ; therefore, corrective action was deemed unnecessary. The values should be considered estimates, and have been flagged “J” in accordance with the DoD QSM.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S7-210119-420 (280-119377-3) and P-S7-210119-420 (280-119377-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 01/22/2019 and 02/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Client Sample ID: RB-S7-200119-01 — Lab Sample ID: 280-119377-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	0.048	J	0.25	0.12	0.033	mg/L	1		8015D DRO	Total/NA

Client Sample ID: TB-S7-210119-01 — Lab Sample ID: 280-119377-2

No Detections.

Client Sample ID: V-S7-210119-420 — Lab Sample ID: 280-119377-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	3.9	J	5.8	3.7	1.9	ug/Kg	1	☼	8260B	Total/NA
Toluene	0.81	J	5.8	1.9	0.80	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S7-210119-420 — Lab Sample ID: 280-119377-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.2	J	7.7	3.8	1.3	mg/Kg	1		8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119377-1	RB-S7-200119-01	Water	01/20/19 11:45	01/22/19 09:15
280-119377-2	TB-S7-210119-01	Water	01/21/19 13:00	01/22/19 09:15
280-119377-3	V-S7-210119-420	Solid	01/21/19 11:10	01/22/19 09:15
280-119377-4	P-S7-210119-420	Solid	01/21/19 11:10	01/22/19 09:15

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-S7-200119-01
Date Collected: 01/20/19 11:45
Date Received: 01/22/19 09:15

Lab Sample ID: 280-119377-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 14:36	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 14:36	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:36	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 14:36	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 14:36	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 14:36	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/02/19 14:36	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 14:36	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 14:36	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 14:36	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:36	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
1,2-Dibromo-3-Chloropropane	1.6	U Q	5.0	1.6	0.47	ug/L		02/02/19 14:36	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 14:36	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 14:36	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:36	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 14:36	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 14:36	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 14:36	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 14:36	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 14:36	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:36	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:36	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		02/02/19 14:36	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 14:36	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 14:36	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:36	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:36	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 14:36	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 14:36	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:36	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 14:36	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 14:36	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 14:36	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 14:36	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 14:36	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-S7-200119-01
Date Collected: 01/20/19 11:45
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:36	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:36	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 14:36	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:36	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 14:36	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 14:36	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:36	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 14:36	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:36	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:36	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 14:36	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:36	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 14:36	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*02/02/19 14:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*81 - 118*		*02/02/19 14:36*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*02/02/19 14:36*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 119*		*02/02/19 14:36*	*1*

Client Sample ID: TB-S7-210119-01
Date Collected: 01/21/19 13:00
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 07:15	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 07:15	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:15	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 07:15	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 07:15	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 07:15	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/02/19 07:15	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 07:15	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 07:15	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 07:15	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:15	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/02/19 07:15	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 07:15	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S7-210119-01
Date Collected: 01/21/19 13:00
Date Received: 01/22/19 09:15

Lab Sample ID: 280-119377-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:15	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:15	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 07:15	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:15	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 07:15	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 07:15	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 07:15	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:15	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:15	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:15	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:15	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:15	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:15	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 07:15	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 07:15	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:15	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 07:15	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 07:15	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 07:15	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 07:15	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:15	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:15	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:15	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 07:15	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:15	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 07:15	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 07:15	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:15	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 07:15	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:15	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:15	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 07:15	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:15	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 07:15	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*89 - 112*		*02/02/19 07:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*81 - 118*		*02/02/19 07:15*	*1*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*		*02/02/19 07:15*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S7-210119-01
Date Collected: 01/21/19 13:00
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	100		80 - 119		02/02/19 07:15	1

Client Sample ID: V-S7-210119-420
Date Collected: 01/21/19 11:10
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-3
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.9	U	5.8	1.9	0.65	ug/Kg	☼	01/29/19 15:43	1
1,1,1-Trichloroethane	1.9	U	5.8	1.9	0.61	ug/Kg	☼	01/29/19 15:43	1
1,1,2,2-Tetrachloroethane	1.9	U	5.8	1.9	0.71	ug/Kg	☼	01/29/19 15:43	1
1,1,2-Trichloroethane	3.7	U	5.8	3.7	1.0	ug/Kg	☼	01/29/19 15:43	1
1,1-Dichloroethane	0.93	U	5.8	0.93	0.24	ug/Kg	☼	01/29/19 15:43	1
1,1-Dichloroethene	1.9	U	5.8	1.9	0.69	ug/Kg	☼	01/29/19 15:43	1
1,1-Dichloropropene	1.9	U	5.8	1.9	0.63	ug/Kg	☼	01/29/19 15:43	1
1,2,3-Trichlorobenzene	1.9	U	5.8	1.9	0.87	ug/Kg	☼	01/29/19 15:43	1
1,2,3-Trichloropropane	3.7	U	5.8	3.7	0.94	ug/Kg	☼	01/29/19 15:43	1
1,2,4-Trichlorobenzene	1.9	U	5.8	1.9	0.85	ug/Kg	☼	01/29/19 15:43	1
1,2,4-Trimethylbenzene	3.7	U	5.8	3.7	0.67	ug/Kg	☼	01/29/19 15:43	1
1,2-Dibromo-3-Chloropropane	1.9	U	12	1.9	0.70	ug/Kg	☼	01/29/19 15:43	1
1,2-Dichlorobenzene	1.9	U	5.8	1.9	0.52	ug/Kg	☼	01/29/19 15:43	1
1,2-Dichloroethane	1.9	U	5.8	1.9	0.81	ug/Kg	☼	01/29/19 15:43	1
1,2-Dichloroethene, Total	1.9	U	5.8	1.9	0.45	ug/Kg	☼	01/29/19 15:43	1
1,2-Dichloropropane	1.9	U M	5.8	1.9	0.64	ug/Kg	☼	01/29/19 15:43	1
1,3,5-Trimethylbenzene	1.9	U	5.8	1.9	0.66	ug/Kg	☼	01/29/19 15:43	1
1,3-Dichlorobenzene	1.9	U	5.8	1.9	0.56	ug/Kg	☼	01/29/19 15:43	1
1,3-Dichloropropane	1.9	U	5.8	1.9	0.59	ug/Kg	☼	01/29/19 15:43	1
1,4-Dichlorobenzene	1.9	U	5.8	1.9	0.91	ug/Kg	☼	01/29/19 15:43	1
2,2-Dichloropropane	1.9	U	5.8	1.9	0.51	ug/Kg	☼	01/29/19 15:43	1
2-Butanone (MEK)	7.4	U M Q	23	7.4	2.1	ug/Kg	☼	01/29/19 15:43	1
2-Chlorotoluene	1.9	U	5.8	1.9	0.59	ug/Kg	☼	01/29/19 15:43	1
2-Hexanone	15	U Q	23	15	5.7	ug/Kg	☼	01/29/19 15:43	1
4-Chlorotoluene	1.9	U	5.8	1.9	0.91	ug/Kg	☼	01/29/19 15:43	1
4-Isopropyltoluene	1.9	U	5.8	1.9	0.57	ug/Kg	☼	01/29/19 15:43	1
4-Methyl-2-pentanone (MIBK)	15	U	23	15	5.1	ug/Kg	☼	01/29/19 15:43	1
Acetone	15	U Q	23	15	6.3	ug/Kg	☼	01/29/19 15:43	1
Benzene	1.9	U M	5.8	1.9	0.55	ug/Kg	☼	01/29/19 15:43	1
Bromobenzene	1.9	U	5.8	1.9	0.57	ug/Kg	☼	01/29/19 15:43	1
Bromoform	0.93	U	5.8	0.93	0.27	ug/Kg	☼	01/29/19 15:43	1
Bromomethane	1.9	U	12	1.9	0.58	ug/Kg	☼	01/29/19 15:43	1
Carbon disulfide	1.9	U	5.8	1.9	0.49	ug/Kg	☼	01/29/19 15:43	1
Carbon tetrachloride	1.9	U	5.8	1.9	0.73	ug/Kg	☼	01/29/19 15:43	1
Chlorobenzene	1.9	U	5.8	1.9	0.63	ug/Kg	☼	01/29/19 15:43	1
Bromochloromethane	0.93	U	5.8	0.93	0.35	ug/Kg	☼	01/29/19 15:43	1
Dibromochloromethane	1.9	U	5.8	1.9	0.66	ug/Kg	☼	01/29/19 15:43	1
Chloroethane	3.7	U	12	3.7	1.0	ug/Kg	☼	01/29/19 15:43	1
Chloroform	0.93	U	12	0.93	0.34	ug/Kg	☼	01/29/19 15:43	1
Chloromethane	1.9	U	12	1.9	0.90	ug/Kg	☼	01/29/19 15:43	1
cis-1,2-Dichloroethene	1.9	U	5.8	1.9	0.65	ug/Kg	☼	01/29/19 15:43	1
cis-1,3-Dichloropropene	3.7	U	5.8	3.7	1.5	ug/Kg	☼	01/29/19 15:43	1
Dibromomethane	3.7	U	5.8	3.7	0.98	ug/Kg	☼	01/29/19 15:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-210119-420
Date Collected: 01/21/19 11:10
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-3
Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromodichloromethane	0.93	U	5.8	0.93	0.26	ug/Kg	☼	01/29/19 15:43	1
Dichlorodifluoromethane	1.9	U Q	12	1.9	0.61	ug/Kg	☼	01/29/19 15:43	1
Ethylbenzene	1.9	U	5.8	1.9	0.78	ug/Kg	☼	01/29/19 15:43	1
Ethylene Dibromide	1.9	U	5.8	1.9	0.61	ug/Kg	☼	01/29/19 15:43	1
Hexachlorobutadiene	1.9	U	5.8	1.9	0.64	ug/Kg	☼	01/29/19 15:43	1
Isopropylbenzene	1.9	U	5.8	1.9	0.69	ug/Kg	☼	01/29/19 15:43	1
Methyl tert-butyl ether	0.93	U	23	0.93	0.40	ug/Kg	☼	01/29/19 15:43	1
Methylene Chloride	**3.9**	**J**	5.8	3.7	1.9	ug/Kg	☼	01/29/19 15:43	1
m-Xylene & p-Xylene	3.7	U	3.7	3.7	1.2	ug/Kg	☼	01/29/19 15:43	1
Naphthalene	1.9	U	5.8	1.9	0.73	ug/Kg	☼	01/29/19 15:43	1
n-Butylbenzene	1.9	U	5.8	1.9	0.65	ug/Kg	☼	01/29/19 15:43	1
N-Propylbenzene	1.9	U	5.8	1.9	0.67	ug/Kg	☼	01/29/19 15:43	1
o-Xylene	1.9	U	5.8	1.9	0.71	ug/Kg	☼	01/29/19 15:43	1
sec-Butylbenzene	1.9	U	5.8	1.9	0.90	ug/Kg	☼	01/29/19 15:43	1
Styrene	1.9	U	5.8	1.9	0.73	ug/Kg	☼	01/29/19 15:43	1
tert-Butylbenzene	1.9	U	5.8	1.9	0.58	ug/Kg	☼	01/29/19 15:43	1
Tetrachloroethene	1.9	U	5.8	1.9	0.69	ug/Kg	☼	01/29/19 15:43	1
Toluene	**0.81**	**J**	5.8	1.9	0.80	ug/Kg	☼	01/29/19 15:43	1
trans-1,2-Dichloroethene	0.93	U	5.8	0.93	0.45	ug/Kg	☼	01/29/19 15:43	1
trans-1,3-Dichloropropene	1.9	U	5.8	1.9	0.78	ug/Kg	☼	01/29/19 15:43	1
Trichloroethene	0.93	U	5.8	0.93	0.27	ug/Kg	☼	01/29/19 15:43	1
Trichlorofluoromethane	3.7	U	12	3.7	1.2	ug/Kg	☼	01/29/19 15:43	1
Vinyl chloride	3.7	U	5.8	3.7	1.6	ug/Kg	☼	01/29/19 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/21/19 11:10*	*01/29/19 15:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*	*01/21/19 11:10*	*01/29/19 15:43*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/21/19 11:10*	*01/29/19 15:43*	*1*
Dibromofluoromethane (Surr)	*98*		*78 - 119*	*01/21/19 11:10*	*01/29/19 15:43*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-S7-200119-01
Date Collected: 01/20/19 11:45
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 23:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*91*		*82 - 110*		*01/29/19 23:54*	*1*

Client Sample ID: TB-S7-210119-01
Date Collected: 01/21/19 13:00
Date Received: 01/22/19 09:15
Lab Sample ID: 280-119377-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/30/19 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*87*		*82 - 110*		*01/30/19 01:07*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S7-210119-420 — **Lab Sample ID: 280-119377-4**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.40	mg/Kg	☼	01/29/19 03:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*86*		*77 - 123*	*01/24/19 14:51*	*01/29/19 03:43*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-S7-200119-01 — **Lab Sample ID: 280-119377-1**
Date Collected: 01/20/19 11:45 — **Matrix: Water**
Date Received: 01/22/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		02/01/19 01:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*121*		*70 - 130*	*01/31/19 13:23*	*02/01/19 01:20*	*1*

Client Sample ID: TB-S7-210119-01 — **Lab Sample ID: 280-119377-2**
Date Collected: 01/21/19 13:00 — **Matrix: Water**
Date Received: 01/22/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		02/01/19 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*123*		*70 - 130*	*01/31/19 13:23*	*02/01/19 01:39*	*1*

Client Sample ID: V-S7-210119-420 — **Lab Sample ID: 280-119377-3**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.11	0.040	0.016	ug/Kg	☼	02/26/19 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*152*	*Q*	*55 - 130*	*02/04/19 16:19*	*02/26/19 15:31*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-S7-200119-01 — **Lab Sample ID: 280-119377-1**
Date Collected: 01/20/19 11:45 — **Matrix: Water**
Date Received: 01/22/19 09:15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.048**	**J**	0.25	0.12	0.033	mg/L		01/28/19 19:26	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		01/28/19 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*86*		*56 - 125*	*01/24/19 18:31*	*01/28/19 19:26*	*1*
n-Octacosane	*96*		*60 - 142*	*01/24/19 18:31*	*01/28/19 19:26*	*1*

Client Sample ID: P-S7-210119-420 — **Lab Sample ID: 280-119377-4**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.2**	**J**	7.7	3.8	1.3	mg/Kg	☼	01/29/19 01:06	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: P-S7-210119-420 — **Lab Sample ID: 280-119377-4**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Motor Oil (C20-C38)	22	U	23	22	7.5	mg/Kg	☼	01/29/19 01:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*76*		*45 - 130*	*01/23/19 14:35*	*01/29/19 01:06*	*1*
n-Octacosane	*78*		*25 - 162*	*01/23/19 14:35*	*01/29/19 01:06*	*1*

General Chemistry

Client Sample ID: V-S7-210119-420 — **Lab Sample ID: 280-119377-3**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 95.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.6**		0.1	0.05	0.1	%		01/22/19 15:33	1

Client Sample ID: P-S7-210119-420 — **Lab Sample ID: 280-119377-4**
Date Collected: 01/21/19 11:10 — **Matrix: Solid**
Date Received: 01/22/19 09:15 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.6**		0.1	0.05	0.1	%		02/04/19 13:38	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119377-3	V-S7-210119-420	98	89	98	98
LCS 280-445812/1-A	Lab Control Sample	98	85	96	94
LCSD 280-445812/2-A	Lab Control Sample Dup	98	85	97	95
MB 280-445812/3-A	Method Blank	97	90	96	99

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119377-1	RB-S7-200119-01	99	101	100	100
280-119377-2	TB-S7-210119-01	97	103	95	100
LCS 280-446320/26	Lab Control Sample	89	93	88	89
LCS 280-446338/3	Lab Control Sample	100	95	104	98
LCSD 280-446320/27	Lab Control Sample Dup	91	92	90	91
LCSD 280-446338/4	Lab Control Sample Dup	101	95	102	98
MB 280-446320/28	Method Blank	102	102	94	101
MB 280-446338/5	Method Blank	100	99	101	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119377-4	P-S7-210119-420	86
LCS 280-445371/7-A	Lab Control Sample	96
MB 280-445371/8-A	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-119377-1	RB-S7-200119-01	91
280-119377-2	TB-S7-210119-01	87
LCS 280-445835/34	Lab Control Sample	95
MB 280-445835/35	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119377-3	V-S7-210119-420	152 Q
280-119377-3 MS	V-S7-210119-420	124
280-119377-3 MSD	V-S7-210119-420	124
LCS 280-446461/2-A	Lab Control Sample	88
LCSD 280-446461/3-A	Lab Control Sample Dup	84
MB 280-446461/4-A	Method Blank	91

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-119377-1	RB-S7-200119-01	121
280-119377-2	TB-S7-210119-01	123
LCS 280-446117/1-A	Lab Control Sample	110
LCSD 280-446117/2-A	Lab Control Sample Dup	115
MB 280-446117/3-A	Method Blank	114

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-119377-4	P-S7-210119-420	76	78
LCS 280-445176/2-A	Lab Control Sample	86	88
LCS 280-445176/3-A	Lab Control Sample	83	89
MB 280-445176/1-A	Method Blank	84	93

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)										
280-119377-1	RB-S7-200119-01	86	96										
LCS 280-445396/2-A	Lab Control Sample	92	97										
LCS 280-445396/4-A	Lab Control Sample	106	121										
LCSD 280-445396/3-A	Lab Control Sample Dup	91	96										
LCSD 280-445396/5-A	Lab Control Sample Dup	108	120										
MB 280-445396/1-A	Method Blank	97	108										

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		01/29/19 11:58	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		01/29/19 11:58	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		01/29/19 11:58	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		01/29/19 11:58	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		01/29/19 11:58	1
Acetone	13	U	20	13	5.4	ug/Kg		01/29/19 11:58	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		01/29/19 11:58	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		01/29/19 11:58	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		01/29/19 11:58	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		01/29/19 11:58	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		01/29/19 11:58	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		01/29/19 11:58	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		01/29/19 11:58	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		01/29/19 11:58	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		01/29/19 11:58	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		01/29/19 11:58	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		01/29/19 11:58	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		01/29/19 11:58	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		01/29/19 11:58	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		01/29/19 11:58	1
Naphthalene	0.639	J	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		01/29/19 11:58	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		01/29/19 11:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		01/29/19 11:58	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		01/29/19 11:58	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		01/29/19 11:58	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		01/29/19 11:58	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		01/29/19 11:58	1
Toluene	0.827	J	5.0	1.6	0.69	ug/Kg		01/29/19 11:58	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		01/29/19 11:58	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		01/29/19 11:58	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		01/29/19 11:58	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	53.1		ug/Kg		106	61 - 132
2-Butanone (MEK)	200	164		ug/Kg		82	51 - 148
1,2-Dichlorobenzene	50.0	54.3		ug/Kg		109	78 - 121
1,3-Dichlorobenzene	50.0	53.8		ug/Kg		108	77 - 121
4-Chlorotoluene	50.0	54.6		ug/Kg		109	72 - 124
1,4-Dichlorobenzene	50.0	53.9		ug/Kg		108	75 - 120
1,1-Dichloroethane	50.0	46.3		ug/Kg		93	76 - 125
1,2-Dichloroethane	50.0	43.1		ug/Kg		86	73 - 128
Acetone	200	157		ug/Kg		78	36 - 164
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131
Benzene	50.0	48.2		ug/Kg		96	77 - 121
Bromobenzene	50.0	53.4		ug/Kg		107	78 - 121
Bromoform	50.0	54.3		ug/Kg		109	67 - 132
Bromomethane	50.0	47.1		ug/Kg		94	53 - 143
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123
Carbon disulfide	50.0	52.7		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	53.0		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	48.3		ug/Kg		97	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	48.4		ug/Kg		97	67 - 133
Chlorobenzene	50.0	52.1		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	48.9		ug/Kg		98	76 - 125
Bromochloromethane	50.0	53.3		ug/Kg		107	78 - 125
Dibromochloromethane	50.0	52.5		ug/Kg		105	74 - 126
Chloroethane	50.0	44.9		ug/Kg		90	59 - 139
Chloroform	50.0	46.2		ug/Kg		92	78 - 123
2-Hexanone	200	176		ug/Kg		88	53 - 145
Chloromethane	50.0	51.2		ug/Kg		102	50 - 136
cis-1,2-Dichloroethene	50.0	50.6		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	56.6		ug/Kg		113	74 - 126
4-Isopropyltoluene	50.0	53.8		ug/Kg		108	73 - 127
Dibromomethane	50.0	50.0		ug/Kg		100	78 - 125
Bromodichloromethane	50.0	52.3		ug/Kg		105	75 - 127
4-Methyl-2-pentanone (MIBK)	200	177		ug/Kg		89	65 - 135
Dichlorodifluoromethane	50.0	60.4		ug/Kg		121	29 - 149
Ethylbenzene	50.0	53.5		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	56.3		ug/Kg		113	78 - 122
Hexachlorobutadiene	50.0	53.9		ug/Kg		108	61 - 135
Isopropylbenzene	50.0	52.7		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.2		ug/Kg		106	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.8		ug/Kg		102	70 - 124
Methylene Chloride	50.0	49.7		ug/Kg		99	70 - 128
Naphthalene	50.0	58.5		ug/Kg		117	62 - 129
1,2,3-Trichlorobenzene	50.0	59.1		ug/Kg		118	66 - 130
n-Butylbenzene	50.0	52.3		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	50.0	46.8		ug/Kg		94	73 - 130
N-Propylbenzene	50.0	54.2		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	56.1		ug/Kg		112	78 - 121
sec-Butylbenzene	50.0	53.3		ug/Kg		107	73 - 126
Styrene	50.0	54.2		ug/Kg		108	76 - 124
1,2,4-Trichlorobenzene	50.0	58.5		ug/Kg		117	67 - 129
tert-Butylbenzene	50.0	52.0		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	50.0	49.0		ug/Kg		98	73 - 125
Tetrachloroethene	50.0	53.9		ug/Kg		108	73 - 128
1,2,4-Trimethylbenzene	50.0	52.7		ug/Kg		105	75 - 123
Toluene	50.0	51.1		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	50.0	51.2		ug/Kg		102	73 - 124
trans-1,2-Dichloroethene	50.0	51.5		ug/Kg		103	74 - 125
trans-1,3-Dichloropropene	50.0	52.4		ug/Kg		105	71 - 130
o-Xylene	50.0	55.1		ug/Kg		110	77 - 123
Trichloroethene	50.0	51.6		ug/Kg		103	77 - 123
m-Xylene & p-Xylene	50.0	54.0		ug/Kg		108	77 - 124
Trichlorofluoromethane	50.0	44.4		ug/Kg		89	62 - 140
Vinyl chloride	50.0	48.4		ug/Kg		97	56 - 135
2-Chlorotoluene	50.0	53.2		ug/Kg		106	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	51.1		ug/Kg		102	61 - 132	4	20
2-Butanone (MEK)	200	156		ug/Kg		78	51 - 148	5	20
1,2-Dichlorobenzene	50.0	53.6		ug/Kg		107	78 - 121	1	20
1,3-Dichlorobenzene	50.0	53.4		ug/Kg		107	77 - 121	1	20
4-Chlorotoluene	50.0	54.0		ug/Kg		108	72 - 124	1	20
1,4-Dichlorobenzene	50.0	53.0		ug/Kg		106	75 - 120	2	20
1,1-Dichloroethane	50.0	46.5		ug/Kg		93	76 - 125	0	20
1,2-Dichloroethane	50.0	43.4		ug/Kg		87	73 - 128	1	20
Acetone	200	148		ug/Kg		74	36 - 164	6	20
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131	0	20
Benzene	50.0	48.6		ug/Kg		97	77 - 121	1	20
Bromobenzene	50.0	53.9		ug/Kg		108	78 - 121	1	20
Bromoform	50.0	52.7		ug/Kg		105	67 - 132	3	20
Bromomethane	50.0	47.9		ug/Kg		96	53 - 143	2	20
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123	0	20
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132	0	20
1,3-Dichloropropane	50.0	51.7		ug/Kg		103	77 - 121	2	20
Carbon tetrachloride	50.0	48.8		ug/Kg		98	70 - 135	1	20
2,2-Dichloropropane	50.0	48.6		ug/Kg		97	67 - 133	1	20
Chlorobenzene	50.0	51.1		ug/Kg		102	79 - 120	2	20
1,1-Dichloropropene	50.0	48.8		ug/Kg		98	76 - 125	0	20
Bromochloromethane	50.0	52.9		ug/Kg		106	78 - 125	1	20
Dibromochloromethane	50.0	52.1		ug/Kg		104	74 - 126	1	20
Chloroethane	50.0	43.6		ug/Kg		87	59 - 139	3	20
Chloroform	50.0	46.5		ug/Kg		93	78 - 123	1	20
2-Hexanone	200	168		ug/Kg		84	53 - 145	5	20
Chloromethane	50.0	51.9		ug/Kg		104	50 - 136	1	20
cis-1,2-Dichloroethene	50.0	51.0		ug/Kg		102	77 - 123	1	20
cis-1,3-Dichloropropene	50.0	55.5		ug/Kg		111	74 - 126	2	20
4-Isopropyltoluene	50.0	53.3		ug/Kg		107	73 - 127	1	20
Dibromomethane	50.0	49.1		ug/Kg		98	78 - 125	2	20
Bromodichloromethane	50.0	51.2		ug/Kg		102	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)	200	172		ug/Kg		86	65 - 135	3	20
Dichlorodifluoromethane	50.0	61.1		ug/Kg		122	29 - 149	1	20
Ethylbenzene	50.0	52.3		ug/Kg		105	76 - 122	2	20
Ethylene Dibromide	50.0	55.1		ug/Kg		110	78 - 122	2	20
Hexachlorobutadiene	50.0	53.4		ug/Kg		107	61 - 135	1	20
Isopropylbenzene	50.0	52.1		ug/Kg		104	68 - 134	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			50.0	53.2		ug/Kg		106	78 - 125	0	20
Methyl tert-butyl ether			50.0	50.3		ug/Kg		101	73 - 125	0	20
1,1,2,2-Tetrachloroethane			50.0	49.9		ug/Kg		100	70 - 124	2	20
Methylene Chloride			50.0	48.9		ug/Kg		98	70 - 128	1	20
Naphthalene			50.0	56.9		ug/Kg		114	62 - 129	3	20
1,2,3-Trichlorobenzene			50.0	57.8		ug/Kg		116	66 - 130	2	20
n-Butylbenzene			50.0	52.0		ug/Kg		104	70 - 128	1	20
1,1,1-Trichloroethane			50.0	46.8		ug/Kg		94	73 - 130	0	20
N-Propylbenzene			50.0	53.2		ug/Kg		106	73 - 125	2	20
1,1,2-Trichloroethane			50.0	55.8		ug/Kg		112	78 - 121	1	20
sec-Butylbenzene			50.0	53.5		ug/Kg		107	73 - 126	0	20
Styrene			50.0	52.9		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	57.0		ug/Kg		114	67 - 129	3	20
tert-Butylbenzene			50.0	51.9		ug/Kg		104	73 - 125	0	20
1,2,3-Trichloropropane			50.0	47.9		ug/Kg		96	73 - 125	2	20
Tetrachloroethene			50.0	53.6		ug/Kg		107	73 - 128	0	20
1,2,4-Trimethylbenzene			50.0	52.1		ug/Kg		104	75 - 123	1	20
Toluene			50.0	50.7		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	51.1		ug/Kg		102	73 - 124	0	20
trans-1,2-Dichloroethene			50.0	51.4		ug/Kg		103	74 - 125	0	20
trans-1,3-Dichloropropene			50.0	52.3		ug/Kg		105	71 - 130	0	20
o-Xylene			50.0	53.8		ug/Kg		108	77 - 123	2	20
Trichloroethene			50.0	51.6		ug/Kg		103	77 - 123	0	20
m-Xylene & p-Xylene			50.0	52.3		ug/Kg		105	77 - 124	3	20
Trichlorofluoromethane			50.0	45.2		ug/Kg		90	62 - 140	2	20
Vinyl chloride			50.0	48.9		ug/Kg		98	56 - 135	1	20
2-Chlorotoluene			50.0	52.6		ug/Kg		105	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-446320/28
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/02/19 03:25	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 03:25	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 03:25	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 03:25	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 03:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-446320/28
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 03:25	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 03:25	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 03:25	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/02/19 03:25	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 03:25	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 03:25	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 03:25	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 03:25	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 03:25	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 03:25	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 03:25	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 03:25	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 03:25	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 03:25	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 03:25	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 03:25	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 03:25	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 03:25	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 03:25	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-446320/28
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 03:25	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 03:25	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 03:25	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*02/02/19 03:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*02/02/19 03:25*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*02/02/19 03:25*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*02/02/19 03:25*	*1*

Lab Sample ID: LCS 280-446320/26
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.06		ug/L		101	62 - 128
2-Butanone (MEK)	20.0	19.5		ug/L		98	56 - 143
1,2-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119
1,3-Dichlorobenzene	5.00	4.81		ug/L		96	80 - 119
4-Chlorotoluene	5.00	4.85		ug/L		97	78 - 122
1,4-Dichlorobenzene	5.00	4.84		ug/L		97	79 - 118
1,1-Dichloroethane	5.00	4.77		ug/L		95	77 - 125
1,2-Dichloroethane	5.00	4.86		ug/L		97	73 - 128
Acetone	20.0	17.6		ug/L		88	39 - 160
1,1-Dichloroethene	5.00	4.79		ug/L		96	71 - 131
Benzene	5.00	4.45		ug/L		89	79 - 120
Bromobenzene	5.00	4.93		ug/L		99	80 - 120
Bromoform	5.00	4.96		ug/L		99	66 - 130
Bromomethane	5.00	4.31		ug/L		86	53 - 141
1,2-Dichloropropane	5.00	4.92		ug/L		98	78 - 122
Carbon disulfide	5.00	4.71		ug/L		94	64 - 133
1,3-Dichloropropane	5.00	4.89		ug/L		98	80 - 119
Carbon tetrachloride	5.00	4.66		ug/L		93	72 - 136
2,2-Dichloropropane	5.00	4.46		ug/L		89	60 - 139
Chlorobenzene	5.00	4.62		ug/L		92	82 - 118
1,1-Dichloropropene	5.00	4.69		ug/L		94	79 - 125
Bromochloromethane	5.00	4.84		ug/L		97	78 - 123
Dibromochloromethane	5.00	4.98		ug/L		100	74 - 126
Chloroethane	5.00	4.28		ug/L		86	60 - 138
Chloroform	5.00	4.81		ug/L		96	79 - 124
2-Hexanone	20.0	20.0		ug/L		100	57 - 139
Chloromethane	5.00	4.81		ug/L		96	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-446320/26
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.00	4.80		ug/L		96	78 - 123
cis-1,3-Dichloropropene	5.00	5.06		ug/L		101	75 - 124
4-Isopropyltoluene	5.00	4.77		ug/L		95	77 - 127
Dibromomethane	5.00	4.82		ug/L		96	79 - 123
Bromodichloromethane	5.00	4.86		ug/L		97	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.3		ug/L		102	67 - 130
Dichlorodifluoromethane	5.00	4.29		ug/L		86	32 - 152
Ethylbenzene	5.00	4.56		ug/L		91	79 - 121
Ethylene Dibromide	5.00	4.90		ug/L		98	77 - 121
Hexachlorobutadiene	5.00	4.59		ug/L		92	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.88		ug/L		98	78 - 124
Methyl tert-butyl ether	5.00	4.91		ug/L		98	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.97		ug/L		99	71 - 121
Methylene Chloride	5.00	4.74		ug/L		95	74 - 124
Naphthalene	5.00	4.88		ug/L		98	61 - 128
1,2,3-Trichlorobenzene	5.00	4.75		ug/L		95	69 - 129
n-Butylbenzene	5.00	4.29		ug/L		86	75 - 128
1,1,1-Trichloroethane	5.00	4.70		ug/L		94	74 - 131
N-Propylbenzene	5.00	4.86		ug/L		97	76 - 126
1,1,2-Trichloroethane	5.00	5.12		ug/L		102	80 - 119
sec-Butylbenzene	5.00	4.75		ug/L		95	77 - 126
Styrene	5.00	4.38		ug/L		88	78 - 123
1,2,4-Trichlorobenzene	5.00	4.72		ug/L		94	69 - 130
tert-Butylbenzene	5.00	4.34		ug/L		87	78 - 124
1,2,3-Trichloropropane	5.00	4.89		ug/L		98	73 - 122
Tetrachloroethene	5.00	4.70		ug/L		94	74 - 129
1,2,4-Trimethylbenzene	5.00	4.31		ug/L		86	76 - 124
Toluene	5.00	4.67		ug/L		93	80 - 121
1,3,5-Trimethylbenzene	5.00	4.76		ug/L		95	75 - 124
trans-1,2-Dichloroethene	5.00	4.90		ug/L		98	75 - 124
trans-1,3-Dichloropropene	5.00	4.97		ug/L		99	73 - 127
o-Xylene	5.00	4.47		ug/L		89	78 - 122
Trichloroethene	5.00	4.65		ug/L		93	79 - 123
m-Xylene & p-Xylene	5.00	4.41		ug/L		88	80 - 121
Trichlorofluoromethane	5.00	4.34		ug/L		87	65 - 141
Vinyl chloride	5.00	4.70		ug/L		94	58 - 137
2-Chlorotoluene	5.00	4.86		ug/L		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*88*		*85 - 114*
Dibromofluoromethane (Surr)	*89*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446320/27
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.03		ug/L		101	62 - 128	0	20
2-Butanone (MEK)	20.0	19.7		ug/L		98	56 - 143	1	20
1,2-Dichlorobenzene	5.00	4.94		ug/L		99	80 - 119	2	20
1,3-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119	1	20
4-Chlorotoluene	5.00	4.86		ug/L		97	78 - 122	0	20
1,4-Dichlorobenzene	5.00	4.80		ug/L		96	79 - 118	1	20
1,1-Dichloroethane	5.00	4.86		ug/L		97	77 - 125	2	20
1,2-Dichloroethane	5.00	4.92		ug/L		98	73 - 128	1	20
Acetone	20.0	17.1		ug/L		86	39 - 160	2	20
1,1-Dichloroethene	5.00	4.87		ug/L		97	71 - 131	2	20
Benzene	5.00	4.52		ug/L		90	79 - 120	2	20
Bromobenzene	5.00	4.96		ug/L		99	80 - 120	1	20
Bromoform	5.00	4.96		ug/L		99	66 - 130	0	20
Bromomethane	5.00	4.48		ug/L		90	53 - 141	4	20
1,2-Dichloropropane	5.00	5.00		ug/L		100	78 - 122	2	20
Carbon disulfide	5.00	4.82		ug/L		96	64 - 133	2	20
1,3-Dichloropropane	5.00	4.93		ug/L		99	80 - 119	1	20
Carbon tetrachloride	5.00	4.71		ug/L		94	72 - 136	1	20
2,2-Dichloropropane	5.00	4.51		ug/L		90	60 - 139	1	20
Chlorobenzene	5.00	4.71		ug/L		94	82 - 118	2	20
1,1-Dichloropropene	5.00	4.78		ug/L		96	79 - 125	2	20
Bromochloromethane	5.00	4.94		ug/L		99	78 - 123	2	20
Dibromochloromethane	5.00	5.03		ug/L		101	74 - 126	1	20
Chloroethane	5.00	4.47		ug/L		89	60 - 138	4	20
Chloroform	5.00	4.88		ug/L		98	79 - 124	1	20
2-Hexanone	20.0	19.9		ug/L		99	57 - 139	1	20
Chloromethane	5.00	4.57		ug/L		91	50 - 139	5	20
cis-1,2-Dichloroethene	5.00	4.86		ug/L		97	78 - 123	1	20
cis-1,3-Dichloropropene	5.00	5.14		ug/L		103	75 - 124	2	20
4-Isopropyltoluene	5.00	4.91		ug/L		98	77 - 127	3	20
Dibromomethane	5.00	4.73		ug/L		95	79 - 123	2	20
Bromodichloromethane	5.00	4.84		ug/L		97	79 - 125	0	20
4-Methyl-2-pentanone (MIBK)	20.0	20.3		ug/L		102	67 - 130	0	20
Dichlorodifluoromethane	5.00	4.53		ug/L		91	32 - 152	5	20
Ethylbenzene	5.00	4.67		ug/L		93	79 - 121	2	20
Ethylene Dibromide	5.00	4.98		ug/L		100	77 - 121	2	20
Hexachlorobutadiene	5.00	4.59		ug/L		92	66 - 134	0	20
Isopropylbenzene	5.00	4.86		ug/L		97	72 - 131	2	20
1,1,1,2-Tetrachloroethane	5.00	4.98		ug/L		100	78 - 124	2	20
Methyl tert-butyl ether	5.00	4.99		ug/L		100	71 - 124	2	20
1,1,2,2-Tetrachloroethane	5.00	5.02		ug/L		100	71 - 121	1	20
Methylene Chloride	5.00	4.84		ug/L		97	74 - 124	2	20
Naphthalene	5.00	4.85		ug/L		97	61 - 128	1	20
1,2,3-Trichlorobenzene	5.00	4.71		ug/L		94	69 - 129	1	20
n-Butylbenzene	5.00	4.30		ug/L		86	75 - 128	0	20
1,1,1-Trichloroethane	5.00	4.79		ug/L		96	74 - 131	2	20
N-Propylbenzene	5.00	5.01		ug/L		100	76 - 126	3	20
1,1,2-Trichloroethane	5.00	5.11		ug/L		102	80 - 119	0	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446320/27
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			5.00	4.89		ug/L		98	77 - 126	3	20
Styrene			5.00	4.42		ug/L		88	78 - 123	1	20
1,2,4-Trichlorobenzene			5.00	4.66		ug/L		93	69 - 130	1	20
tert-Butylbenzene			5.00	4.43		ug/L		89	78 - 124	2	20
1,2,3-Trichloropropane			5.00	5.08		ug/L		102	73 - 122	4	20
Tetrachloroethene			5.00	4.78		ug/L		96	74 - 129	2	20
1,2,4-Trimethylbenzene			5.00	4.35		ug/L		87	76 - 124	1	20
Toluene			5.00	4.79		ug/L		96	80 - 121	3	20
1,3,5-Trimethylbenzene			5.00	4.87		ug/L		97	75 - 124	2	20
trans-1,2-Dichloroethene			5.00	5.02		ug/L		100	75 - 124	2	20
trans-1,3-Dichloropropene			5.00	4.93		ug/L		99	73 - 127	1	20
o-Xylene			5.00	4.54		ug/L		91	78 - 122	1	20
Trichloroethene			5.00	4.70		ug/L		94	79 - 123	1	20
m-Xylene & p-Xylene			5.00	4.49		ug/L		90	80 - 121	2	20
Trichlorofluoromethane			5.00	4.48		ug/L		90	65 - 141	3	20
Vinyl chloride			5.00	4.55		ug/L		91	58 - 137	3	20
2-Chlorotoluene			5.00	4.96		ug/L		99	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*92*		*81 - 118*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*
Dibromofluoromethane (Surr)	*91*		*80 - 119*

Lab Sample ID: MB 280-446338/5
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/02/19 14:15	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 14:15	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:15	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 14:15	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:15	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 14:15	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 14:15	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 14:15	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 14:15	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 14:15	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:15	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 14:15	1
1,2-Dichloropropane	0.40	U M	1.0	0.40	0.18	ug/L		02/02/19 14:15	1
Carbon disulfide	0.451	J	2.0	1.6	0.45	ug/L		02/02/19 14:15	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 14:15	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 14:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-446338/5
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 14:15	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:15	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 14:15	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 14:15	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 14:15	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 14:15	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 14:15	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 14:15	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 14:15	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 14:15	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 14:15	1
Isopropylbenzene	0.40	U M	1.0	0.40	0.19	ug/L		02/02/19 14:15	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:15	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 14:15	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 14:15	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 14:15	1
Naphthalene	0.321	J	1.0	0.80	0.22	ug/L		02/02/19 14:15	1
1,2,3-Trichlorobenzene	0.365	J	1.0	0.80	0.21	ug/L		02/02/19 14:15	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 14:15	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 14:15	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
1,2,4-Trichlorobenzene	0.278	J	1.0	0.80	0.21	ug/L		02/02/19 14:15	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 14:15	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 14:15	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:15	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 14:15	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:15	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 14:15	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 14:15	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 14:15	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 14:15	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 14:15	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 14:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-446338/5
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*100*		*89 - 112*		*02/02/19 14:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*		*02/02/19 14:15*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*02/02/19 14:15*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*02/02/19 14:15*	*1*

Lab Sample ID: LCS 280-446338/3
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	25.0	20.2		ug/L		81	62 - 128
2-Butanone (MEK)	100	104		ug/L		104	56 - 143
1,2-Dichlorobenzene	25.0	27.2		ug/L		109	80 - 119
1,3-Dichlorobenzene	25.0	27.8		ug/L		111	80 - 119
4-Chlorotoluene	25.0	26.6		ug/L		106	78 - 122
1,4-Dichlorobenzene	25.0	26.8		ug/L		107	79 - 118
1,1-Dichloroethane	25.0	28.9		ug/L		116	77 - 125
1,2-Dichloroethane	25.0	24.7		ug/L		99	73 - 128
Acetone	100	97.4		ug/L		97	39 - 160
1,1-Dichloroethene	25.0	28.0		ug/L		112	71 - 131
Benzene	25.0	27.7		ug/L		111	79 - 120
Bromobenzene	25.0	26.0		ug/L		104	80 - 120
Bromoform	25.0	20.4		ug/L		82	66 - 130
Bromomethane	25.0	25.7		ug/L		103	53 - 141
1,2-Dichloropropane	25.0	27.5		ug/L		110	78 - 122
Carbon disulfide	25.0	26.2		ug/L		105	64 - 133
1,3-Dichloropropane	25.0	26.6		ug/L		107	80 - 119
Carbon tetrachloride	25.0	25.3		ug/L		101	72 - 136
2,2-Dichloropropane	25.0	30.1		ug/L		121	60 - 139
Chlorobenzene	25.0	27.0		ug/L		108	82 - 118
1,1-Dichloropropene	25.0	27.3		ug/L		109	79 - 125
Bromochloromethane	25.0	28.0		ug/L		112	78 - 123
Dibromochloromethane	25.0	22.2		ug/L		89	74 - 126
Chloroethane	25.0	25.1		ug/L		101	60 - 138
Chloroform	25.0	27.6		ug/L		110	79 - 124
2-Hexanone	100	105		ug/L		105	57 - 139
Chloromethane	25.0	26.9		ug/L		108	50 - 139
cis-1,2-Dichloroethene	25.0	27.0		ug/L		108	78 - 123
cis-1,3-Dichloropropene	25.0	25.9		ug/L		104	75 - 124
4-Isopropyltoluene	25.0	28.4		ug/L		113	77 - 127
Dibromomethane	25.0	24.4		ug/L		98	79 - 123
Bromodichloromethane	25.0	24.3		ug/L		97	79 - 125
4-Methyl-2-pentanone (MIBK)	100	108		ug/L		108	67 - 130
Dichlorodifluoromethane	25.0	28.7		ug/L		115	32 - 152
Ethylbenzene	25.0	26.7		ug/L		107	79 - 121
Ethylene Dibromide	25.0	24.6		ug/L		99	77 - 121
Hexachlorobutadiene	25.0	26.6		ug/L		106	66 - 134
Isopropylbenzene	25.0	26.7		ug/L		107	72 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-446338/3
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	24.9		ug/L		99	78 - 124
Methyl tert-butyl ether	25.0	26.7		ug/L		107	71 - 124
1,1,2,2-Tetrachloroethane	25.0	26.9		ug/L		107	71 - 121
Methylene Chloride	25.0	26.4		ug/L		105	74 - 124
Naphthalene	25.0	24.6		ug/L		99	61 - 128
1,2,3-Trichlorobenzene	25.0	25.1		ug/L		100	69 - 129
n-Butylbenzene	25.0	28.3		ug/L		113	75 - 128
1,1,1-Trichloroethane	25.0	26.8		ug/L		107	74 - 131
N-Propylbenzene	25.0	26.7		ug/L		107	76 - 126
1,1,2-Trichloroethane	25.0	25.5		ug/L		102	80 - 119
sec-Butylbenzene	25.0	27.5		ug/L		110	77 - 126
Styrene	25.0	25.5		ug/L		102	78 - 123
1,2,4-Trichlorobenzene	25.0	25.4		ug/L		102	69 - 130
tert-Butylbenzene	25.0	27.2		ug/L		109	78 - 124
1,2,3-Trichloropropane	25.0	24.8		ug/L		99	73 - 122
Tetrachloroethene	25.0	26.6		ug/L		106	74 - 129
1,2,4-Trimethylbenzene	25.0	27.0		ug/L		108	76 - 124
Toluene	25.0	27.5		ug/L		110	80 - 121
1,3,5-Trimethylbenzene	25.0	27.5		ug/L		110	75 - 124
trans-1,2-Dichloroethene	25.0	28.3		ug/L		113	75 - 124
trans-1,3-Dichloropropene	25.0	23.8		ug/L		95	73 - 127
o-Xylene	25.0	25.8		ug/L		103	78 - 122
Trichloroethene	25.0	24.6		ug/L		99	79 - 123
m-Xylene & p-Xylene	25.0	26.6		ug/L		106	80 - 121
Trichlorofluoromethane	25.0	26.7		ug/L		107	65 - 141
Vinyl chloride	25.0	27.5		ug/L		110	58 - 137
2-Chlorotoluene	25.0	26.6		ug/L		106	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*95*		*81 - 118*
4-Bromofluorobenzene (Surr)	*104*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Lab Sample ID: LCSD 280-446338/4
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	25.0	20.1		ug/L		80	62 - 128	1	20
2-Butanone (MEK)	100	105		ug/L		105	56 - 143	1	20
1,2-Dichlorobenzene	25.0	26.2		ug/L		105	80 - 119	4	20
1,3-Dichlorobenzene	25.0	26.5		ug/L		106	80 - 119	5	20
4-Chlorotoluene	25.0	25.4		ug/L		102	78 - 122	5	20
1,4-Dichlorobenzene	25.0	25.9		ug/L		103	79 - 118	4	20
1,1-Dichloroethane	25.0	27.4		ug/L		110	77 - 125	5	20
1,2-Dichloroethane	25.0	24.2		ug/L		97	73 - 128	2	20
Acetone	100	98.1		ug/L		98	39 - 160	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446338/4
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	25.0	25.8		ug/L		103	71 - 131	8	20
Benzene	25.0	26.3		ug/L		105	79 - 120	5	20
Bromobenzene	25.0	25.2		ug/L		101	80 - 120	3	20
Bromoform	25.0	20.9		ug/L		84	66 - 130	2	20
Bromomethane	25.0	26.5		ug/L		106	53 - 141	3	20
1,2-Dichloropropane	25.0	26.6		ug/L		106	78 - 122	3	20
Carbon disulfide	25.0	24.6		ug/L		98	64 - 133	6	20
1,3-Dichloropropane	25.0	26.6		ug/L		106	80 - 119	0	20
Carbon tetrachloride	25.0	24.0		ug/L		96	72 - 136	5	20
2,2-Dichloropropane	25.0	28.2		ug/L		113	60 - 139	7	20
Chlorobenzene	25.0	26.4		ug/L		106	82 - 118	2	20
1,1-Dichloropropene	25.0	25.9		ug/L		104	79 - 125	5	20
Bromochloromethane	25.0	28.0		ug/L		112	78 - 123	0	20
Dibromochloromethane	25.0	22.4		ug/L		90	74 - 126	1	20
Chloroethane	25.0	23.9		ug/L		96	60 - 138	5	20
Chloroform	25.0	26.5		ug/L		106	79 - 124	4	20
2-Hexanone	100	106		ug/L		106	57 - 139	1	20
Chloromethane	25.0	25.2		ug/L		101	50 - 139	7	20
cis-1,2-Dichloroethene	25.0	26.2		ug/L		105	78 - 123	3	20
cis-1,3-Dichloropropene	25.0	25.5		ug/L		102	75 - 124	2	20
4-Isopropyltoluene	25.0	26.7		ug/L		107	77 - 127	6	20
Dibromomethane	25.0	24.1		ug/L		96	79 - 123	1	20
Bromodichloromethane	25.0	23.6		ug/L		95	79 - 125	3	20
4-Methyl-2-pentanone (MIBK)	100	108		ug/L		108	67 - 130	0	20
Dichlorodifluoromethane	25.0	26.7		ug/L		107	32 - 152	7	20
Ethylbenzene	25.0	25.4		ug/L		102	79 - 121	5	20
Ethylene Dibromide	25.0	24.8		ug/L		99	77 - 121	1	20
Hexachlorobutadiene	25.0	24.8		ug/L		99	66 - 134	7	20
Isopropylbenzene	25.0	25.4		ug/L		102	72 - 131	5	20
1,1,1,2-Tetrachloroethane	25.0	24.5		ug/L		98	78 - 124	2	20
Methyl tert-butyl ether	25.0	26.4		ug/L		106	71 - 124	1	20
1,1,2,2-Tetrachloroethane	25.0	27.0		ug/L		108	71 - 121	1	20
Methylene Chloride	25.0	25.5		ug/L		102	74 - 124	3	20
Naphthalene	25.0	24.2		ug/L		97	61 - 128	2	20
1,2,3-Trichlorobenzene	25.0	24.2		ug/L		97	69 - 129	4	20
n-Butylbenzene	25.0	26.8		ug/L		107	75 - 128	6	20
1,1,1-Trichloroethane	25.0	25.3		ug/L		101	74 - 131	6	20
N-Propylbenzene	25.0	25.3		ug/L		101	76 - 126	5	20
1,1,2-Trichloroethane	25.0	25.7		ug/L		103	80 - 119	1	20
sec-Butylbenzene	25.0	26.0		ug/L		104	77 - 126	6	20
Styrene	25.0	24.8		ug/L		99	78 - 123	3	20
1,2,4-Trichlorobenzene	25.0	24.6		ug/L		98	69 - 130	3	20
tert-Butylbenzene	25.0	25.7		ug/L		103	78 - 124	6	20
1,2,3-Trichloropropane	25.0	24.4		ug/L		98	73 - 122	2	20
Tetrachloroethene	25.0	25.1		ug/L		100	74 - 129	6	20
1,2,4-Trimethylbenzene	25.0	25.9		ug/L		103	76 - 124	4	20
Toluene	25.0	26.4		ug/L		105	80 - 121	4	20
1,3,5-Trimethylbenzene	25.0	25.9		ug/L		104	75 - 124	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446338/4
Matrix: Water
Analysis Batch: 446338

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
trans-1,2-Dichloroethene			25.0	26.9		ug/L		108	75 - 124	5	20
trans-1,3-Dichloropropene			25.0	23.5		ug/L		94	73 - 127	2	20
o-Xylene			25.0	25.5		ug/L		102	78 - 122	1	20
Trichloroethene			25.0	23.6		ug/L		94	79 - 123	4	20
m-Xylene & p-Xylene			25.0	25.4		ug/L		102	80 - 121	4	20
Trichlorofluoromethane			25.0	25.1		ug/L		100	65 - 141	6	20
Vinyl chloride			25.0	25.8		ug/L		103	58 - 137	6	20
2-Chlorotoluene			25.0	25.3		ug/L		101	79 - 122	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*95*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-445371/8-A
Matrix: Solid
Analysis Batch: 446543

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445371

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		01/28/19 20:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*	*01/28/19 09:22*	*01/28/19 20:30*	*1*

Lab Sample ID: LCS 280-445371/7-A
Matrix: Solid
Analysis Batch: 446543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445371

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			4.28	4.08		mg/Kg		95	79 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*

Lab Sample ID: MB 280-445835/35
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		01/29/19 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*01/29/19 13:21*	*1*

Lab Sample ID: LCS 280-445835/34
Matrix: Water
Analysis Batch: 445835

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	72.0		ug/L		92	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*95*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-446117/3-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446117

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		01/31/19 19:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*114*		*70 - 130*	*01/31/19 13:23*	*01/31/19 19:14*	*1*

Lab Sample ID: LCS 280-446117/1-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446117

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.193		ug/L		77	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*110*		*70 - 130*

Lab Sample ID: LCSD 280-446117/2-A
Matrix: Water
Analysis Batch: 446154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446117

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.211		ug/L		84	70 - 130	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*115*		*70 - 130*

Lab Sample ID: MB 280-446461/4-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446461

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		02/18/19 19:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*91*		*55 - 130*	*02/13/19 15:48*	*02/18/19 19:10*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-446461/2-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446461

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.762		ug/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*88*		*55 - 130*

Lab Sample ID: LCSD 280-446461/3-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446461

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.771		ug/Kg		88	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*84*		*55 - 130*

Lab Sample ID: 280-119377-3 MS
Matrix: Solid
Analysis Batch: 448922

Client Sample ID: V-S7-210119-420
Prep Type: Total/NA
Prep Batch: 446461

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.040	U	0.919	0.985		ug/Kg	☼	107	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*124*		*55 - 130*

Lab Sample ID: 280-119377-3 MSD
Matrix: Solid
Analysis Batch: 448922

Client Sample ID: V-S7-210119-420
Prep Type: Total/NA
Prep Batch: 446461

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.040	U	0.919	0.976		ug/Kg	☼	106	70 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*124*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-445176/1-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445176

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.08	J	7.2	3.6	1.2	mg/Kg		01/28/19 20:26	1
Motor Oil (C20-C38)	21	U	22	21	7.0	mg/Kg		01/28/19 20:26	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 280-445176/1-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445176

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	84		45 - 130	01/23/19 14:35	01/28/19 20:26	1
n-Octacosane	93		25 - 162	01/23/19 14:35	01/28/19 20:26	1

Lab Sample ID: LCS 280-445176/2-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	119	110		mg/Kg		92	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	86		45 - 130
n-Octacosane	88		25 - 162

Lab Sample ID: LCS 280-445176/3-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	328	279		mg/Kg		85	39 - 106

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	83		45 - 130
n-Octacosane	89		25 - 162

Lab Sample ID: MB 280-445396/1-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445396

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.0758	J	0.25	0.12	0.033	mg/L		01/28/19 17:46	1
Motor Oil (C20-C38)	0.158	J	0.50	0.13	0.056	mg/L		01/28/19 17:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	97		56 - 125	01/24/19 18:31	01/28/19 17:46	1
n-Octacosane	108		60 - 142	01/24/19 18:31	01/28/19 17:46	1

Lab Sample ID: LCS 280-445396/2-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445396

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	2.00	1.97		mg/L		99	36 - 132

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-445396/2-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445396

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*92*		*56 - 125*
n-Octacosane	*97*		*60 - 142*

Lab Sample ID: LCS 280-445396/4-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445396

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.59		mg/L		111	41 - 113		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*106*		*56 - 125*
n-Octacosane	*121*		*60 - 142*

Lab Sample ID: LCSD 280-445396/3-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445396

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	2.06		mg/L		103	36 - 132	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*91*		*56 - 125*
n-Octacosane	*96*		*60 - 142*

Lab Sample ID: LCSD 280-445396/5-A
Matrix: Water
Analysis Batch: 445704

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445396

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	5.63		mg/L		112	41 - 113	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*108*		*56 - 125*
n-Octacosane	*120*		*60 - 142*

GC/MS VOA

Analysis Batch: 445808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-3	V-S7-210119-420	Total/NA	Solid	8260B	445812
MB 280-445812/3-A	Method Blank	Total/NA	Solid	8260B	445812
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	8260B	445812
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445812

Prep Batch: 445812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-3	V-S7-210119-420	Total/NA	Solid	5035	
MB 280-445812/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 446320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-2	TB-S7-210119-01	Total/NA	Water	8260B	
MB 280-446320/28	Method Blank	Total/NA	Water	8260B	
LCS 280-446320/26	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-446320/27	Lab Control Sample Dup	Total/NA	Water	8260B	

Analysis Batch: 446338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	8260B	
MB 280-446338/5	Method Blank	Total/NA	Water	8260B	
LCS 280-446338/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-446338/4	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 445371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-4	P-S7-210119-420	Total/NA	Solid	5035	
MB 280-445371/8-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445371/7-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 445835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	8015D GRO	
280-119377-2	TB-S7-210119-01	Total/NA	Water	8015D GRO	
MB 280-445835/35	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-445835/34	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 446543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-4	P-S7-210119-420	Total/NA	Solid	8015D GRO	445371
MB 280-445371/8-A	Method Blank	Total/NA	Solid	8015D GRO	445371
LCS 280-445371/7-A	Lab Control Sample	Total/NA	Solid	8015D GRO	445371

GC Semi VOA

Prep Batch: 445176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-4	P-S7-210119-420	Total/NA	Solid	3546	
MB 280-445176/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 445396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	3510C	
MB 280-445396/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-445396/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-445396/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-445396/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-445396/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 445704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	8015D DRO	445396
280-119377-4	P-S7-210119-420	Total/NA	Solid	8015D DRO	445176
MB 280-445176/1-A	Method Blank	Total/NA	Solid	8015D DRO	445176
MB 280-445396/1-A	Method Blank	Total/NA	Water	8015D DRO	445396
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
LCS 280-445396/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	445396
LCS 280-445396/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	445396
LCSD 280-445396/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	445396
LCSD 280-445396/5-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	445396

Prep Batch: 446117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	8011	
280-119377-2	TB-S7-210119-01	Total/NA	Water	8011	
MB 280-446117/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-446117/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-446117/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 446154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-1	RB-S7-200119-01	Total/NA	Water	8011	446117
280-119377-2	TB-S7-210119-01	Total/NA	Water	8011	446117
MB 280-446117/3-A	Method Blank	Total/NA	Water	8011	446117
LCS 280-446117/1-A	Lab Control Sample	Total/NA	Water	8011	446117
LCSD 280-446117/2-A	Lab Control Sample Dup	Total/NA	Water	8011	446117

Prep Batch: 446461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-3	V-S7-210119-420	Total/NA	Solid	8011	
MB 280-446461/4-A	Method Blank	Total/NA	Solid	8011	
LCS 280-446461/2-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-446461/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-119377-3 MS	V-S7-210119-420	Total/NA	Solid	8011	
280-119377-3 MSD	V-S7-210119-420	Total/NA	Solid	8011	

Analysis Batch: 448030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-446461/4-A	Method Blank	Total/NA	Solid	8011	446461
LCS 280-446461/2-A	Lab Control Sample	Total/NA	Solid	8011	446461
LCSD 280-446461/3-A	Lab Control Sample Dup	Total/NA	Solid	8011	446461

Analysis Batch: 448922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-3	V-S7-210119-420	Total/NA	Solid	8011	446461
280-119377-3 MS	V-S7-210119-420	Total/NA	Solid	8011	446461
280-119377-3 MSD	V-S7-210119-420	Total/NA	Solid	8011	446461

General Chemistry

Analysis Batch: 445046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-3	V-S7-210119-420	Total/NA	Solid	Moisture	

Analysis Batch: 446441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119377-4	P-S7-210119-420	Total/NA	Solid	Moisture	

Client Sample ID: RB-S7-200119-01

Lab Sample ID: 280-119377-1

Date Collected: 01/20/19 11:45

Matrix: Water

Date Received: 01/22/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	446338	02/02/19 14:36	GPM	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	445835	01/29/19 23:54	SU	TAL DEN
Total/NA	Prep	8011			34.5 mL	35 mL	446117	01/31/19 13:23	MJS	TAL DEN
Total/NA	Analysis	8011		1			446154	02/01/19 01:20	JLW	TAL DEN
Total/NA	Prep	3510C			997.7 mL	1 mL	445396	01/24/19 18:31	AJE	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/28/19 19:26	AMB1	TAL DEN

Client Sample ID: TB-S7-210119-01

Lab Sample ID: 280-119377-2

Date Collected: 01/21/19 13:00

Matrix: Water

Date Received: 01/22/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	446320	02/02/19 07:15	GO	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	445835	01/30/19 01:07	SU	TAL DEN
Total/NA	Prep	8011			34.5 mL	35 mL	446117	01/31/19 13:23	MJS	TAL DEN
Total/NA	Analysis	8011		1			446154	02/01/19 01:39	JLW	TAL DEN

Client Sample ID: V-S7-210119-420

Lab Sample ID: 280-119377-3

Date Collected: 01/21/19 11:10

Matrix: Solid

Date Received: 01/22/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445046	01/22/19 15:33	SGB	TAL DEN

Client Sample ID: V-S7-210119-420

Lab Sample ID: 280-119377-3

Date Collected: 01/21/19 11:10

Matrix: Solid

Date Received: 01/22/19 09:15

Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.502 g	5 mL	445812	01/21/19 11:10	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 15:43	GPM	TAL DEN
Total/NA	Prep	8011			9.96 g	35 mL	446461	02/04/19 16:19	MJS	TAL DEN
Total/NA	Analysis	8011		1			448922	02/26/19 15:31	JLW	TAL DEN

Client Sample ID: P-S7-210119-420

Lab Sample ID: 280-119377-4

Date Collected: 01/21/19 11:10

Matrix: Solid

Date Received: 01/22/19 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446441	02/04/19 13:38	SGB	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Client Sample ID: P-S7-210119-420
Date Collected: 01/21/19 11:10
Date Received: 01/22/19 09:15

Lab Sample ID: 280-119377-4
Matrix: Solid
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.327 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446543	01/29/19 03:43	SU	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 01:06	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119377-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Pamela Moss Company: EA Engineering, Science, and Technology	Sampler: JOSHUA LIVINGSTON Phone: (575) 430-8078	Lab PM: Rothmeyer, Stephanie K E-Mail: stephanie.rothmeyer@testamericainc.com	Carrier Tracking No(s): 8119 1514 2418
Address: 7995 E. Prentice Ave, Suite 206E City: Greenwood Village State, Zip: CO, 80111 Phone: 303-590-9143(Tel) Email: pmoss@eaest.com Project Name: Kirtland Vadose Zone Coring Site: Kirtland BFF	Due Date Requested: Per PO TAT Requested (days): Per PO PO #: 16065 WO #: 62735DMD2.1017 Project #: 28016071 SSOW#:		COC No: COC1-57-TA-20190121 Page: 1 of 1 Job #:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:				U	N	N	N							
RB-S7-200119-01	01/20/19	1145	G	W	N	N						X	X	X		6	
TB-S7-210119-01	01/21/19	1300	G	S	N	N						X	X	X		6	
V-S7-210119-420	01/21/19	1110	G	S	N	N	X	X								3	
P-S7-210119-420	01/21/19	1110	G	S	N	N				X	X					3	

280-119377 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:
Relinquished by: JOSHUA LIVINGSTON	Date/Time: 01/21/19 1500	Company: EA	Received by: [illegible]	Date/Time: 1/22/19 0915	Company: TA DEN	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.1, +1.0, 2.1 +1.5 by AP 1/22/19

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119377-1

Login Number: 119377
List Number: 1
Creator: Infiesto, David B

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	See job narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119401-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/28/2019 7:02:43 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
Q	One or more quality control criteria failed.
B	Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank.
D	The reported value is from a dilution.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
D	The reported value is from a dilution.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
D	The reported value is from a dilution.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119401-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119401-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 1/23/2019 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Samples V-S7-220119-469 (280-119401-2), V-S7-220119-485 (280-119401-4), V-S7-220119-495 (280-119401-6), V-S7-220119-506 (280-119401-8) and V-S7-220159-506 (280-119401-10) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 01/22/2019 and 01/30/2019 and analyzed on 01/28/2019, 01/29/2019 and 01/30/2019.

Surrogate recovery for the following sample was outside control limits: V-S7-220119-495 (280-119401-6). Evidence of matrix interference is obvious by looking at the chromatogram therefore, re-extraction and/or re-analysis was not performed. The sample was re-analyzed by medium level due to the high concentration of some target compounds. This is for preparation batch 280-445812 and analytical batch 280-445808.

The following samples required a dilution for some compounds: V-S7-220119-495 (280-119401-6). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Internal standard responses were outside of acceptance limits for the following samples: V-S7-220119-485 (280-119401-4) and V-S7-220119-495 (280-119401-6). The samples show evidence of matrix interference by looking at the chromatogram; therefore, the data have been qualified and reported. This is for preparation batch 280-445812 and analytical batch 280-445808.

Acetone was detected in method blank MB 280-445697/3-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Associated sample were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank. The following samples are associated: V-S7-220119-485 (280-119401-4) and (MB 280-445697/3-A).

1,2,4-Trimethylbenzene, 2-Butanone (MEK), 2-Hexanone, Bromomethane and Naphthalene were detected in method blank MB 280-445697/3-A at levels that were above the method detection limit but below the reporting limit. Naphthalene and Toluene were detected in method blank MB 280-445812/3-A at levels that were above the method detection limit but below the reporting limit. Toluene was detected in method blank MB 280-445898/1-A at a level that was above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". Refer to the QC report for details. This is considered acceptable because the detections were less than on-half the LOQ.

Job ID: 280-119401-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Chloromethane failed the recovery criteria low for LCS 280-445898/2-A. Associated results have been flagged "Q". This is not indicative of a systematic control problem because this was a random marginal exceedance. Qualified results have been reported.
Chloromethane 48%D (limits 50-130%D, Marginal Exceedance limits 10-181%D)

1,2,3-Trichlorobenzene, 2-Butanone (MEK), Chloromethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride exceeded the RPD limit for LCSD 280-445898/3-A. Associated results have been flagged "Q". Refer to the QC report for details. The LCS and LCSD were each within control for 1,2,3-Trichlorobenzene, Dichlorodifluoromethane, Vinyl chloride, 2-Butanone (MEK), and Trichlorofluoromethane; and Chloromethane was within marginal exceedance limits.

The initial calibration verification (ICV) result for batch 280-445655 was above the upper control limit for Dichlorodifluoromethane at 28.6%D. Associated results have been flagged "Q". The bias was high, and sample results were non-detects; therefore, the data have been qualified and reported. The following samples are associated: V-S7-220119-469 (280-119401-2), V-S7-220119-485 (280-119401-4), V-S7-220119-495 (280-119401-6), V-S7-220119-506 (280-119401-8), V-S7-220159-506 (280-119401-10) and (ICV 280-445655/20).

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-445903: 2-Butanone (MEK) at -22.9%D and Chloromethane at -21.0%D. These two compounds are considered poor performers. These compounds are not classified as Calibration Check Compounds (CCCs) in the reference method, and the laboratory defaults to in-house and/or project-specific criteria for evaluation. The associated samples were non-detect for the affected analytes.

The following compounds were outside control limits in the continuing calibration verification (CCV) associated with batch 280-445808. the failing compounds are considered poor performing compounds, and standard variances allow up to 30%D. Report data with NCM and flags. The following samples are associated: V-S7-220119-469 (280-119401-2), V-S7-220119-485 (280-119401-4), V-S7-220119-495 (280-119401-6), V-S7-220119-506 (280-119401-8), V-S7-220159-506 (280-119401-10) and (CCV 280-445808/2).
2-Butanone (MEK) @ -25.3%D
2-Hexanone @ -21.3%D
Acetone @ -28.4%D

The closing continuing calibration verification (CCVC) associated with batch 280-445655 recovered outside the control limit for Hexachlorobutadiene at -59.9%D. The associated sample, V-S7-220119-485 (280-119401-4), was re-analyzed, but the reanalysis had a bad purge causing the internal standards to fail. As instructed by the client, the initial analysis has been qualified and reported.

The CCVC ran 7 minutes outside of the 12 hour tune time. The associated sample, V-S7-220119-485 (280-119401-4), was re-analyzed, but the reanalysis had a bad purge causing QC failures. As instructed by the client, the initial analysis has been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Sample TB-S7-220119-01 (280-119401-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 02/02/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Samples V-S7-220119-469 (280-119401-2), V-S7-220119-485 (280-119401-4), V-S7-220119-495 (280-119401-6), V-S7-220119-506 (280-119401-8) and V-S7-220159-506 (280-119401-10) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/05/2019 and analyzed on 02/14/2019 and 02/18/2019.

The following sample was diluted due to abundance of target analytes: V-S7-220119-495 (280-119401-6). As such, surrogate recoveries are below the calibration range or are not reported, and associated results have been flagged "Q". Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 280-447717 recovered above the upper control limit for Ethylene Dibromide. Associated results have been flagged "Q". The samples associated with this CCV were non-detects for the affected analytes;

Job ID: 280-119401-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

therefore, the data have been reported. The following samples are impacted: V-S7-220119-469 (280-119401-2), V-S7-220119-485 (280-119401-4), V-S7-220119-495 (280-119401-6), V-S7-220119-506 (280-119401-8) and V-S7-220159-506 (280-119401-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-S7-220119-01 (280-119401-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 02/05/2019.

Compound 1,2-Dibromo-3-Chloropropane eluted outside the retention time window on the Restex 502.2 Volatiles column and Restek Rtx-VRX (30) column for the following samples: (CCV 280-446579/27) and (CCV 280-446579/44). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-S7-220119-469 (280-119401-3), P-S7-220119-485 (280-119401-5), P-S7-220119-495 (280-119401-7), P-S7-220119-506 (280-119401-9) and P-S7-220159-506 (280-119401-11) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 01/24/2019 and analyzed on 01/29/2019.

Sample P-S7-220119-495 (280-119401-7)[250X] required dilution prior to analysis due to the nature of the sample matrix. The reporting limits have been adjusted accordingly.

a,a,a-Trifluorotoluene (Surr) failed the surrogate recovery criteria high for P-S7-220119-495 (280-119401-7) due to the required dilution. Associated results have been flagged "Q". Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-S7-220119-01 (280-119401-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 02/01/2019.

The LCS was re-analyzed due to low C6-C12 recoveries from the first analysis in analytical batch 445732. All other targets were within acceptable limits. Therefore only re-analysis of the LCS was preformed. In the reported re-analysis, all targets are within accepted criteria.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-S7-220119-469 (280-119401-3), P-S7-220119-485 (280-119401-5), P-S7-220119-495 (280-119401-7), P-S7-220119-506 (280-119401-9) and P-S7-220159-506 (280-119401-11) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 01/23/2019 and analyzed on 01/29/2019.

Diesel Range Organics [C10-C28] was detected in method blank MB 280-445176/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

Per the method comments, 8015D_DRO_DOD5 analysis for the following samples was performed on extracts that were silica gel cleaned: P-S7-220119-469 (280-119401-3), P-S7-220119-485 (280-119401-5), P-S7-220119-495 (280-119401-7), P-S7-220119-506 (280-119401-9), P-S7-220159-506 (280-119401-11), (LCS 280-445176/2-A), (LCS 280-445176/3-A), (MB 280-445176/1-A). This is for preparation batch 280-445176 and analytical batch 280-445704 .

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-S7-220119-469 (280-119401-2), P-S7-220119-469 (280-119401-3), V-S7-220119-485 (280-119401-4), P-S7-220119-485

Job ID: 280-119401-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

(280-119401-5), V-S7-220119-495 (280-119401-6), P-S7-220119-495 (280-119401-7), V-S7-220119-506 (280-119401-8), P-S7-220119-506 (280-119401-9), V-S7-220159-506 (280-119401-10) and P-S7-220159-506 (280-119401-11) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 01/24/2019 and 02/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Client Sample ID: TB-S7-220119-01 — Lab Sample ID: 280-119401-1

No Detections.

Client Sample ID: V-S7-220119-469 — Lab Sample ID: 280-119401-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	2.1	J	5.1	3.3	0.59	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	0.85	J	5.1	1.6	0.58	ug/Kg	1	☼	8260B	Total/NA
2-Hexanone	7.1	J Q	20	13	5.0	ug/Kg	1	☼	8260B	Total/NA
Acetone	82	Q	20	13	5.5	ug/Kg	1	☼	8260B	Total/NA
Benzene	0.91	J	5.1	1.6	0.48	ug/Kg	1	☼	8260B	Total/NA
Ethylene Dibromide	0.83	J	5.1	1.6	0.53	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	4.7		3.3	3.3	1.1	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	1.0	J	5.1	1.6	0.64	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	4.7	J	5.1	1.6	0.62	ug/Kg	1	☼	8260B	Total/NA
Toluene	2.8	J	5.1	1.6	0.70	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S7-220119-469 — Lab Sample ID: 280-119401-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	4.1	J	8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S7-220119-485 — Lab Sample ID: 280-119401-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	9.5		5.7	3.6	0.66	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	5.5	J	5.7	1.8	0.65	ug/Kg	1	☼	8260B	Total/NA
2-Butanone (MEK)	140		23	7.3	2.1	ug/Kg	1	☼	8260B	Total/NA
2-Hexanone	130		23	15	5.5	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	44		5.7	1.8	0.56	ug/Kg	1	☼	8260B	Total/NA
4-Methyl-2-pentanone (MIBK)	52		23	15	4.9	ug/Kg	1	☼	8260B	Total/NA
Acetone	460	B	23	15	6.1	ug/Kg	1	☼	8260B	Total/NA
Benzene	85		5.7	1.8	0.53	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	3.2	J	5.7	1.8	0.76	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	9.5		5.7	1.8	0.67	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	8.8		3.6	3.6	1.2	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	21		5.7	1.8	0.71	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	0.67	J	5.7	1.8	0.66	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	44		5.7	1.8	0.69	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	1.2	J	5.7	1.8	0.87	ug/Kg	1	☼	8260B	Total/NA
Toluene	8.5		5.7	1.8	0.78	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S7-220119-485 — Lab Sample ID: 280-119401-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10	1.8		1.3	1.2	0.35	mg/Kg	1	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	14		7.9	4.0	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S7-220119-495 — Lab Sample ID: 280-119401-6

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Client Sample ID: V-S7-220119-495 (Continued) — Lab Sample ID: 280-119401-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Bromomethane	25	Q	10	1.7	0.52	ug/Kg	1	☼	8260B	Total/NA
Carbon disulfide	5.4	Q	5.2	1.7	0.44	ug/Kg	1	☼	8260B	Total/NA
Benzene - DL	9100	J D Q	30000	19000	5300	ug/Kg	100	☼	8260B	Total/NA
n-Butylbenzene - DL	4500	J D Q	30000	9500	3800	ug/Kg	100	☼	8260B	Total/NA
Ethylbenzene - DL	33000	D Q	30000	9500	4000	ug/Kg	100	☼	8260B	Total/NA
Isopropylbenzene - DL	6500	J D Q	30000	9500	3400	ug/Kg	100	☼	8260B	Total/NA
N-Propylbenzene - DL	11000	J D Q	30000	19000	4900	ug/Kg	100	☼	8260B	Total/NA
Toluene - DL	110000	D Q	30000	9500	4600	ug/Kg	100	☼	8260B	Total/NA
1,2,4-Trimethylbenzene - DL	23000	J D Q	30000	9500	3700	ug/Kg	100	☼	8260B	Total/NA
1,3,5-Trimethylbenzene - DL	11000	J D Q	30000	9500	4600	ug/Kg	100	☼	8260B	Total/NA
o-Xylene - DL	25000	D Q	15000	9500	4200	ug/Kg	100	☼	8260B	Total/NA
m-Xylene & p-Xylene - DL	69000	D Q	30000	19000	9300	ug/Kg	100	☼	8260B	Total/NA
Ethylene Dibromide	42	D	22	8.4	3.3	ug/Kg	200	☼	8011	Total/NA

Client Sample ID: P-S7-220119-495 — Lab Sample ID: 280-119401-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO)-C6-C10 - DL	1800	D Q	360	330	99	mg/Kg	250	☼	8015D GRO	Total/NA
Diesel Range Organics [C10-C28]	1400		8.2	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S7-220119-506 — Lab Sample ID: 280-119401-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	9.0		4.8	3.1	0.56	ug/Kg	1	☼	8260B	Total/NA
1,3,5-Trimethylbenzene	3.3	J	4.8	1.5	0.55	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	1.1	J	4.8	1.5	0.47	ug/Kg	1	☼	8260B	Total/NA
Acetone	38	Q	19	12	5.2	ug/Kg	1	☼	8260B	Total/NA
Benzene	1.1	J	4.8	1.5	0.45	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	5.1		4.8	1.5	0.65	ug/Kg	1	☼	8260B	Total/NA
Isopropylbenzene	0.86	J	4.8	1.5	0.57	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	11		3.1	3.1	1.0	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	9.6		4.8	1.5	0.61	ug/Kg	1	☼	8260B	Total/NA
n-Butylbenzene	2.5	J	4.8	1.5	0.54	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	2.7	J	4.8	1.5	0.56	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	4.5	J	4.8	1.5	0.59	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	1.8	J	4.8	1.5	0.74	ug/Kg	1	☼	8260B	Total/NA
Toluene	15		4.8	1.5	0.66	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S7-220119-506 — Lab Sample ID: 280-119401-9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	3.2	J	7.9	4.0	1.3	mg/Kg	1	☼	8015D DRO	Total/NA

Client Sample ID: V-S7-220159-506 — Lab Sample ID: 280-119401-10

This Detection Summary does not include radiochemical test results.

Client Sample ID: V-S7-220159-506 (Continued) — Lab Sample ID: 280-119401-10

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	3.0	J	5.3	3.4	0.62	ug/Kg	1	☼	8260B	Total/NA
4-Isopropyltoluene	0.91	J	5.3	1.7	0.52	ug/Kg	1	☼	8260B	Total/NA
Acetone	36	Q	21	14	5.7	ug/Kg	1	☼	8260B	Total/NA
Benzene	0.88	J	5.3	1.7	0.50	ug/Kg	1	☼	8260B	Total/NA
Ethylbenzene	2.0	J	5.3	1.7	0.71	ug/Kg	1	☼	8260B	Total/NA
m-Xylene & p-Xylene	3.9		3.4	3.4	1.1	ug/Kg	1	☼	8260B	Total/NA
Naphthalene	2.2	J	5.3	1.7	0.67	ug/Kg	1	☼	8260B	Total/NA
N-Propylbenzene	1.5	J	5.3	1.7	0.62	ug/Kg	1	☼	8260B	Total/NA
o-Xylene	1.2	J	5.3	1.7	0.65	ug/Kg	1	☼	8260B	Total/NA
sec-Butylbenzene	0.88	J	5.3	1.7	0.82	ug/Kg	1	☼	8260B	Total/NA
Toluene	9.2		5.3	1.7	0.73	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-S7-220159-506 — Lab Sample ID: 280-119401-11

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	2.2	J	8.1	4.1	1.4	mg/Kg	1	☼	8015D DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119401-1	TB-S7-220119-01	Water	01/22/19 12:00	01/23/19 09:05
280-119401-2	V-S7-220119-469	Solid	01/22/19 10:55	01/23/19 09:05
280-119401-3	P-S7-220119-469	Solid	01/22/19 10:55	01/23/19 09:05
280-119401-4	V-S7-220119-485	Solid	01/22/19 14:20	01/23/19 09:05
280-119401-5	P-S7-220119-485	Solid	01/22/19 14:20	01/23/19 09:05
280-119401-6	V-S7-220119-495	Solid	01/22/19 16:20	01/23/19 09:05
280-119401-7	P-S7-220119-495	Solid	01/22/19 16:20	01/23/19 09:05
280-119401-8	V-S7-220119-506	Solid	01/22/19 16:20	01/23/19 09:05
280-119401-9	P-S7-220119-506	Solid	01/22/19 16:20	01/23/19 09:05
280-119401-10	V-S7-220159-506	Solid	01/22/19 16:20	01/23/19 09:05
280-119401-11	P-S7-220159-506	Solid	01/22/19 16:20	01/23/19 09:05

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-S7-220119-01
Date Collected: 01/22/19 12:00
Date Received: 01/23/19 09:05

Lab Sample ID: 280-119401-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 07:36	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 07:36	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:36	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 07:36	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 07:36	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 07:36	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/02/19 07:36	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 07:36	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 07:36	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 07:36	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:36	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/02/19 07:36	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 07:36	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:36	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:36	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 07:36	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:36	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 07:36	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 07:36	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 07:36	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:36	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:36	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:36	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:36	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 07:36	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:36	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:36	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 07:36	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 07:36	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:36	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 07:36	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 07:36	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 07:36	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 07:36	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 07:36	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-S7-220119-01
Date Collected: 01/22/19 12:00
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:36	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:36	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 07:36	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:36	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 07:36	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 07:36	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 07:36	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 07:36	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 07:36	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 07:36	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 07:36	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 07:36	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 07:36	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 07:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*02/02/19 07:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*02/02/19 07:36*	*1*
4-Bromofluorobenzene (Surr)	*92*		*85 - 114*		*02/02/19 07:36*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*02/02/19 07:36*	*1*

Client Sample ID: V-S7-220119-469
Date Collected: 01/22/19 10:55
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-2
Matrix: Solid
Percent Solids: 97.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.6	U	5.1	1.6	0.57	ug/Kg	☼	01/29/19 16:06	1
1,1,1-Trichloroethane	1.6	U	5.1	1.6	0.53	ug/Kg	☼	01/29/19 16:06	1
1,1,2,2-Tetrachloroethane	1.6	U M	5.1	1.6	0.62	ug/Kg	☼	01/29/19 16:06	1
1,1,2-Trichloroethane	3.3	U	5.1	3.3	0.90	ug/Kg	☼	01/29/19 16:06	1
1,1-Dichloroethane	0.82	U	5.1	0.82	0.21	ug/Kg	☼	01/29/19 16:06	1
1,1-Dichloroethene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	01/29/19 16:06	1
1,1-Dichloropropene	1.6	U	5.1	1.6	0.55	ug/Kg	☼	01/29/19 16:06	1
1,2,3-Trichlorobenzene	1.6	U	5.1	1.6	0.77	ug/Kg	☼	01/29/19 16:06	1
1,2,3-Trichloropropane	3.3	U	5.1	3.3	0.83	ug/Kg	☼	01/29/19 16:06	1
1,2,4-Trichlorobenzene	1.6	U	5.1	1.6	0.75	ug/Kg	☼	01/29/19 16:06	1
1,2,4-Trimethylbenzene	**2.1**	**J**	5.1	3.3	0.59	ug/Kg	☼	01/29/19 16:06	1
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.61	ug/Kg	☼	01/29/19 16:06	1
1,2-Dichlorobenzene	1.6	U	5.1	1.6	0.46	ug/Kg	☼	01/29/19 16:06	1
1,2-Dichloroethane	1.6	U	5.1	1.6	0.71	ug/Kg	☼	01/29/19 16:06	1
1,2-Dichloroethene, Total	1.6	U	5.1	1.6	0.40	ug/Kg	☼	01/29/19 16:06	1
1,2-Dichloropropane	1.6	U M	5.1	1.6	0.56	ug/Kg	☼	01/29/19 16:06	1
1,3,5-Trimethylbenzene	**0.85**	**J**	5.1	1.6	0.58	ug/Kg	☼	01/29/19 16:06	1
1,3-Dichlorobenzene	1.6	U	5.1	1.6	0.49	ug/Kg	☼	01/29/19 16:06	1
1,3-Dichloropropane	1.6	U	5.1	1.6	0.52	ug/Kg	☼	01/29/19 16:06	1
1,4-Dichlorobenzene	1.6	U	5.1	1.6	0.80	ug/Kg	☼	01/29/19 16:06	1
2,2-Dichloropropane	1.6	U	5.1	1.6	0.45	ug/Kg	☼	01/29/19 16:06	1
2-Butanone (MEK)	6.5	U Q	20	6.5	1.9	ug/Kg	☼	01/29/19 16:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-469
Date Collected: 01/22/19 10:55
Date Received: 01/23/19 09:05

Lab Sample ID: 280-119401-2
Matrix: Solid
Percent Solids: 97.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.6	U	5.1	1.6	0.52	ug/Kg	☼	01/29/19 16:06	1
2-Hexanone	**7.1**	**J Q**	20	13	5.0	ug/Kg	☼	01/29/19 16:06	1
4-Chlorotoluene	1.6	U	5.1	1.6	0.80	ug/Kg	☼	01/29/19 16:06	1
4-Isopropyltoluene	1.6	U M	5.1	1.6	0.50	ug/Kg	☼	01/29/19 16:06	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg	☼	01/29/19 16:06	1
Acetone	**82**	**Q**	20	13	5.5	ug/Kg	☼	01/29/19 16:06	1
Benzene	**0.91**	**J**	5.1	1.6	0.48	ug/Kg	☼	01/29/19 16:06	1
Bromobenzene	1.6	U	5.1	1.6	0.50	ug/Kg	☼	01/29/19 16:06	1
Bromoform	0.82	U	5.1	0.82	0.23	ug/Kg	☼	01/29/19 16:06	1
Bromomethane	1.6	U	10	1.6	0.51	ug/Kg	☼	01/29/19 16:06	1
Carbon disulfide	1.6	U	5.1	1.6	0.43	ug/Kg	☼	01/29/19 16:06	1
Carbon tetrachloride	1.6	U	5.1	1.6	0.64	ug/Kg	☼	01/29/19 16:06	1
Chlorobenzene	1.6	U	5.1	1.6	0.55	ug/Kg	☼	01/29/19 16:06	1
Bromochloromethane	0.82	U	5.1	0.82	0.31	ug/Kg	☼	01/29/19 16:06	1
Dibromochloromethane	1.6	U	5.1	1.6	0.58	ug/Kg	☼	01/29/19 16:06	1
Chloroethane	3.3	U	10	3.3	0.91	ug/Kg	☼	01/29/19 16:06	1
Chloroform	0.82	U	10	0.82	0.30	ug/Kg	☼	01/29/19 16:06	1
Chloromethane	1.6	U	10	1.6	0.79	ug/Kg	☼	01/29/19 16:06	1
cis-1,2-Dichloroethene	1.6	U	5.1	1.6	0.57	ug/Kg	☼	01/29/19 16:06	1
cis-1,3-Dichloropropene	3.3	U	5.1	3.3	1.3	ug/Kg	☼	01/29/19 16:06	1
Dibromomethane	3.3	U	5.1	3.3	0.86	ug/Kg	☼	01/29/19 16:06	1
Bromodichloromethane	0.82	U	5.1	0.82	0.22	ug/Kg	☼	01/29/19 16:06	1
Dichlorodifluoromethane	1.6	U Q	10	1.6	0.53	ug/Kg	☼	01/29/19 16:06	1
Ethylbenzene	1.6	U	5.1	1.6	0.68	ug/Kg	☼	01/29/19 16:06	1
Ethylene Dibromide	**0.83**	**J**	5.1	1.6	0.53	ug/Kg	☼	01/29/19 16:06	1
Hexachlorobutadiene	1.6	U	5.1	1.6	0.56	ug/Kg	☼	01/29/19 16:06	1
Isopropylbenzene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	01/29/19 16:06	1
Methyl tert-butyl ether	0.82	U	20	0.82	0.35	ug/Kg	☼	01/29/19 16:06	1
Methylene Chloride	3.3	U M	5.1	3.3	1.6	ug/Kg	☼	01/29/19 16:06	1
m-Xylene & p-Xylene	**4.7**		3.3	3.3	1.1	ug/Kg	☼	01/29/19 16:06	1
Naphthalene	**1.0**	**J**	5.1	1.6	0.64	ug/Kg	☼	01/29/19 16:06	1
n-Butylbenzene	1.6	U M	5.1	1.6	0.57	ug/Kg	☼	01/29/19 16:06	1
N-Propylbenzene	1.6	U M	5.1	1.6	0.59	ug/Kg	☼	01/29/19 16:06	1
o-Xylene	**4.7**	**J**	5.1	1.6	0.62	ug/Kg	☼	01/29/19 16:06	1
sec-Butylbenzene	1.6	U M	5.1	1.6	0.79	ug/Kg	☼	01/29/19 16:06	1
Styrene	1.6	U M	5.1	1.6	0.64	ug/Kg	☼	01/29/19 16:06	1
tert-Butylbenzene	1.6	U	5.1	1.6	0.51	ug/Kg	☼	01/29/19 16:06	1
Tetrachloroethene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	01/29/19 16:06	1
Toluene	**2.8**	**J**	5.1	1.6	0.70	ug/Kg	☼	01/29/19 16:06	1
trans-1,2-Dichloroethene	0.82	U	5.1	0.82	0.40	ug/Kg	☼	01/29/19 16:06	1
trans-1,3-Dichloropropene	1.6	U	5.1	1.6	0.68	ug/Kg	☼	01/29/19 16:06	1
Trichloroethene	0.82	U	5.1	0.82	0.23	ug/Kg	☼	01/29/19 16:06	1
Trichlorofluoromethane	3.3	U	10	3.3	1.1	ug/Kg	☼	01/29/19 16:06	1
Vinyl chloride	3.3	U	5.1	3.3	1.4	ug/Kg	☼	01/29/19 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/22/19 10:55*	*01/29/19 16:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/22/19 10:55*	*01/29/19 16:06*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*01/22/19 10:55*	*01/29/19 16:06*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-469
Date Collected: 01/22/19 10:55
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-2
Matrix: Solid
Percent Solids: 97.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	98		78 - 119	01/22/19 10:55	01/29/19 16:06	1

Client Sample ID: V-S7-220119-485
Date Collected: 01/22/19 14:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.7	1.8	0.63	ug/Kg	☼	01/28/19 19:31	1
1,1,1-Trichloroethane	1.8	U	5.7	1.8	0.59	ug/Kg	☼	01/28/19 19:31	1
1,1,2,2-Tetrachloroethane	1.8	U M	5.7	1.8	0.69	ug/Kg	☼	01/28/19 19:31	1
1,1,2-Trichloroethane	3.6	U M	5.7	3.6	1.0	ug/Kg	☼	01/28/19 19:31	1
1,1-Dichloroethane	0.91	U	5.7	0.91	0.24	ug/Kg	☼	01/28/19 19:31	1
1,1-Dichloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	01/28/19 19:31	1
1,1-Dichloropropene	1.8	U	5.7	1.8	0.61	ug/Kg	☼	01/28/19 19:31	1
1,2,3-Trichlorobenzene	1.8	U	5.7	1.8	0.85	ug/Kg	☼	01/28/19 19:31	1
1,2,3-Trichloropropane	3.6	U M	5.7	3.6	0.92	ug/Kg	☼	01/28/19 19:31	1
1,2,4-Trichlorobenzene	1.8	U	5.7	1.8	0.83	ug/Kg	☼	01/28/19 19:31	1
1,2,4-Trimethylbenzene	**9.5**		5.7	3.6	0.66	ug/Kg	☼	01/28/19 19:31	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.68	ug/Kg	☼	01/28/19 19:31	1
1,2-Dichlorobenzene	1.8	U	5.7	1.8	0.51	ug/Kg	☼	01/28/19 19:31	1
1,2-Dichloroethane	1.8	U	5.7	1.8	0.79	ug/Kg	☼	01/28/19 19:31	1
1,2-Dichloroethene, Total	1.8	U	5.7	1.8	0.44	ug/Kg	☼	01/28/19 19:31	1
1,2-Dichloropropane	1.8	U M	5.7	1.8	0.62	ug/Kg	☼	01/28/19 19:31	1
1,3,5-Trimethylbenzene	**5.5**	**J**	5.7	1.8	0.65	ug/Kg	☼	01/28/19 19:31	1
1,3-Dichlorobenzene	1.8	U	5.7	1.8	0.54	ug/Kg	☼	01/28/19 19:31	1
1,3-Dichloropropane	1.8	U	5.7	1.8	0.58	ug/Kg	☼	01/28/19 19:31	1
1,4-Dichlorobenzene	1.8	U	5.7	1.8	0.88	ug/Kg	☼	01/28/19 19:31	1
2,2-Dichloropropane	1.8	U	5.7	1.8	0.50	ug/Kg	☼	01/28/19 19:31	1
2-Butanone (MEK)	**140**		23	7.3	2.1	ug/Kg	☼	01/28/19 19:31	1
2-Chlorotoluene	1.8	U M	5.7	1.8	0.58	ug/Kg	☼	01/28/19 19:31	1
2-Hexanone	**130**		23	15	5.5	ug/Kg	☼	01/28/19 19:31	1
4-Chlorotoluene	1.8	U	5.7	1.8	0.88	ug/Kg	☼	01/28/19 19:31	1
4-Isopropyltoluene	**44**		5.7	1.8	0.56	ug/Kg	☼	01/28/19 19:31	1
4-Methyl-2-pentanone (MIBK)	**52**		23	15	4.9	ug/Kg	☼	01/28/19 19:31	1
Acetone	**460**	**B**	23	15	6.1	ug/Kg	☼	01/28/19 19:31	1
Benzene	**85**		5.7	1.8	0.53	ug/Kg	☼	01/28/19 19:31	1
Bromobenzene	1.8	U	5.7	1.8	0.56	ug/Kg	☼	01/28/19 19:31	1
Bromoform	0.91	U	5.7	0.91	0.26	ug/Kg	☼	01/28/19 19:31	1
Bromomethane	1.8	U M	11	1.8	0.57	ug/Kg	☼	01/28/19 19:31	1
Carbon disulfide	1.8	U	5.7	1.8	0.48	ug/Kg	☼	01/28/19 19:31	1
Carbon tetrachloride	1.8	U	5.7	1.8	0.71	ug/Kg	☼	01/28/19 19:31	1
Chlorobenzene	1.8	U	5.7	1.8	0.61	ug/Kg	☼	01/28/19 19:31	1
Bromochloromethane	0.91	U	5.7	0.91	0.34	ug/Kg	☼	01/28/19 19:31	1
Dibromochloromethane	1.8	U	5.7	1.8	0.65	ug/Kg	☼	01/28/19 19:31	1
Chloroethane	3.6	U	11	3.6	1.0	ug/Kg	☼	01/28/19 19:31	1
Chloroform	0.91	U	11	0.91	0.33	ug/Kg	☼	01/28/19 19:31	1
Chloromethane	1.8	U	11	1.8	0.87	ug/Kg	☼	01/28/19 19:31	1
cis-1,2-Dichloroethene	1.8	U	5.7	1.8	0.63	ug/Kg	☼	01/28/19 19:31	1
cis-1,3-Dichloropropene	3.6	U	5.7	3.6	1.5	ug/Kg	☼	01/28/19 19:31	1
Dibromomethane	3.6	U	5.7	3.6	0.95	ug/Kg	☼	01/28/19 19:31	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-485 — **Lab Sample ID: 280-119401-4**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromodichloromethane	0.91	U	5.7	0.91	0.25	ug/Kg	☼	01/28/19 19:31	1
Dichlorodifluoromethane	1.8	U Q	11	1.8	0.59	ug/Kg	☼	01/28/19 19:31	1
Ethylbenzene	**3.2**	**J**	5.7	1.8	0.76	ug/Kg	☼	01/28/19 19:31	1
Ethylene Dibromide	1.8	U	5.7	1.8	0.59	ug/Kg	☼	01/28/19 19:31	1
Hexachlorobutadiene	1.8	U Q	5.7	1.8	0.62	ug/Kg	☼	01/28/19 19:31	1
Isopropylbenzene	**9.5**		5.7	1.8	0.67	ug/Kg	☼	01/28/19 19:31	1
Methyl tert-butyl ether	0.91	U	23	0.91	0.39	ug/Kg	☼	01/28/19 19:31	1
Methylene Chloride	3.6	U M	5.7	3.6	1.8	ug/Kg	☼	01/28/19 19:31	1
m-Xylene & p-Xylene	**8.8**		3.6	3.6	1.2	ug/Kg	☼	01/28/19 19:31	1
Naphthalene	**21**		5.7	1.8	0.71	ug/Kg	☼	01/28/19 19:31	1
n-Butylbenzene	1.8	U M Q	5.7	1.8	0.63	ug/Kg	☼	01/28/19 19:31	1
N-Propylbenzene	**0.67**	**J**	5.7	1.8	0.66	ug/Kg	☼	01/28/19 19:31	1
o-Xylene	**44**		5.7	1.8	0.69	ug/Kg	☼	01/28/19 19:31	1
sec-Butylbenzene	**1.2**	**J**	5.7	1.8	0.87	ug/Kg	☼	01/28/19 19:31	1
Styrene	1.8	U M	5.7	1.8	0.71	ug/Kg	☼	01/28/19 19:31	1
tert-Butylbenzene	1.8	U	5.7	1.8	0.57	ug/Kg	☼	01/28/19 19:31	1
Tetrachloroethene	1.8	U	5.7	1.8	0.67	ug/Kg	☼	01/28/19 19:31	1
Toluene	**8.5**		5.7	1.8	0.78	ug/Kg	☼	01/28/19 19:31	1
trans-1,2-Dichloroethene	0.91	U	5.7	0.91	0.44	ug/Kg	☼	01/28/19 19:31	1
trans-1,3-Dichloropropene	1.8	U	5.7	1.8	0.76	ug/Kg	☼	01/28/19 19:31	1
Trichloroethene	0.91	U	5.7	0.91	0.26	ug/Kg	☼	01/28/19 19:31	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	01/28/19 19:31	1
Vinyl chloride	3.6	U	5.7	3.6	1.5	ug/Kg	☼	01/28/19 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 116*	*01/22/19 14:20*	*01/28/19 19:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*01/22/19 14:20*	*01/28/19 19:31*	*1*
4-Bromofluorobenzene (Surr)	*104*		*79 - 119*	*01/22/19 14:20*	*01/28/19 19:31*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*01/22/19 14:20*	*01/28/19 19:31*	*1*

Client Sample ID: V-S7-220119-495 — **Lab Sample ID: 280-119401-6**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U Q	5.2	1.7	0.59	ug/Kg	☼	01/29/19 16:51	1
1,1,1-Trichloroethane	1.7	U Q	5.2	1.7	0.55	ug/Kg	☼	01/29/19 16:51	1
1,1,2,2-Tetrachloroethane	1.7	U M Q	5.2	1.7	0.64	ug/Kg	☼	01/29/19 16:51	1
1,1,2-Trichloroethane	3.4	U M Q	5.2	3.4	0.92	ug/Kg	☼	01/29/19 16:51	1
1,1-Dichloroethane	0.84	U M Q	5.2	0.84	0.22	ug/Kg	☼	01/29/19 16:51	1
1,1-Dichloroethene	1.7	U Q	5.2	1.7	0.62	ug/Kg	☼	01/29/19 16:51	1
1,1-Dichloropropene	1.7	U Q	5.2	1.7	0.57	ug/Kg	☼	01/29/19 16:51	1
1,2,3-Trichlorobenzene	1.7	U M Q	5.2	1.7	0.79	ug/Kg	☼	01/29/19 16:51	1
1,2,3-Trichloropropane	3.4	U M Q	5.2	3.4	0.85	ug/Kg	☼	01/29/19 16:51	1
1,2,4-Trichlorobenzene	1.7	U M Q	5.2	1.7	0.77	ug/Kg	☼	01/29/19 16:51	1
1,2-Dibromo-3-Chloropropane	1.7	U M Q	10	1.7	0.63	ug/Kg	☼	01/29/19 16:51	1
1,2-Dichlorobenzene	1.7	U Q	5.2	1.7	0.47	ug/Kg	☼	01/29/19 16:51	1
1,2-Dichloroethane	1.7	U M Q	5.2	1.7	0.73	ug/Kg	☼	01/29/19 16:51	1
1,2-Dichloroethene, Total	1.7	U	5.2	1.7	0.41	ug/Kg	☼	01/29/19 16:51	1
1,2-Dichloropropane	1.7	U M Q	5.2	1.7	0.58	ug/Kg	☼	01/29/19 16:51	1
1,3-Dichlorobenzene	1.7	U Q	5.2	1.7	0.50	ug/Kg	☼	01/29/19 16:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-495
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-6
Matrix: Solid
Percent Solids: 89.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3-Dichloropropane	1.7	U Q	5.2	1.7	0.54	ug/Kg	☼	01/29/19 16:51	1
1,4-Dichlorobenzene	1.7	U Q	5.2	1.7	0.82	ug/Kg	☼	01/29/19 16:51	1
2,2-Dichloropropane	1.7	U Q	5.2	1.7	0.46	ug/Kg	☼	01/29/19 16:51	1
2-Butanone (MEK)	6.7	U Q	21	6.7	1.9	ug/Kg	☼	01/29/19 16:51	1
2-Chlorotoluene	1.7	U M Q	5.2	1.7	0.54	ug/Kg	☼	01/29/19 16:51	1
2-Hexanone	13	U M Q	21	13	5.1	ug/Kg	☼	01/29/19 16:51	1
4-Chlorotoluene	1.7	U M Q	5.2	1.7	0.82	ug/Kg	☼	01/29/19 16:51	1
4-Methyl-2-pentanone (MIBK)	13	U Q	21	13	4.6	ug/Kg	☼	01/29/19 16:51	1
Bromobenzene	1.7	U Q	5.2	1.7	0.51	ug/Kg	☼	01/29/19 16:51	1
Bromoform	0.84	U Q	5.2	0.84	0.24	ug/Kg	☼	01/29/19 16:51	1
Bromomethane	**25**	**Q**	10	1.7	0.52	ug/Kg	☼	01/29/19 16:51	1
Carbon disulfide	**5.4**	**Q**	5.2	1.7	0.44	ug/Kg	☼	01/29/19 16:51	1
Carbon tetrachloride	1.7	U Q	5.2	1.7	0.66	ug/Kg	☼	01/29/19 16:51	1
Chlorobenzene	1.7	U M Q	5.2	1.7	0.57	ug/Kg	☼	01/29/19 16:51	1
Bromochloromethane	0.84	U Q	5.2	0.84	0.31	ug/Kg	☼	01/29/19 16:51	1
Dibromochloromethane	1.7	U M Q	5.2	1.7	0.60	ug/Kg	☼	01/29/19 16:51	1
Chloroethane	3.4	U M Q	10	3.4	0.93	ug/Kg	☼	01/29/19 16:51	1
Chloroform	0.84	U Q	10	0.84	0.30	ug/Kg	☼	01/29/19 16:51	1
Chloromethane	1.7	U M Q	10	1.7	0.81	ug/Kg	☼	01/29/19 16:51	1
cis-1,2-Dichloroethene	1.7	U Q	5.2	1.7	0.59	ug/Kg	☼	01/29/19 16:51	1
cis-1,3-Dichloropropene	3.4	U Q	5.2	3.4	1.4	ug/Kg	☼	01/29/19 16:51	1
Dibromomethane	3.4	U Q	5.2	3.4	0.88	ug/Kg	☼	01/29/19 16:51	1
Bromodichloromethane	0.84	U Q	5.2	0.84	0.23	ug/Kg	☼	01/29/19 16:51	1
Dichlorodifluoromethane	1.7	U Q	10	1.7	0.55	ug/Kg	☼	01/29/19 16:51	1
Ethylene Dibromide	1.7	U M Q	5.2	1.7	0.55	ug/Kg	☼	01/29/19 16:51	1
Hexachlorobutadiene	1.7	U Q	5.2	1.7	0.58	ug/Kg	☼	01/29/19 16:51	1
Methyl tert-butyl ether	0.84	U Q	21	0.84	0.36	ug/Kg	☼	01/29/19 16:51	1
Methylene Chloride	3.4	U Q	5.2	3.4	1.7	ug/Kg	☼	01/29/19 16:51	1
Styrene	1.7	U M Q	5.2	1.7	0.66	ug/Kg	☼	01/29/19 16:51	1
tert-Butylbenzene	1.7	U M Q	5.2	1.7	0.52	ug/Kg	☼	01/29/19 16:51	1
Tetrachloroethene	1.7	U Q	5.2	1.7	0.62	ug/Kg	☼	01/29/19 16:51	1
trans-1,2-Dichloroethene	0.84	U Q	5.2	0.84	0.41	ug/Kg	☼	01/29/19 16:51	1
trans-1,3-Dichloropropene	1.7	U M Q	5.2	1.7	0.70	ug/Kg	☼	01/29/19 16:51	1
Trichloroethene	0.84	U Q	5.2	0.84	0.24	ug/Kg	☼	01/29/19 16:51	1
Trichlorofluoromethane	3.4	U Q	10	3.4	1.1	ug/Kg	☼	01/29/19 16:51	1
Vinyl chloride	3.4	U Q	5.2	3.4	1.4	ug/Kg	☼	01/29/19 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*923*	*Q*	*85 - 116*	*01/22/19 16:20*	*01/29/19 16:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*0*	*Q*	*71 - 136*	*01/22/19 16:20*	*01/29/19 16:51*	*1*
4-Bromofluorobenzene (Surr)	*1173*	*Q*	*79 - 119*	*01/22/19 16:20*	*01/29/19 16:51*	*1*
Dibromofluoromethane (Surr)	*780*	*Q*	*78 - 119*	*01/22/19 16:20*	*01/29/19 16:51*	*1*

Client Sample ID: V-S7-220119-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-8
Matrix: Solid
Percent Solids: 89.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.5	U	4.8	1.5	0.54	ug/Kg	☼	01/29/19 17:13	1
1,1,1-Trichloroethane	1.5	U	4.8	1.5	0.50	ug/Kg	☼	01/29/19 17:13	1
1,1,2,2-Tetrachloroethane	1.5	U M	4.8	1.5	0.59	ug/Kg	☼	01/29/19 17:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-8
Matrix: Solid
Percent Solids: 89.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.1	U M	4.8	3.1	0.85	ug/Kg	☼	01/29/19 17:13	1
1,1-Dichloroethane	0.77	U	4.8	0.77	0.20	ug/Kg	☼	01/29/19 17:13	1
1,1-Dichloroethene	1.5	U	4.8	1.5	0.57	ug/Kg	☼	01/29/19 17:13	1
1,1-Dichloropropene	1.5	U	4.8	1.5	0.52	ug/Kg	☼	01/29/19 17:13	1
1,2,3-Trichlorobenzene	1.5	U M	4.8	1.5	0.72	ug/Kg	☼	01/29/19 17:13	1
1,2,3-Trichloropropane	3.1	U M	4.8	3.1	0.78	ug/Kg	☼	01/29/19 17:13	1
1,2,4-Trichlorobenzene	1.5	U	4.8	1.5	0.70	ug/Kg	☼	01/29/19 17:13	1
1,2,4-Trimethylbenzene	**9.0**		4.8	3.1	0.56	ug/Kg	☼	01/29/19 17:13	1
1,2-Dibromo-3-Chloropropane	1.5	U	9.6	1.5	0.58	ug/Kg	☼	01/29/19 17:13	1
1,2-Dichlorobenzene	1.5	U	4.8	1.5	0.43	ug/Kg	☼	01/29/19 17:13	1
1,2-Dichloroethane	1.5	U M	4.8	1.5	0.67	ug/Kg	☼	01/29/19 17:13	1
1,2-Dichloroethene, Total	1.5	U	4.8	1.5	0.38	ug/Kg	☼	01/29/19 17:13	1
1,2-Dichloropropane	1.5	U M	4.8	1.5	0.53	ug/Kg	☼	01/29/19 17:13	1
1,3,5-Trimethylbenzene	**3.3**	**J**	4.8	1.5	0.55	ug/Kg	☼	01/29/19 17:13	1
1,3-Dichlorobenzene	1.5	U	4.8	1.5	0.46	ug/Kg	☼	01/29/19 17:13	1
1,3-Dichloropropane	1.5	U	4.8	1.5	0.49	ug/Kg	☼	01/29/19 17:13	1
1,4-Dichlorobenzene	1.5	U	4.8	1.5	0.75	ug/Kg	☼	01/29/19 17:13	1
2,2-Dichloropropane	1.5	U	4.8	1.5	0.42	ug/Kg	☼	01/29/19 17:13	1
2-Butanone (MEK)	6.2	U Q	19	6.2	1.8	ug/Kg	☼	01/29/19 17:13	1
2-Chlorotoluene	1.5	U	4.8	1.5	0.49	ug/Kg	☼	01/29/19 17:13	1
2-Hexanone	12	U M Q	19	12	4.7	ug/Kg	☼	01/29/19 17:13	1
4-Chlorotoluene	1.5	U	4.8	1.5	0.75	ug/Kg	☼	01/29/19 17:13	1
4-Isopropyltoluene	**1.1**	**J**	4.8	1.5	0.47	ug/Kg	☼	01/29/19 17:13	1
4-Methyl-2-pentanone (MIBK)	12	U	19	12	4.2	ug/Kg	☼	01/29/19 17:13	1
Acetone	**38**	**Q**	19	12	5.2	ug/Kg	☼	01/29/19 17:13	1
Benzene	**1.1**	**J**	4.8	1.5	0.45	ug/Kg	☼	01/29/19 17:13	1
Bromobenzene	1.5	U	4.8	1.5	0.47	ug/Kg	☼	01/29/19 17:13	1
Bromoform	0.77	U	4.8	0.77	0.22	ug/Kg	☼	01/29/19 17:13	1
Bromomethane	1.5	U M	9.6	1.5	0.48	ug/Kg	☼	01/29/19 17:13	1
Carbon disulfide	1.5	U	4.8	1.5	0.40	ug/Kg	☼	01/29/19 17:13	1
Carbon tetrachloride	1.5	U	4.8	1.5	0.61	ug/Kg	☼	01/29/19 17:13	1
Chlorobenzene	1.5	U	4.8	1.5	0.52	ug/Kg	☼	01/29/19 17:13	1
Bromochloromethane	0.77	U	4.8	0.77	0.29	ug/Kg	☼	01/29/19 17:13	1
Dibromochloromethane	1.5	U	4.8	1.5	0.55	ug/Kg	☼	01/29/19 17:13	1
Chloroethane	3.1	U	9.6	3.1	0.86	ug/Kg	☼	01/29/19 17:13	1
Chloroform	0.77	U M	9.6	0.77	0.28	ug/Kg	☼	01/29/19 17:13	1
Chloromethane	1.5	U	9.6	1.5	0.74	ug/Kg	☼	01/29/19 17:13	1
cis-1,2-Dichloroethene	1.5	U	4.8	1.5	0.54	ug/Kg	☼	01/29/19 17:13	1
cis-1,3-Dichloropropene	3.1	U	4.8	3.1	1.2	ug/Kg	☼	01/29/19 17:13	1
Dibromomethane	3.1	U	4.8	3.1	0.81	ug/Kg	☼	01/29/19 17:13	1
Bromodichloromethane	0.77	U	4.8	0.77	0.21	ug/Kg	☼	01/29/19 17:13	1
Dichlorodifluoromethane	1.5	U Q	9.6	1.5	0.50	ug/Kg	☼	01/29/19 17:13	1
Ethylbenzene	**5.1**		4.8	1.5	0.65	ug/Kg	☼	01/29/19 17:13	1
Ethylene Dibromide	1.5	U M	4.8	1.5	0.50	ug/Kg	☼	01/29/19 17:13	1
Hexachlorobutadiene	1.5	U	4.8	1.5	0.53	ug/Kg	☼	01/29/19 17:13	1
Isopropylbenzene	**0.86**	**J**	4.8	1.5	0.57	ug/Kg	☼	01/29/19 17:13	1
Methyl tert-butyl ether	0.77	U	19	0.77	0.33	ug/Kg	☼	01/29/19 17:13	1
Methylene Chloride	3.1	U M	4.8	3.1	1.5	ug/Kg	☼	01/29/19 17:13	1
m-Xylene & p-Xylene	**11**		3.1	3.1	1.0	ug/Kg	☼	01/29/19 17:13	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220119-506 — **Lab Sample ID: 280-119401-8**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Naphthalene	**9.6**		4.8	1.5	0.61	ug/Kg	☼	01/29/19 17:13	1
n-Butylbenzene	**2.5**	**J**	4.8	1.5	0.54	ug/Kg	☼	01/29/19 17:13	1
N-Propylbenzene	**2.7**	**J**	4.8	1.5	0.56	ug/Kg	☼	01/29/19 17:13	1
o-Xylene	**4.5**	**J**	4.8	1.5	0.59	ug/Kg	☼	01/29/19 17:13	1
sec-Butylbenzene	**1.8**	**J**	4.8	1.5	0.74	ug/Kg	☼	01/29/19 17:13	1
Styrene	1.5	U M	4.8	1.5	0.61	ug/Kg	☼	01/29/19 17:13	1
tert-Butylbenzene	1.5	U M	4.8	1.5	0.48	ug/Kg	☼	01/29/19 17:13	1
Tetrachloroethene	1.5	U	4.8	1.5	0.57	ug/Kg	☼	01/29/19 17:13	1
Toluene	**15**		4.8	1.5	0.66	ug/Kg	☼	01/29/19 17:13	1
trans-1,2-Dichloroethene	0.77	U	4.8	0.77	0.38	ug/Kg	☼	01/29/19 17:13	1
trans-1,3-Dichloropropene	1.5	U	4.8	1.5	0.65	ug/Kg	☼	01/29/19 17:13	1
Trichloroethene	0.77	U	4.8	0.77	0.22	ug/Kg	☼	01/29/19 17:13	1
Trichlorofluoromethane	3.1	U	9.6	3.1	1.0	ug/Kg	☼	01/29/19 17:13	1
Vinyl chloride	3.1	U	4.8	3.1	1.3	ug/Kg	☼	01/29/19 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*85 - 116*	*01/22/19 16:20*	*01/29/19 17:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*82*		*71 - 136*	*01/22/19 16:20*	*01/29/19 17:13*	*1*
4-Bromofluorobenzene (Surr)	*95*		*79 - 119*	*01/22/19 16:20*	*01/29/19 17:13*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*01/22/19 16:20*	*01/29/19 17:13*	*1*

Client Sample ID: V-S7-220159-506 — **Lab Sample ID: 280-119401-10**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.3	1.7	0.59	ug/Kg	☼	01/29/19 17:36	1
1,1,1-Trichloroethane	1.7	U	5.3	1.7	0.55	ug/Kg	☼	01/29/19 17:36	1
1,1,2,2-Tetrachloroethane	1.7	U M	5.3	1.7	0.65	ug/Kg	☼	01/29/19 17:36	1
1,1,2-Trichloroethane	3.4	U M	5.3	3.4	0.93	ug/Kg	☼	01/29/19 17:36	1
1,1-Dichloroethane	0.85	U	5.3	0.85	0.22	ug/Kg	☼	01/29/19 17:36	1
1,1-Dichloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	01/29/19 17:36	1
1,1-Dichloropropene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	01/29/19 17:36	1
1,2,3-Trichlorobenzene	1.7	U	5.3	1.7	0.80	ug/Kg	☼	01/29/19 17:36	1
1,2,3-Trichloropropane	3.4	U M	5.3	3.4	0.86	ug/Kg	☼	01/29/19 17:36	1
1,2,4-Trichlorobenzene	1.7	U	5.3	1.7	0.77	ug/Kg	☼	01/29/19 17:36	1
1,2,4-Trimethylbenzene	**3.0**	**J**	5.3	3.4	0.62	ug/Kg	☼	01/29/19 17:36	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.64	ug/Kg	☼	01/29/19 17:36	1
1,2-Dichlorobenzene	1.7	U	5.3	1.7	0.48	ug/Kg	☼	01/29/19 17:36	1
1,2-Dichloroethane	1.7	U	5.3	1.7	0.74	ug/Kg	☼	01/29/19 17:36	1
1,2-Dichloroethene, Total	1.7	U	5.3	1.7	0.41	ug/Kg	☼	01/29/19 17:36	1
1,2-Dichloropropane	1.7	U M	5.3	1.7	0.58	ug/Kg	☼	01/29/19 17:36	1
1,3,5-Trimethylbenzene	1.7	U M	5.3	1.7	0.60	ug/Kg	☼	01/29/19 17:36	1
1,3-Dichlorobenzene	1.7	U	5.3	1.7	0.51	ug/Kg	☼	01/29/19 17:36	1
1,3-Dichloropropane	1.7	U	5.3	1.7	0.54	ug/Kg	☼	01/29/19 17:36	1
1,4-Dichlorobenzene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	01/29/19 17:36	1
2,2-Dichloropropane	1.7	U	5.3	1.7	0.47	ug/Kg	☼	01/29/19 17:36	1
2-Butanone (MEK)	6.8	U Q	21	6.8	1.9	ug/Kg	☼	01/29/19 17:36	1
2-Chlorotoluene	1.7	U	5.3	1.7	0.54	ug/Kg	☼	01/29/19 17:36	1
2-Hexanone	14	U M Q	21	14	5.2	ug/Kg	☼	01/29/19 17:36	1
4-Chlorotoluene	1.7	U	5.3	1.7	0.83	ug/Kg	☼	01/29/19 17:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-S7-220159-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05

Lab Sample ID: 280-119401-10
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Isopropyltoluene	**0.91**	**J**	5.3	1.7	0.52	ug/Kg	☼	01/29/19 17:36	1
4-Methyl-2-pentanone (MIBK)	14	U M	21	14	4.6	ug/Kg	☼	01/29/19 17:36	1
Acetone	**36**	**Q**	21	14	5.7	ug/Kg	☼	01/29/19 17:36	1
Benzene	**0.88**	**J**	5.3	1.7	0.50	ug/Kg	☼	01/29/19 17:36	1
Bromobenzene	1.7	U	5.3	1.7	0.52	ug/Kg	☼	01/29/19 17:36	1
Bromoform	0.85	U	5.3	0.85	0.24	ug/Kg	☼	01/29/19 17:36	1
Bromomethane	1.7	U M	11	1.7	0.53	ug/Kg	☼	01/29/19 17:36	1
Carbon disulfide	1.7	U	5.3	1.7	0.45	ug/Kg	☼	01/29/19 17:36	1
Carbon tetrachloride	1.7	U	5.3	1.7	0.67	ug/Kg	☼	01/29/19 17:36	1
Chlorobenzene	1.7	U	5.3	1.7	0.57	ug/Kg	☼	01/29/19 17:36	1
Bromochloromethane	0.85	U	5.3	0.85	0.32	ug/Kg	☼	01/29/19 17:36	1
Dibromochloromethane	1.7	U	5.3	1.7	0.60	ug/Kg	☼	01/29/19 17:36	1
Chloroethane	3.4	U	11	3.4	0.94	ug/Kg	☼	01/29/19 17:36	1
Chloroform	0.85	U	11	0.85	0.31	ug/Kg	☼	01/29/19 17:36	1
Chloromethane	1.7	U M	11	1.7	0.82	ug/Kg	☼	01/29/19 17:36	1
cis-1,2-Dichloroethene	1.7	U	5.3	1.7	0.59	ug/Kg	☼	01/29/19 17:36	1
cis-1,3-Dichloropropene	3.4	U	5.3	3.4	1.4	ug/Kg	☼	01/29/19 17:36	1
Dibromomethane	3.4	U	5.3	3.4	0.89	ug/Kg	☼	01/29/19 17:36	1
Bromodichloromethane	0.85	U M	5.3	0.85	0.23	ug/Kg	☼	01/29/19 17:36	1
Dichlorodifluoromethane	1.7	U Q	11	1.7	0.55	ug/Kg	☼	01/29/19 17:36	1
Ethylbenzene	**2.0**	**J**	5.3	1.7	0.71	ug/Kg	☼	01/29/19 17:36	1
Ethylene Dibromide	1.7	U M	5.3	1.7	0.55	ug/Kg	☼	01/29/19 17:36	1
Hexachlorobutadiene	1.7	U	5.3	1.7	0.58	ug/Kg	☼	01/29/19 17:36	1
Isopropylbenzene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	01/29/19 17:36	1
Methyl tert-butyl ether	0.85	U M	21	0.85	0.36	ug/Kg	☼	01/29/19 17:36	1
Methylene Chloride	3.4	U M	5.3	3.4	1.7	ug/Kg	☼	01/29/19 17:36	1
m-Xylene & p-Xylene	**3.9**		3.4	3.4	1.1	ug/Kg	☼	01/29/19 17:36	1
Naphthalene	**2.2**	**J**	5.3	1.7	0.67	ug/Kg	☼	01/29/19 17:36	1
n-Butylbenzene	1.7	U M	5.3	1.7	0.59	ug/Kg	☼	01/29/19 17:36	1
N-Propylbenzene	**1.5**	**J**	5.3	1.7	0.62	ug/Kg	☼	01/29/19 17:36	1
o-Xylene	**1.2**	**J**	5.3	1.7	0.65	ug/Kg	☼	01/29/19 17:36	1
sec-Butylbenzene	**0.88**	**J**	5.3	1.7	0.82	ug/Kg	☼	01/29/19 17:36	1
Styrene	1.7	U M	5.3	1.7	0.67	ug/Kg	☼	01/29/19 17:36	1
tert-Butylbenzene	1.7	U	5.3	1.7	0.53	ug/Kg	☼	01/29/19 17:36	1
Tetrachloroethene	1.7	U	5.3	1.7	0.63	ug/Kg	☼	01/29/19 17:36	1
Toluene	**9.2**		5.3	1.7	0.73	ug/Kg	☼	01/29/19 17:36	1
trans-1,2-Dichloroethene	0.85	U	5.3	0.85	0.41	ug/Kg	☼	01/29/19 17:36	1
trans-1,3-Dichloropropene	1.7	U	5.3	1.7	0.71	ug/Kg	☼	01/29/19 17:36	1
Trichloroethene	0.85	U	5.3	0.85	0.24	ug/Kg	☼	01/29/19 17:36	1
Trichlorofluoromethane	3.4	U	11	3.4	1.1	ug/Kg	☼	01/29/19 17:36	1
Vinyl chloride	3.4	U	5.3	3.4	1.4	ug/Kg	☼	01/29/19 17:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*85 - 116*	*01/22/19 16:20*	*01/29/19 17:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*		*71 - 136*	*01/22/19 16:20*	*01/29/19 17:36*	*1*
4-Bromofluorobenzene (Surr)	*94*		*79 - 119*	*01/22/19 16:20*	*01/29/19 17:36*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 119*	*01/22/19 16:20*	*01/29/19 17:36*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) - DL

Client Sample ID: V-S7-220119-495 — **Lab Sample ID: 280-119401-6**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	150000	U	180000	150000	47000	ug/Kg	☼	01/30/19 14:54	100
Benzene	**9100**	**J D Q**	30000	19000	5300	ug/Kg	☼	01/30/19 14:54	100
n-Butylbenzene	**4500**	**J D Q**	30000	9500	3800	ug/Kg	☼	01/30/19 14:54	100
sec-Butylbenzene	9500	U Q	30000	9500	4500	ug/Kg	☼	01/30/19 14:54	100
Ethylbenzene	**33000**	**D Q**	30000	9500	4000	ug/Kg	☼	01/30/19 14:54	100
Isopropylbenzene	**6500**	**J D Q**	30000	9500	3400	ug/Kg	☼	01/30/19 14:54	100
4-Isopropyltoluene	9500	U Q	30000	9500	3800	ug/Kg	☼	01/30/19 14:54	100
Naphthalene	9500	U Q	59000	9500	4500	ug/Kg	☼	01/30/19 14:54	100
N-Propylbenzene	**11000**	**J D Q**	30000	19000	4900	ug/Kg	☼	01/30/19 14:54	100
Toluene	**110000**	**D Q**	30000	9500	4600	ug/Kg	☼	01/30/19 14:54	100
1,2,4-Trimethylbenzene	**23000**	**J D Q**	30000	9500	3700	ug/Kg	☼	01/30/19 14:54	100
1,3,5-Trimethylbenzene	**11000**	**J D Q**	30000	9500	4600	ug/Kg	☼	01/30/19 14:54	100
o-Xylene	**25000**	**D Q**	15000	9500	4200	ug/Kg	☼	01/30/19 14:54	100
m-Xylene & p-Xylene	**69000**	**D Q**	30000	19000	9300	ug/Kg	☼	01/30/19 14:54	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*304*	*D Q*	*85 - 116*	*01/30/19 10:47*	*01/30/19 14:54*	*100*
1,2-Dichloroethane-d4 (Surr)	*0*	*D Q*	*71 - 136*	*01/30/19 10:47*	*01/30/19 14:54*	*100*
4-Bromofluorobenzene (Surr)	*235*	*D Q*	*79 - 119*	*01/30/19 10:47*	*01/30/19 14:54*	*100*
Dibromofluoromethane (Surr)	*86*	*D*	*78 - 119*	*01/30/19 10:47*	*01/30/19 14:54*	*100*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-S7-220119-01 — **Lab Sample ID: 280-119401-1**
Date Collected: 01/22/19 12:00 — **Matrix: Water**
Date Received: 01/23/19 09:05

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/01/19 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*82 - 110*		*02/01/19 17:41*	*1*

Client Sample ID: P-S7-220119-469 — **Lab Sample ID: 280-119401-3**
Date Collected: 01/22/19 10:55 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 97.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.2	U	1.3	1.2	0.34	mg/Kg	☼	01/29/19 01:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*97*		*77 - 123*	*01/24/19 14:51*	*01/29/19 01:42*	*1*

Client Sample ID: P-S7-220119-485 — **Lab Sample ID: 280-119401-5**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1.8**		1.3	1.2	0.35	mg/Kg	☼	01/29/19 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*90*		*77 - 123*	*01/24/19 14:51*	*01/29/19 02:06*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: P-S7-220119-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-9
Matrix: Solid
Percent Solids: 90.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.3	U	1.4	1.3	0.37	mg/Kg	☼	01/29/19 02:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*84*		*77 - 123*	*01/24/19 14:51*	*01/29/19 02:54*	*1*

Client Sample ID: P-S7-220159-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-11
Matrix: Solid
Percent Solids: 91.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.34	mg/Kg	☼	01/29/19 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*84*		*77 - 123*	*01/24/19 14:51*	*01/29/19 03:18*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) - DL

Client Sample ID: P-S7-220119-495
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-7
Matrix: Solid
Percent Solids: 89.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**1800**	**D Q**	360	330	99	mg/Kg	☼	01/29/19 02:30	250

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*7676*	*Q*	*77 - 123*	*01/24/19 14:51*	*01/29/19 02:30*	*250*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-S7-220119-01
Date Collected: 01/22/19 12:00
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		02/05/19 21:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*116*		*70 - 130*	*02/05/19 10:36*	*02/05/19 21:11*	*1*

Client Sample ID: V-S7-220119-469
Date Collected: 01/22/19 10:55
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-2
Matrix: Solid
Percent Solids: 97.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.039	U Q	0.10	0.039	0.015	ug/Kg	☼	02/14/19 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*101*		*55 - 130*	*02/05/19 13:44*	*02/14/19 19:29*	*1*

Client Sample ID: V-S7-220119-485
Date Collected: 01/22/19 14:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U Q	0.11	0.040	0.016	ug/Kg	☼	02/14/19 19:48	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	103	M	55 - 130	02/05/19 13:44	02/14/19 19:48	1

Client Sample ID: V-S7-220119-495 — **Lab Sample ID: 280-119401-6**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	42	D	22	8.4	3.3	ug/Kg	☼	02/18/19 20:27	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	0	D	55 - 130	02/05/19 13:44	02/18/19 20:27	200

Client Sample ID: V-S7-220119-506 — **Lab Sample ID: 280-119401-8**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U Q	0.11	0.042	0.017	ug/Kg	☼	02/14/19 20:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	96		55 - 130	02/05/19 13:44	02/14/19 20:26	1

Client Sample ID: V-S7-220159-506 — **Lab Sample ID: 280-119401-10**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U Q	0.11	0.042	0.017	ug/Kg	☼	02/14/19 20:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	100		55 - 130	02/05/19 13:44	02/14/19 20:46	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S7-220119-469 — **Lab Sample ID: 280-119401-3**
Date Collected: 01/22/19 10:55 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 97.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.1	J	8.2	4.1	1.4	mg/Kg	☼	01/29/19 01:26	1
Motor Oil (C20-C38)	24	U	25	24	8.0	mg/Kg	☼	01/29/19 01:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	81		45 - 130	01/23/19 14:35	01/29/19 01:26	1
n-Octacosane	86		25 - 162	01/23/19 14:35	01/29/19 01:26	1

Client Sample ID: P-S7-220119-485 — **Lab Sample ID: 280-119401-5**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 90.9**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	14		7.9	4.0	1.3	mg/Kg	☼	01/29/19 01:46	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg	☼	01/29/19 01:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	79		45 - 130	01/23/19 14:35	01/29/19 01:46	1
n-Octacosane	84		25 - 162	01/23/19 14:35	01/29/19 01:46	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-S7-220119-495 — **Lab Sample ID: 280-119401-7**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.5**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1400**		8.2	4.1	1.4	mg/Kg	☼	01/29/19 02:06	1
Motor Oil (C20-C38)	24	U	25	24	8.0	mg/Kg	☼	01/29/19 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*85*		*45 - 130*	*01/23/19 14:35*	*01/29/19 02:06*	*1*
n-Octacosane	*87*		*25 - 162*	*01/23/19 14:35*	*01/29/19 02:06*	*1*

Client Sample ID: P-S7-220119-506 — **Lab Sample ID: 280-119401-9**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 90.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**3.2**	**J**	7.9	4.0	1.3	mg/Kg	☼	01/29/19 02:26	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg	☼	01/29/19 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*76*		*45 - 130*	*01/23/19 14:35*	*01/29/19 02:26*	*1*
n-Octacosane	*79*		*25 - 162*	*01/23/19 14:35*	*01/29/19 02:26*	*1*

Client Sample ID: P-S7-220159-506 — **Lab Sample ID: 280-119401-11**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2.2**	**J**	8.1	4.1	1.4	mg/Kg	☼	01/29/19 02:46	1
Motor Oil (C20-C38)	24	U	24	24	7.9	mg/Kg	☼	01/29/19 02:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*45 - 130*	*01/23/19 14:35*	*01/29/19 02:46*	*1*
n-Octacosane	*69*		*25 - 162*	*01/23/19 14:35*	*01/29/19 02:46*	*1*

General Chemistry

Client Sample ID: V-S7-220119-469 — **Lab Sample ID: 280-119401-2**
Date Collected: 01/22/19 10:55 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 97.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**3.0**		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: P-S7-220119-469 — **Lab Sample ID: 280-119401-3**
Date Collected: 01/22/19 10:55 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 97.2**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**2.8**		0.1	0.05	0.1	%		02/04/19 13:38	1

Client Sample ID: V-S7-220119-485 — **Lab Sample ID: 280-119401-4**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**8.3**		0.1	0.05	0.1	%		01/24/19 18:18	1

General Chemistry

Client Sample ID: P-S7-220119-485
Date Collected: 01/22/19 14:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-5
Matrix: Solid
Percent Solids: 90.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.1		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: V-S7-220119-495
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-6
Matrix: Solid
Percent Solids: 89.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.8		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: P-S7-220119-495
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-7
Matrix: Solid
Percent Solids: 89.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.5		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: V-S7-220119-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-8
Matrix: Solid
Percent Solids: 89.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.3		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: P-S7-220119-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-9
Matrix: Solid
Percent Solids: 90.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.4		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: V-S7-220159-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-10
Matrix: Solid
Percent Solids: 89.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	10.2		0.1	0.05	0.1	%		01/24/19 18:18	1

Client Sample ID: P-S7-220159-506
Date Collected: 01/22/19 16:20
Date Received: 01/23/19 09:05
Lab Sample ID: 280-119401-11
Matrix: Solid
Percent Solids: 91.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.8		0.1	0.05	0.1	%		01/24/19 18:18	1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119401-2	V-S7-220119-469	98	90	97	98
280-119401-4	V-S7-220119-485	100	99	104	96
280-119401-6	V-S7-220119-495	923 Q	0 Q	1173 Q	780 Q
280-119401-6 - DL	V-S7-220119-495	304 D Q	0 D Q	235 D Q	86 D
280-119401-8	V-S7-220119-506	96	82	95	96
280-119401-10	V-S7-220159-506	96	84	94	96
LCS 280-445697/1-A	Lab Control Sample	99	97	101	97
LCS 280-445812/1-A	Lab Control Sample	98	85	96	94
LCS 280-445898/2-A	Lab Control Sample	103	92	109	97
LCSD 280-445697/2-A	Lab Control Sample Dup	99	97	101	96
LCSD 280-445812/2-A	Lab Control Sample Dup	98	85	97	95
LCSD 280-445898/3-A	Lab Control Sample Dup	105	100	108	106
MB 280-445697/3-A	Method Blank	101	104	102	103
MB 280-445812/3-A	Method Blank	97	90	96	99
MB 280-445898/1-A	Method Blank	103	100	107	111

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119401-1	TB-S7-220119-01	95	102	92	98
LCS 280-446320/26	Lab Control Sample	89	93	88	89
LCSD 280-446320/27	Lab Control Sample Dup	91	92	90	91
MB 280-446320/28	Method Blank	102	102	94	101

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119401-3	P-S7-220119-469	97
280-119401-5	P-S7-220119-485	90
280-119401-7 - DL	P-S7-220119-495	7676 Q
280-119401-9	P-S7-220119-506	84
280-119401-11	P-S7-220159-506	84

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (77-123)
LCS 280-445371/7-A	Lab Control Sample	96
MB 280-445371/8-A	Method Blank	94

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-119401-1	TB-S7-220119-01	93
LCS 280-446290/3	Lab Control Sample	94
MB 280-446290/4	Method Blank	93

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119401-2	V-S7-220119-469	101
280-119401-4	V-S7-220119-485	103 M
280-119401-6	V-S7-220119-495	0 D
280-119401-8	V-S7-220119-506	96
280-119401-10	V-S7-220159-506	100
LCS 280-446587/1-A	Lab Control Sample	95
LCSD 280-446587/2-A	Lab Control Sample Dup	104
MB 280-446587/3-A	Method Blank	110

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP2 (70-130)
280-119401-1	TB-S7-220119-01	116
LCS 280-446557/1-A	Lab Control Sample	110
LCSD 280-446557/2-A	Lab Control Sample Dup	115
MB 280-446557/3-A	Method Blank	116

Surrogate Legend

12DBP = 1,2-Dibromopropane

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-119401-3	P-S7-220119-469	81	86								
280-119401-5	P-S7-220119-485	79	84								
280-119401-7	P-S7-220119-495	85	87								
280-119401-9	P-S7-220119-506	76	79								
280-119401-11	P-S7-220159-506	74	69								
LCS 280-445176/2-A	Lab Control Sample	86	88								
LCS 280-445176/3-A	Lab Control Sample	83	89								
MB 280-445176/1-A	Method Blank	84	93								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-445697/3-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445697

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		01/28/19 15:24	1
2-Butanone (MEK)	8.39	J	20	6.4	1.8	ug/Kg		01/28/19 15:24	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		01/28/19 15:24	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		01/28/19 15:24	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		01/28/19 15:24	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		01/28/19 15:24	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		01/28/19 15:24	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		01/28/19 15:24	1
Acetone	27.6		20	13	5.4	ug/Kg		01/28/19 15:24	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/28/19 15:24	1
Benzene	1.6	U M	5.0	1.6	0.47	ug/Kg		01/28/19 15:24	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		01/28/19 15:24	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		01/28/19 15:24	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		01/28/19 15:24	1
Bromomethane	0.643	J	10	1.6	0.50	ug/Kg		01/28/19 15:24	1
1,2-Dichloropropane	1.6	U	5.0	1.6	0.55	ug/Kg		01/28/19 15:24	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		01/28/19 15:24	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		01/28/19 15:24	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		01/28/19 15:24	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		01/28/19 15:24	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		01/28/19 15:24	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		01/28/19 15:24	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		01/28/19 15:24	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		01/28/19 15:24	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		01/28/19 15:24	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		01/28/19 15:24	1
2-Hexanone	7.81	J	20	13	4.9	ug/Kg		01/28/19 15:24	1
Chloromethane	1.6	U M	10	1.6	0.77	ug/Kg		01/28/19 15:24	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		01/28/19 15:24	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		01/28/19 15:24	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		01/28/19 15:24	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		01/28/19 15:24	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		01/28/19 15:24	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		01/28/19 15:24	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		01/28/19 15:24	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		01/28/19 15:24	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		01/28/19 15:24	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		01/28/19 15:24	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		01/28/19 15:24	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		01/28/19 15:24	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		01/28/19 15:24	1
1,1,2,2-Tetrachloroethane	1.6	U M	5.0	1.6	0.61	ug/Kg		01/28/19 15:24	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		01/28/19 15:24	1
Naphthalene	0.663	J	5.0	1.6	0.63	ug/Kg		01/28/19 15:24	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		01/28/19 15:24	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		01/28/19 15:24	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		01/28/19 15:24	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		01/28/19 15:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445697/3-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445697

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		01/28/19 15:24	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		01/28/19 15:24	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		01/28/19 15:24	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		01/28/19 15:24	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		01/28/19 15:24	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		01/28/19 15:24	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/28/19 15:24	1
1,2,4-Trimethylbenzene	1.24	J	5.0	3.2	0.58	ug/Kg		01/28/19 15:24	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		01/28/19 15:24	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		01/28/19 15:24	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		01/28/19 15:24	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		01/28/19 15:24	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		01/28/19 15:24	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		01/28/19 15:24	1
m-Xylene & p-Xylene	3.2	U M	3.2	3.2	1.0	ug/Kg		01/28/19 15:24	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		01/28/19 15:24	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		01/28/19 15:24	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		01/28/19 15:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*85 - 116*	*01/28/19 13:37*	*01/28/19 15:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 136*	*01/28/19 13:37*	*01/28/19 15:24*	*1*
4-Bromofluorobenzene (Surr)	*102*		*79 - 119*	*01/28/19 13:37*	*01/28/19 15:24*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*01/28/19 13:37*	*01/28/19 15:24*	*1*

Lab Sample ID: LCS 280-445697/1-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	54.5		ug/Kg		109	61 - 132
2-Butanone (MEK)	200	213		ug/Kg		106	51 - 148
1,2-Dichlorobenzene	50.0	55.8		ug/Kg		112	78 - 121
1,3-Dichlorobenzene	50.0	54.7		ug/Kg		109	77 - 121
4-Chlorotoluene	50.0	56.3		ug/Kg		113	72 - 124
1,4-Dichlorobenzene	50.0	55.2		ug/Kg		110	75 - 120
1,1-Dichloroethane	50.0	51.5		ug/Kg		103	76 - 125
1,2-Dichloroethane	50.0	49.6		ug/Kg		99	73 - 128
Acetone	200	218		ug/Kg		109	36 - 164
1,1-Dichloroethene	50.0	52.4		ug/Kg		105	70 - 131
Benzene	50.0	51.0		ug/Kg		102	77 - 121
Bromobenzene	50.0	54.8		ug/Kg		110	78 - 121
Bromoform	50.0	51.7		ug/Kg		103	67 - 132
Bromomethane	50.0	62.9		ug/Kg		126	53 - 143
1,2-Dichloropropane	50.0	51.8		ug/Kg		104	76 - 123
Carbon disulfide	50.0	55.2		ug/Kg		110	63 - 132
1,3-Dichloropropane	50.0	56.2		ug/Kg		112	77 - 121
Carbon tetrachloride	50.0	53.7		ug/Kg		107	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445697/1-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	53.5		ug/Kg		107	67 - 133
Chlorobenzene	50.0	52.7		ug/Kg		105	79 - 120
1,1-Dichloropropene	50.0	53.1		ug/Kg		106	76 - 125
Bromochloromethane	50.0	53.0		ug/Kg		106	78 - 125
Dibromochloromethane	50.0	52.4		ug/Kg		105	74 - 126
Chloroethane	50.0	53.3		ug/Kg		107	59 - 139
Chloroform	50.0	51.0		ug/Kg		102	78 - 123
2-Hexanone	200	220		ug/Kg		110	53 - 145
Chloromethane	50.0	59.2		ug/Kg		118	50 - 136
cis-1,2-Dichloroethene	50.0	52.6		ug/Kg		105	77 - 123
cis-1,3-Dichloropropene	50.0	59.7		ug/Kg		119	74 - 126
4-Isopropyltoluene	50.0	56.8		ug/Kg		114	73 - 127
Dibromomethane	50.0	52.4		ug/Kg		105	78 - 125
Bromodichloromethane	50.0	54.0		ug/Kg		108	75 - 127
4-Methyl-2-pentanone (MIBK)	200	214		ug/Kg		107	65 - 135
Dichlorodifluoromethane	50.0	66.9		ug/Kg		134	29 - 149
Ethylbenzene	50.0	53.5		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	57.1		ug/Kg		114	78 - 122
Hexachlorobutadiene	50.0	52.9		ug/Kg		106	61 - 135
Isopropylbenzene	50.0	56.1		ug/Kg		112	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.9		ug/Kg		108	78 - 125
Methyl tert-butyl ether	50.0	54.6		ug/Kg		109	73 - 125
1,1,2,2-Tetrachloroethane	50.0	54.0		ug/Kg		108	70 - 124
Methylene Chloride	50.0	50.8		ug/Kg		102	70 - 128
Naphthalene	50.0	59.7		ug/Kg		119	62 - 129
1,2,3-Trichlorobenzene	50.0	56.9		ug/Kg		114	66 - 130
n-Butylbenzene	50.0	56.9		ug/Kg		114	70 - 128
1,1,1-Trichloroethane	50.0	52.3		ug/Kg		105	73 - 130
N-Propylbenzene	50.0	55.7		ug/Kg		111	73 - 125
1,1,2-Trichloroethane	50.0	56.4		ug/Kg		113	78 - 121
sec-Butylbenzene	50.0	55.5		ug/Kg		111	73 - 126
Styrene	50.0	54.9		ug/Kg		110	76 - 124
1,2,4-Trichlorobenzene	50.0	56.1		ug/Kg		112	67 - 129
tert-Butylbenzene	50.0	55.5		ug/Kg		111	73 - 125
1,2,3-Trichloropropane	50.0	54.3		ug/Kg		109	73 - 125
Tetrachloroethene	50.0	52.9		ug/Kg		106	73 - 128
1,2,4-Trimethylbenzene	50.0	56.0		ug/Kg		112	75 - 123
Toluene	50.0	51.7		ug/Kg		103	77 - 121
1,3,5-Trimethylbenzene	50.0	55.1		ug/Kg		110	73 - 124
trans-1,2-Dichloroethene	50.0	53.1		ug/Kg		106	74 - 125
trans-1,3-Dichloropropene	50.0	54.3		ug/Kg		109	71 - 130
o-Xylene	50.0	55.3		ug/Kg		111	77 - 123
Trichloroethene	50.0	53.6		ug/Kg		107	77 - 123
m-Xylene & p-Xylene	50.0	53.7		ug/Kg		107	77 - 124
Trichlorofluoromethane	50.0	50.5		ug/Kg		101	62 - 140
Vinyl chloride	50.0	57.5		ug/Kg		115	56 - 135
2-Chlorotoluene	50.0	55.7		ug/Kg		111	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445697/1-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445697

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: LCSD 280-445697/2-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445697

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	57.5		ug/Kg		115	61 - 132	5	20
2-Butanone (MEK)			200	222		ug/Kg		111	51 - 148	4	20
1,2-Dichlorobenzene			50.0	54.0		ug/Kg		108	78 - 121	3	20
1,3-Dichlorobenzene			50.0	53.6		ug/Kg		107	77 - 121	2	20
4-Chlorotoluene			50.0	54.7		ug/Kg		109	72 - 124	3	20
1,4-Dichlorobenzene			50.0	53.8		ug/Kg		108	75 - 120	2	20
1,1-Dichloroethane			50.0	50.0		ug/Kg		100	76 - 125	3	20
1,2-Dichloroethane			50.0	49.2		ug/Kg		98	73 - 128	1	20
Acetone			200	233		ug/Kg		116	36 - 164	7	20
1,1-Dichloroethene			50.0	51.3		ug/Kg		103	70 - 131	2	20
Benzene			50.0	49.7		ug/Kg		99	77 - 121	3	20
Bromobenzene			50.0	53.3		ug/Kg		107	78 - 121	3	20
Bromoform			50.0	52.3		ug/Kg		105	67 - 132	1	20
Bromomethane			50.0	56.7		ug/Kg		113	53 - 143	10	20
1,2-Dichloropropane			50.0	50.8		ug/Kg		102	76 - 123	2	20
Carbon disulfide			50.0	53.1		ug/Kg		106	63 - 132	4	20
1,3-Dichloropropane			50.0	55.8		ug/Kg		112	77 - 121	1	20
Carbon tetrachloride			50.0	51.6		ug/Kg		103	70 - 135	4	20
2,2-Dichloropropane			50.0	51.5		ug/Kg		103	67 - 133	4	20
Chlorobenzene			50.0	51.8		ug/Kg		104	79 - 120	2	20
1,1-Dichloropropene			50.0	51.3		ug/Kg		103	76 - 125	3	20
Bromochloromethane			50.0	51.9		ug/Kg		104	78 - 125	2	20
Dibromochloromethane			50.0	52.7		ug/Kg		105	74 - 126	1	20
Chloroethane			50.0	50.9		ug/Kg		102	59 - 139	5	20
Chloroform			50.0	49.6		ug/Kg		99	78 - 123	3	20
2-Hexanone			200	229		ug/Kg		114	53 - 145	4	20
Chloromethane			50.0	57.9		ug/Kg		116	50 - 136	2	20
cis-1,2-Dichloroethene			50.0	50.8		ug/Kg		102	77 - 123	3	20
cis-1,3-Dichloropropene			50.0	58.7		ug/Kg		117	74 - 126	2	20
4-Isopropyltoluene			50.0	54.9		ug/Kg		110	73 - 127	3	20
Dibromomethane			50.0	52.2		ug/Kg		104	78 - 125	0	20
Bromodichloromethane			50.0	53.7		ug/Kg		107	75 - 127	1	20
4-Methyl-2-pentanone (MIBK)			200	219		ug/Kg		109	65 - 135	2	20
Dichlorodifluoromethane			50.0	63.9		ug/Kg		128	29 - 149	5	20
Ethylbenzene			50.0	52.4		ug/Kg		105	76 - 122	2	20
Ethylene Dibromide			50.0	57.6		ug/Kg		115	78 - 122	1	20
Hexachlorobutadiene			50.0	51.0		ug/Kg		102	61 - 135	4	20
Isopropylbenzene			50.0	54.5		ug/Kg		109	68 - 134	3	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445697/2-A
Matrix: Solid
Analysis Batch: 445655

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445697

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	53.7		ug/Kg		107	78 - 125	0	20
Methyl tert-butyl ether	50.0	54.7		ug/Kg		109	73 - 125	0	20
1,1,2,2-Tetrachloroethane	50.0	55.2		ug/Kg		110	70 - 124	2	20
Methylene Chloride	50.0	49.8		ug/Kg		100	70 - 128	2	20
Naphthalene	50.0	61.2		ug/Kg		122	62 - 129	3	20
1,2,3-Trichlorobenzene	50.0	57.2		ug/Kg		114	66 - 130	0	20
n-Butylbenzene	50.0	54.2		ug/Kg		108	70 - 128	5	20
1,1,1-Trichloroethane	50.0	50.2		ug/Kg		100	73 - 130	4	20
N-Propylbenzene	50.0	53.5		ug/Kg		107	73 - 125	4	20
1,1,2-Trichloroethane	50.0	56.7		ug/Kg		113	78 - 121	1	20
sec-Butylbenzene	50.0	53.5		ug/Kg		107	73 - 126	4	20
Styrene	50.0	54.2		ug/Kg		108	76 - 124	1	20
1,2,4-Trichlorobenzene	50.0	55.8		ug/Kg		112	67 - 129	1	20
tert-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 125	4	20
1,2,3-Trichloropropane	50.0	55.0		ug/Kg		110	73 - 125	1	20
Tetrachloroethene	50.0	51.0		ug/Kg		102	73 - 128	4	20
1,2,4-Trimethylbenzene	50.0	55.0		ug/Kg		110	75 - 123	2	20
Toluene	50.0	50.5		ug/Kg		101	77 - 121	2	20
1,3,5-Trimethylbenzene	50.0	53.7		ug/Kg		107	73 - 124	3	20
trans-1,2-Dichloroethene	50.0	51.9		ug/Kg		104	74 - 125	2	20
trans-1,3-Dichloropropene	50.0	53.9		ug/Kg		108	71 - 130	1	20
o-Xylene	50.0	54.1		ug/Kg		108	77 - 123	2	20
Trichloroethene	50.0	52.2		ug/Kg		104	77 - 123	3	20
m-Xylene & p-Xylene	50.0	51.8		ug/Kg		104	77 - 124	4	20
Trichlorofluoromethane	50.0	49.4		ug/Kg		99	62 - 140	2	20
Vinyl chloride	50.0	55.0		ug/Kg		110	56 - 135	5	20
2-Chlorotoluene	50.0	53.6		ug/Kg		107	75 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*
Dibromofluoromethane (Surr)	*96*		*78 - 119*

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		01/29/19 11:58	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		01/29/19 11:58	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		01/29/19 11:58	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		01/29/19 11:58	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		01/29/19 11:58	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		01/29/19 11:58	1
Acetone	13	U	20	13	5.4	ug/Kg		01/29/19 11:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		01/29/19 11:58	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		01/29/19 11:58	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		01/29/19 11:58	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		01/29/19 11:58	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		01/29/19 11:58	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		01/29/19 11:58	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		01/29/19 11:58	1
Chloroform	0.80	U	10	0.80	0.29	ug/Kg		01/29/19 11:58	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		01/29/19 11:58	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		01/29/19 11:58	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		01/29/19 11:58	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		01/29/19 11:58	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		01/29/19 11:58	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		01/29/19 11:58	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		01/29/19 11:58	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		01/29/19 11:58	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		01/29/19 11:58	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		01/29/19 11:58	1
Naphthalene	0.639	J	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		01/29/19 11:58	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		01/29/19 11:58	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		01/29/19 11:58	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		01/29/19 11:58	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		01/29/19 11:58	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		01/29/19 11:58	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		01/29/19 11:58	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		01/29/19 11:58	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		01/29/19 11:58	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		01/29/19 11:58	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		01/29/19 11:58	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		01/29/19 11:58	1
Toluene	0.827	J	5.0	1.6	0.69	ug/Kg		01/29/19 11:58	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445812/3-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445812

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		01/29/19 11:58	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		01/29/19 11:58	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		01/29/19 11:58	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		01/29/19 11:58	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		01/29/19 11:58	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		01/29/19 11:58	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		01/29/19 11:58	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		01/29/19 11:58	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		01/29/19 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 136*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*
Dibromofluoromethane (Surr)	*99*		*78 - 119*	*01/29/19 10:00*	*01/29/19 11:58*	*1*

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	53.1		ug/Kg		106	61 - 132
2-Butanone (MEK)	200	164		ug/Kg		82	51 - 148
1,2-Dichlorobenzene	50.0	54.3		ug/Kg		109	78 - 121
1,3-Dichlorobenzene	50.0	53.8		ug/Kg		108	77 - 121
4-Chlorotoluene	50.0	54.6		ug/Kg		109	72 - 124
1,4-Dichlorobenzene	50.0	53.9		ug/Kg		108	75 - 120
1,1-Dichloroethane	50.0	46.3		ug/Kg		93	76 - 125
1,2-Dichloroethane	50.0	43.1		ug/Kg		86	73 - 128
Acetone	200	157		ug/Kg		78	36 - 164
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131
Benzene	50.0	48.2		ug/Kg		96	77 - 121
Bromobenzene	50.0	53.4		ug/Kg		107	78 - 121
Bromoform	50.0	54.3		ug/Kg		109	67 - 132
Bromomethane	50.0	47.1		ug/Kg		94	53 - 143
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123
Carbon disulfide	50.0	52.7		ug/Kg		105	63 - 132
1,3-Dichloropropane	50.0	53.0		ug/Kg		106	77 - 121
Carbon tetrachloride	50.0	48.3		ug/Kg		97	70 - 135
2,2-Dichloropropane	50.0	48.4		ug/Kg		97	67 - 133
Chlorobenzene	50.0	52.1		ug/Kg		104	79 - 120
1,1-Dichloropropene	50.0	48.9		ug/Kg		98	76 - 125
Bromochloromethane	50.0	53.3		ug/Kg		107	78 - 125
Dibromochloromethane	50.0	52.5		ug/Kg		105	74 - 126
Chloroethane	50.0	44.9		ug/Kg		90	59 - 139
Chloroform	50.0	46.2		ug/Kg		92	78 - 123
2-Hexanone	200	176		ug/Kg		88	53 - 145
Chloromethane	50.0	51.2		ug/Kg		102	50 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445812/1-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	50.0	50.6		ug/Kg		101	77 - 123
cis-1,3-Dichloropropene	50.0	56.6		ug/Kg		113	74 - 126
4-Isopropyltoluene	50.0	53.8		ug/Kg		108	73 - 127
Dibromomethane	50.0	50.0		ug/Kg		100	78 - 125
Bromodichloromethane	50.0	52.3		ug/Kg		105	75 - 127
4-Methyl-2-pentanone (MIBK)	200	177		ug/Kg		89	65 - 135
Dichlorodifluoromethane	50.0	60.4		ug/Kg		121	29 - 149
Ethylbenzene	50.0	53.5		ug/Kg		107	76 - 122
Ethylene Dibromide	50.0	56.3		ug/Kg		113	78 - 122
Hexachlorobutadiene	50.0	53.9		ug/Kg		108	61 - 135
Isopropylbenzene	50.0	52.7		ug/Kg		105	68 - 134
1,1,1,2-Tetrachloroethane	50.0	53.2		ug/Kg		106	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.8		ug/Kg		102	70 - 124
Methylene Chloride	50.0	49.7		ug/Kg		99	70 - 128
Naphthalene	50.0	58.5		ug/Kg		117	62 - 129
1,2,3-Trichlorobenzene	50.0	59.1		ug/Kg		118	66 - 130
n-Butylbenzene	50.0	52.3		ug/Kg		105	70 - 128
1,1,1-Trichloroethane	50.0	46.8		ug/Kg		94	73 - 130
N-Propylbenzene	50.0	54.2		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	56.1		ug/Kg		112	78 - 121
sec-Butylbenzene	50.0	53.3		ug/Kg		107	73 - 126
Styrene	50.0	54.2		ug/Kg		108	76 - 124
1,2,4-Trichlorobenzene	50.0	58.5		ug/Kg		117	67 - 129
tert-Butylbenzene	50.0	52.0		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	50.0	49.0		ug/Kg		98	73 - 125
Tetrachloroethene	50.0	53.9		ug/Kg		108	73 - 128
1,2,4-Trimethylbenzene	50.0	52.7		ug/Kg		105	75 - 123
Toluene	50.0	51.1		ug/Kg		102	77 - 121
1,3,5-Trimethylbenzene	50.0	51.2		ug/Kg		102	73 - 124
trans-1,2-Dichloroethene	50.0	51.5		ug/Kg		103	74 - 125
trans-1,3-Dichloropropene	50.0	52.4		ug/Kg		105	71 - 130
o-Xylene	50.0	55.1		ug/Kg		110	77 - 123
Trichloroethene	50.0	51.6		ug/Kg		103	77 - 123
m-Xylene & p-Xylene	50.0	54.0		ug/Kg		108	77 - 124
Trichlorofluoromethane	50.0	44.4		ug/Kg		89	62 - 140
Vinyl chloride	50.0	48.4		ug/Kg		97	56 - 135
2-Chlorotoluene	50.0	53.2		ug/Kg		106	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*
Dibromofluoromethane (Surr)	*94*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	51.1		ug/Kg		102	61 - 132	4	20
2-Butanone (MEK)	200	156		ug/Kg		78	51 - 148	5	20
1,2-Dichlorobenzene	50.0	53.6		ug/Kg		107	78 - 121	1	20
1,3-Dichlorobenzene	50.0	53.4		ug/Kg		107	77 - 121	1	20
4-Chlorotoluene	50.0	54.0		ug/Kg		108	72 - 124	1	20
1,4-Dichlorobenzene	50.0	53.0		ug/Kg		106	75 - 120	2	20
1,1-Dichloroethane	50.0	46.5		ug/Kg		93	76 - 125	0	20
1,2-Dichloroethane	50.0	43.4		ug/Kg		87	73 - 128	1	20
Acetone	200	148		ug/Kg		74	36 - 164	6	20
1,1-Dichloroethene	50.0	51.6		ug/Kg		103	70 - 131	0	20
Benzene	50.0	48.6		ug/Kg		97	77 - 121	1	20
Bromobenzene	50.0	53.9		ug/Kg		108	78 - 121	1	20
Bromoform	50.0	52.7		ug/Kg		105	67 - 132	3	20
Bromomethane	50.0	47.9		ug/Kg		96	53 - 143	2	20
1,2-Dichloropropane	50.0	47.7		ug/Kg		95	76 - 123	0	20
Carbon disulfide	50.0	52.4		ug/Kg		105	63 - 132	0	20
1,3-Dichloropropane	50.0	51.7		ug/Kg		103	77 - 121	2	20
Carbon tetrachloride	50.0	48.8		ug/Kg		98	70 - 135	1	20
2,2-Dichloropropane	50.0	48.6		ug/Kg		97	67 - 133	1	20
Chlorobenzene	50.0	51.1		ug/Kg		102	79 - 120	2	20
1,1-Dichloropropene	50.0	48.8		ug/Kg		98	76 - 125	0	20
Bromochloromethane	50.0	52.9		ug/Kg		106	78 - 125	1	20
Dibromochloromethane	50.0	52.1		ug/Kg		104	74 - 126	1	20
Chloroethane	50.0	43.6		ug/Kg		87	59 - 139	3	20
Chloroform	50.0	46.5		ug/Kg		93	78 - 123	1	20
2-Hexanone	200	168		ug/Kg		84	53 - 145	5	20
Chloromethane	50.0	51.9		ug/Kg		104	50 - 136	1	20
cis-1,2-Dichloroethene	50.0	51.0		ug/Kg		102	77 - 123	1	20
cis-1,3-Dichloropropene	50.0	55.5		ug/Kg		111	74 - 126	2	20
4-Isopropyltoluene	50.0	53.3		ug/Kg		107	73 - 127	1	20
Dibromomethane	50.0	49.1		ug/Kg		98	78 - 125	2	20
Bromodichloromethane	50.0	51.2		ug/Kg		102	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)	200	172		ug/Kg		86	65 - 135	3	20
Dichlorodifluoromethane	50.0	61.1		ug/Kg		122	29 - 149	1	20
Ethylbenzene	50.0	52.3		ug/Kg		105	76 - 122	2	20
Ethylene Dibromide	50.0	55.1		ug/Kg		110	78 - 122	2	20
Hexachlorobutadiene	50.0	53.4		ug/Kg		107	61 - 135	1	20
Isopropylbenzene	50.0	52.1		ug/Kg		104	68 - 134	1	20
1,1,1,2-Tetrachloroethane	50.0	53.2		ug/Kg		106	78 - 125	0	20
Methyl tert-butyl ether	50.0	50.3		ug/Kg		101	73 - 125	0	20
1,1,2,2-Tetrachloroethane	50.0	49.9		ug/Kg		100	70 - 124	2	20
Methylene Chloride	50.0	48.9		ug/Kg		98	70 - 128	1	20
Naphthalene	50.0	56.9		ug/Kg		114	62 - 129	3	20
1,2,3-Trichlorobenzene	50.0	57.8		ug/Kg		116	66 - 130	2	20
n-Butylbenzene	50.0	52.0		ug/Kg		104	70 - 128	1	20
1,1,1-Trichloroethane	50.0	46.8		ug/Kg		94	73 - 130	0	20
N-Propylbenzene	50.0	53.2		ug/Kg		106	73 - 125	2	20
1,1,2-Trichloroethane	50.0	55.8		ug/Kg		112	78 - 121	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445812/2-A
Matrix: Solid
Analysis Batch: 445808

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445812

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			50.0	53.5		ug/Kg		107	73 - 126	0	20
Styrene			50.0	52.9		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	57.0		ug/Kg		114	67 - 129	3	20
tert-Butylbenzene			50.0	51.9		ug/Kg		104	73 - 125	0	20
1,2,3-Trichloropropane			50.0	47.9		ug/Kg		96	73 - 125	2	20
Tetrachloroethene			50.0	53.6		ug/Kg		107	73 - 128	0	20
1,2,4-Trimethylbenzene			50.0	52.1		ug/Kg		104	75 - 123	1	20
Toluene			50.0	50.7		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene			50.0	51.1		ug/Kg		102	73 - 124	0	20
trans-1,2-Dichloroethene			50.0	51.4		ug/Kg		103	74 - 125	0	20
trans-1,3-Dichloropropene			50.0	52.3		ug/Kg		105	71 - 130	0	20
o-Xylene			50.0	53.8		ug/Kg		108	77 - 123	2	20
Trichloroethene			50.0	51.6		ug/Kg		103	77 - 123	0	20
m-Xylene & p-Xylene			50.0	52.3		ug/Kg		105	77 - 124	3	20
Trichlorofluoromethane			50.0	45.2		ug/Kg		90	62 - 140	2	20
Vinyl chloride			50.0	48.9		ug/Kg		98	56 - 135	1	20
2-Chlorotoluene			50.0	52.6		ug/Kg		105	75 - 122	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*85*		*71 - 136*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*
Dibromofluoromethane (Surr)	*95*		*78 - 119*

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	320	U	500	320	86	ug/Kg		01/30/19 13:19	1
2-Butanone (MEK)	640	U	1000	640	300	ug/Kg		01/30/19 13:19	1
1,2-Dichlorobenzene	320	U	500	320	94	ug/Kg		01/30/19 13:19	1
1,3-Dichlorobenzene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
4-Chlorotoluene	80	U	250	80	23	ug/Kg		01/30/19 13:19	1
1,4-Dichlorobenzene	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
1,1-Dichloroethane	160	U	250	160	51	ug/Kg		01/30/19 13:19	1
1,2-Dichloroethane	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
Acetone	1300	U	1500	1300	400	ug/Kg		01/30/19 13:19	1
1,1-Dichloroethene	160	U	250	160	51	ug/Kg		01/30/19 13:19	1
Benzene	160	U	250	160	45	ug/Kg		01/30/19 13:19	1
1,2-Dichloroethene, Total	80	U	130	80	22	ug/Kg		01/30/19 13:19	1
Bromobenzene	40	U	250	40	19	ug/Kg		01/30/19 13:19	1
Bromoform	160	U	250	160	160	ug/Kg		01/30/19 13:19	1
Bromomethane	160	U	500	160	44	ug/Kg		01/30/19 13:19	1
1,2-Dichloropropane	160	U	250	160	46	ug/Kg		01/30/19 13:19	1
Carbon disulfide	160	U	250	160	64	ug/Kg		01/30/19 13:19	1
1,3-Dichloropropane	80	U	250	80	28	ug/Kg		01/30/19 13:19	1
Carbon tetrachloride	40	U	250	40	17	ug/Kg		01/30/19 13:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2,2-Dichloropropane	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
Chlorobenzene	80	U	250	80	30	ug/Kg		01/30/19 13:19	1
1,1-Dichloropropene	160	U	250	160	48	ug/Kg		01/30/19 13:19	1
Bromochloromethane	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
Dibromochloromethane	80	U	250	80	33	ug/Kg		01/30/19 13:19	1
Chloroethane	160	U	500	160	44	ug/Kg		01/30/19 13:19	1
Chloroform	160	U	250	160	46	ug/Kg		01/30/19 13:19	1
2-Hexanone	640	U	1000	640	220	ug/Kg		01/30/19 13:19	1
Chloromethane	160	U M	500	160	50	ug/Kg		01/30/19 13:19	1
cis-1,2-Dichloroethene	80	U	130	80	22	ug/Kg		01/30/19 13:19	1
cis-1,3-Dichloropropene	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
4-Isopropyltoluene	80	U	250	80	32	ug/Kg		01/30/19 13:19	1
Dibromomethane	80	U	250	80	30	ug/Kg		01/30/19 13:19	1
Bromodichloromethane	80	U	250	80	40	ug/Kg		01/30/19 13:19	1
4-Methyl-2-pentanone (MIBK)	640	U	1000	640	230	ug/Kg		01/30/19 13:19	1
Dichlorodifluoromethane	80	U	500	80	22	ug/Kg		01/30/19 13:19	1
Ethylbenzene	80	U	250	80	34	ug/Kg		01/30/19 13:19	1
Ethylene Dibromide	80	U	250	80	25	ug/Kg		01/30/19 13:19	1
Hexachlorobutadiene	160	U	250	160	49	ug/Kg		01/30/19 13:19	1
Isopropylbenzene	80	U	250	80	29	ug/Kg		01/30/19 13:19	1
1,1,1,2-Tetrachloroethane	80	U	250	80	21	ug/Kg		01/30/19 13:19	1
Methyl tert-butyl ether	160	U	250	160	50	ug/Kg		01/30/19 13:19	1
1,1,2,2-Tetrachloroethane	80	U	250	80	29	ug/Kg		01/30/19 13:19	1
Methylene Chloride	160	U	250	160	69	ug/Kg		01/30/19 13:19	1
Naphthalene	80	U	500	80	38	ug/Kg		01/30/19 13:19	1
1,2,3-Trichlorobenzene	80	U	250	80	35	ug/Kg		01/30/19 13:19	1
n-Butylbenzene	80	U	250	80	32	ug/Kg		01/30/19 13:19	1
1,1,1-Trichloroethane	40	U	250	40	20	ug/Kg		01/30/19 13:19	1
N-Propylbenzene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
1,1,2-Trichloroethane	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
sec-Butylbenzene	80	U	250	80	38	ug/Kg		01/30/19 13:19	1
Styrene	80	U	250	80	26	ug/Kg		01/30/19 13:19	1
1,2,4-Trichlorobenzene	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
tert-Butylbenzene	80	U	250	80	28	ug/Kg		01/30/19 13:19	1
1,2,3-Trichloropropane	160	U	250	160	47	ug/Kg		01/30/19 13:19	1
Tetrachloroethene	80	U	250	80	27	ug/Kg		01/30/19 13:19	1
1,2,4-Trimethylbenzene	80	U	250	80	31	ug/Kg		01/30/19 13:19	1
Toluene	45.9	J	250	80	39	ug/Kg		01/30/19 13:19	1
1,3,5-Trimethylbenzene	80	U	250	80	39	ug/Kg		01/30/19 13:19	1
trans-1,2-Dichloroethene	160	U	250	160	45	ug/Kg		01/30/19 13:19	1
trans-1,3-Dichloropropene	160	U	250	160	41	ug/Kg		01/30/19 13:19	1
o-Xylene	80	U	130	80	35	ug/Kg		01/30/19 13:19	1
Trichloroethene	80	U	250	80	23	ug/Kg		01/30/19 13:19	1
m-Xylene & p-Xylene	160	U	250	160	78	ug/Kg		01/30/19 13:19	1
Trichlorofluoromethane	160	U	500	160	50	ug/Kg		01/30/19 13:19	1
Vinyl chloride	80	U	500	80	27	ug/Kg		01/30/19 13:19	1
2-Chlorotoluene	80	U	250	80	26	ug/Kg		01/30/19 13:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-445898/1-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445898

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		85 - 116	01/30/19 07:53	01/30/19 13:19	1
1,2-Dichloroethane-d4 (Surr)	100		71 - 136	01/30/19 07:53	01/30/19 13:19	1
4-Bromofluorobenzene (Surr)	107		79 - 119	01/30/19 07:53	01/30/19 13:19	1
Dibromofluoromethane (Surr)	111		78 - 119	01/30/19 07:53	01/30/19 13:19	1

Lab Sample ID: LCS 280-445898/2-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	2000	1990		ug/Kg		100	61 - 132
2-Butanone (MEK)	8000	6350		ug/Kg		79	51 - 148
1,2-Dichlorobenzene	2000	2110		ug/Kg		105	78 - 121
1,3-Dichlorobenzene	2000	2110		ug/Kg		105	77 - 121
4-Chlorotoluene	2000	2260		ug/Kg		113	72 - 124
1,4-Dichlorobenzene	2000	2150		ug/Kg		108	75 - 120
1,1-Dichloroethane	2000	1760		ug/Kg		88	76 - 125
1,2-Dichloroethane	2000	1840		ug/Kg		92	73 - 128
Acetone	8000	5540		ug/Kg		69	36 - 164
1,1-Dichloroethene	2000	1850		ug/Kg		93	70 - 131
Benzene	2000	1900		ug/Kg		95	77 - 121
Bromobenzene	2000	2080		ug/Kg		104	78 - 121
Bromoform	2000	1860		ug/Kg		93	67 - 132
Bromomethane	2000	1450		ug/Kg		72	53 - 143
1,2-Dichloropropane	2000	1890		ug/Kg		95	76 - 123
Carbon disulfide	2000	1860		ug/Kg		93	63 - 132
1,3-Dichloropropane	2000	1960		ug/Kg		98	77 - 121
Carbon tetrachloride	2000	1810		ug/Kg		91	70 - 135
2,2-Dichloropropane	2000	1800		ug/Kg		90	67 - 133
Chlorobenzene	2000	2020		ug/Kg		101	79 - 120
1,1-Dichloropropene	2000	1910		ug/Kg		96	76 - 125
Bromochloromethane	2000	1870		ug/Kg		93	78 - 125
Dibromochloromethane	2000	2070		ug/Kg		104	74 - 126
Chloroethane	2000	1590		ug/Kg		79	59 - 139
Chloroform	2000	1850		ug/Kg		92	78 - 123
2-Hexanone	8000	7100		ug/Kg		89	53 - 145
Chloromethane	2000	954	Q	ug/Kg		48	50 - 136
cis-1,2-Dichloroethene	2000	1900		ug/Kg		95	77 - 123
cis-1,3-Dichloropropene	2000	2170		ug/Kg		109	74 - 126
4-Isopropyltoluene	2000	2310		ug/Kg		116	73 - 127
Dibromomethane	2000	1870		ug/Kg		93	78 - 125
Bromodichloromethane	2000	2010		ug/Kg		101	75 - 127
4-Methyl-2-pentanone (MIBK)	8000	7070		ug/Kg		88	65 - 135
Dichlorodifluoromethane	2000	1170		ug/Kg		58	29 - 149
Ethylbenzene	2000	2020		ug/Kg		101	76 - 122
Ethylene Dibromide	2000	2050		ug/Kg		103	78 - 122
Hexachlorobutadiene	2000	2010		ug/Kg		100	61 - 135
Isopropylbenzene	2000	2210		ug/Kg		111	68 - 134

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-445898/2-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	2000	1860		ug/Kg		93	78 - 125
Methyl tert-butyl ether	2000	1740		ug/Kg		87	73 - 125
1,1,2,2-Tetrachloroethane	2000	2100		ug/Kg		105	70 - 124
Methylene Chloride	2000	1710		ug/Kg		86	70 - 128
Naphthalene	2000	2150		ug/Kg		108	62 - 129
1,2,3-Trichlorobenzene	2000	1920		ug/Kg		96	66 - 130
n-Butylbenzene	2000	2340		ug/Kg		117	70 - 128
1,1,1-Trichloroethane	2000	1840		ug/Kg		92	73 - 130
N-Propylbenzene	2000	2280		ug/Kg		114	73 - 125
1,1,2-Trichloroethane	2000	2210		ug/Kg		111	78 - 121
sec-Butylbenzene	2000	2300		ug/Kg		115	73 - 126
Styrene	2000	2100		ug/Kg		105	76 - 124
1,2,4-Trichlorobenzene	2000	1930		ug/Kg		97	67 - 129
tert-Butylbenzene	2000	2080		ug/Kg		104	73 - 125
1,2,3-Trichloropropane	2000	2060		ug/Kg		103	73 - 125
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128
1,2,4-Trimethylbenzene	2000	2140		ug/Kg		107	75 - 123
Toluene	2000	2030		ug/Kg		101	77 - 121
1,3,5-Trimethylbenzene	2000	2210		ug/Kg		111	73 - 124
trans-1,2-Dichloroethene	2000	1910		ug/Kg		95	74 - 125
trans-1,3-Dichloropropene	2000	2180		ug/Kg		109	71 - 130
o-Xylene	2000	2000		ug/Kg		100	77 - 123
Trichloroethene	2000	2010		ug/Kg		101	77 - 123
m-Xylene & p-Xylene	2000	2020		ug/Kg		101	77 - 124
Trichlorofluoromethane	2000	1550		ug/Kg		77	62 - 140
Vinyl chloride	2000	1170		ug/Kg		58	56 - 135
2-Chlorotoluene	2000	2120		ug/Kg		106	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*103*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*
4-Bromofluorobenzene (Surr)	*109*		*79 - 119*
Dibromofluoromethane (Surr)	*97*		*78 - 119*

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	2000	2330		ug/Kg		116	61 - 132	15	20
2-Butanone (MEK)	8000	4890	Q	ug/Kg		61	51 - 148	26	20
1,2-Dichlorobenzene	2000	2250		ug/Kg		112	78 - 121	6	20
1,3-Dichlorobenzene	2000	2130		ug/Kg		107	77 - 121	1	20
4-Chlorotoluene	2000	2170		ug/Kg		109	72 - 124	4	20
1,4-Dichlorobenzene	2000	2130		ug/Kg		106	75 - 120	1	20
1,1-Dichloroethane	2000	1980		ug/Kg		99	76 - 125	12	20
1,2-Dichloroethane	2000	1850		ug/Kg		93	73 - 128	1	20
Acetone	8000	5790		ug/Kg		72	36 - 164	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	2000	2170		ug/Kg		108	70 - 131	16	20
Benzene	2000	1970		ug/Kg		98	77 - 121	3	20
Bromobenzene	2000	2020		ug/Kg		101	78 - 121	3	20
Bromoform	2000	1920		ug/Kg		96	67 - 132	3	20
Bromomethane	2000	1680		ug/Kg		84	53 - 143	15	20
1,2-Dichloropropane	2000	1940		ug/Kg		97	76 - 123	3	20
Carbon disulfide	2000	2180		ug/Kg		109	63 - 132	16	20
1,3-Dichloropropane	2000	1800		ug/Kg		90	77 - 121	8	20
Carbon tetrachloride	2000	2070		ug/Kg		103	70 - 135	13	20
2,2-Dichloropropane	2000	2170		ug/Kg		109	67 - 133	19	20
Chlorobenzene	2000	1980		ug/Kg		99	79 - 120	2	20
1,1-Dichloropropene	2000	1980		ug/Kg		99	76 - 125	3	20
Bromochloromethane	2000	2060		ug/Kg		103	78 - 125	10	20
Dibromochloromethane	2000	2010		ug/Kg		101	74 - 126	3	20
Chloroethane	2000	1640		ug/Kg		82	59 - 139	3	20
Chloroform	2000	2010		ug/Kg		100	78 - 123	8	20
2-Hexanone	8000	6600		ug/Kg		82	53 - 145	7	20
Chloromethane	2000	1310	Q	ug/Kg		66	50 - 136	32	20
cis-1,2-Dichloroethene	2000	2080		ug/Kg		104	77 - 123	9	20
cis-1,3-Dichloropropene	2000	1940		ug/Kg		97	74 - 126	11	20
4-Isopropyltoluene	2000	2300		ug/Kg		115	73 - 127	1	20
Dibromomethane	2000	1950		ug/Kg		97	78 - 125	4	20
Bromodichloromethane	2000	1980		ug/Kg		99	75 - 127	2	20
4-Methyl-2-pentanone (MIBK)	8000	7280		ug/Kg		91	65 - 135	3	20
Dichlorodifluoromethane	2000	1520	Q	ug/Kg		76	29 - 149	26	20
Ethylbenzene	2000	2080		ug/Kg		104	76 - 122	3	20
Ethylene Dibromide	2000	1940		ug/Kg		97	78 - 122	6	20
Hexachlorobutadiene	2000	2070		ug/Kg		104	61 - 135	3	20
Isopropylbenzene	2000	2230		ug/Kg		112	68 - 134	1	20
1,1,1,2-Tetrachloroethane	2000	2040		ug/Kg		102	78 - 125	9	20
Methyl tert-butyl ether	2000	2110		ug/Kg		106	73 - 125	19	20
1,1,2,2-Tetrachloroethane	2000	2150		ug/Kg		107	70 - 124	2	20
Methylene Chloride	2000	2040		ug/Kg		102	70 - 128	18	20
Naphthalene	2000	2530		ug/Kg		127	62 - 129	16	20
1,2,3-Trichlorobenzene	2000	2380	Q	ug/Kg		119	66 - 130	22	20
n-Butylbenzene	2000	2340		ug/Kg		117	70 - 128	0	20
1,1,1-Trichloroethane	2000	2140		ug/Kg		107	73 - 130	15	20
N-Propylbenzene	2000	2320		ug/Kg		116	73 - 125	2	20
1,1,2-Trichloroethane	2000	2050		ug/Kg		102	78 - 121	8	20
sec-Butylbenzene	2000	2250		ug/Kg		112	73 - 126	2	20
Styrene	2000	2100		ug/Kg		105	76 - 124	0	20
1,2,4-Trichlorobenzene	2000	2310		ug/Kg		115	67 - 129	18	20
tert-Butylbenzene	2000	1940		ug/Kg		97	73 - 125	7	20
1,2,3-Trichloropropane	2000	2100		ug/Kg		105	73 - 125	2	20
Tetrachloroethene	2000	1920		ug/Kg		96	73 - 128	0	20
1,2,4-Trimethylbenzene	2000	2190		ug/Kg		110	75 - 123	2	20
Toluene	2000	2010		ug/Kg		101	77 - 121	1	20
1,3,5-Trimethylbenzene	2000	2240		ug/Kg		112	73 - 124	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-445898/3-A
Matrix: Solid
Analysis Batch: 445903

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 445898

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
trans-1,2-Dichloroethene			2000	2210		ug/Kg		111	74 - 125	15	20
trans-1,3-Dichloropropene			2000	1890		ug/Kg		94	71 - 130	14	20
o-Xylene			2000	2130		ug/Kg		106	77 - 123	6	20
Trichloroethene			2000	1990		ug/Kg		100	77 - 123	1	20
m-Xylene & p-Xylene			2000	2060		ug/Kg		103	77 - 124	2	20
Trichlorofluoromethane			2000	1910	Q	ug/Kg		96	62 - 140	21	20
Vinyl chloride			2000	1580	Q	ug/Kg		79	56 - 135	30	20
2-Chlorotoluene			2000	2210		ug/Kg		110	75 - 122	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*
4-Bromofluorobenzene (Surr)	*108*		*79 - 119*
Dibromofluoromethane (Surr)	*106*		*78 - 119*

Lab Sample ID: MB 280-446320/28
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/02/19 03:25	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/02/19 03:25	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 03:25	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/02/19 03:25	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/02/19 03:25	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/02/19 03:25	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/02/19 03:25	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/02/19 03:25	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/02/19 03:25	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/02/19 03:25	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/02/19 03:25	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/02/19 03:25	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/02/19 03:25	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/02/19 03:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-446320/28
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 03:25	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/02/19 03:25	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/02/19 03:25	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/02/19 03:25	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/02/19 03:25	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/02/19 03:25	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/02/19 03:25	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/02/19 03:25	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/02/19 03:25	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/02/19 03:25	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/02/19 03:25	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/02/19 03:25	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/02/19 03:25	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/02/19 03:25	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/02/19 03:25	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/02/19 03:25	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/02/19 03:25	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/02/19 03:25	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/02/19 03:25	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/02/19 03:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*02/02/19 03:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*81 - 118*		*02/02/19 03:25*	*1*
4-Bromofluorobenzene (Surr)	*94*		*85 - 114*		*02/02/19 03:25*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 119*		*02/02/19 03:25*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-446320/26
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	5.06		ug/L		101	62 - 128
2-Butanone (MEK)	20.0	19.5		ug/L		98	56 - 143
1,2-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119
1,3-Dichlorobenzene	5.00	4.81		ug/L		96	80 - 119
4-Chlorotoluene	5.00	4.85		ug/L		97	78 - 122
1,4-Dichlorobenzene	5.00	4.84		ug/L		97	79 - 118
1,1-Dichloroethane	5.00	4.77		ug/L		95	77 - 125
1,2-Dichloroethane	5.00	4.86		ug/L		97	73 - 128
Acetone	20.0	17.6		ug/L		88	39 - 160
1,1-Dichloroethene	5.00	4.79		ug/L		96	71 - 131
Benzene	5.00	4.45		ug/L		89	79 - 120
Bromobenzene	5.00	4.93		ug/L		99	80 - 120
Bromoform	5.00	4.96		ug/L		99	66 - 130
Bromomethane	5.00	4.31		ug/L		86	53 - 141
1,2-Dichloropropane	5.00	4.92		ug/L		98	78 - 122
Carbon disulfide	5.00	4.71		ug/L		94	64 - 133
1,3-Dichloropropane	5.00	4.89		ug/L		98	80 - 119
Carbon tetrachloride	5.00	4.66		ug/L		93	72 - 136
2,2-Dichloropropane	5.00	4.46		ug/L		89	60 - 139
Chlorobenzene	5.00	4.62		ug/L		92	82 - 118
1,1-Dichloropropene	5.00	4.69		ug/L		94	79 - 125
Bromochloromethane	5.00	4.84		ug/L		97	78 - 123
Dibromochloromethane	5.00	4.98		ug/L		100	74 - 126
Chloroethane	5.00	4.28		ug/L		86	60 - 138
Chloroform	5.00	4.81		ug/L		96	79 - 124
2-Hexanone	20.0	20.0		ug/L		100	57 - 139
Chloromethane	5.00	4.81		ug/L		96	50 - 139
cis-1,2-Dichloroethene	5.00	4.80		ug/L		96	78 - 123
cis-1,3-Dichloropropene	5.00	5.06		ug/L		101	75 - 124
4-Isopropyltoluene	5.00	4.77		ug/L		95	77 - 127
Dibromomethane	5.00	4.82		ug/L		96	79 - 123
Bromodichloromethane	5.00	4.86		ug/L		97	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	20.3		ug/L		102	67 - 130
Dichlorodifluoromethane	5.00	4.29		ug/L		86	32 - 152
Ethylbenzene	5.00	4.56		ug/L		91	79 - 121
Ethylene Dibromide	5.00	4.90		ug/L		98	77 - 121
Hexachlorobutadiene	5.00	4.59		ug/L		92	66 - 134
Isopropylbenzene	5.00	4.74		ug/L		95	72 - 131
1,1,1,2-Tetrachloroethane	5.00	4.88		ug/L		98	78 - 124
Methyl tert-butyl ether	5.00	4.91		ug/L		98	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.97		ug/L		99	71 - 121
Methylene Chloride	5.00	4.74		ug/L		95	74 - 124
Naphthalene	5.00	4.88		ug/L		98	61 - 128
1,2,3-Trichlorobenzene	5.00	4.75		ug/L		95	69 - 129
n-Butylbenzene	5.00	4.29		ug/L		86	75 - 128
1,1,1-Trichloroethane	5.00	4.70		ug/L		94	74 - 131
N-Propylbenzene	5.00	4.86		ug/L		97	76 - 126
1,1,2-Trichloroethane	5.00	5.12		ug/L		102	80 - 119

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-446320/26
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
sec-Butylbenzene	5.00	4.75		ug/L		95	77 - 126
Styrene	5.00	4.38		ug/L		88	78 - 123
1,2,4-Trichlorobenzene	5.00	4.72		ug/L		94	69 - 130
tert-Butylbenzene	5.00	4.34		ug/L		87	78 - 124
1,2,3-Trichloropropane	5.00	4.89		ug/L		98	73 - 122
Tetrachloroethene	5.00	4.70		ug/L		94	74 - 129
1,2,4-Trimethylbenzene	5.00	4.31		ug/L		86	76 - 124
Toluene	5.00	4.67		ug/L		93	80 - 121
1,3,5-Trimethylbenzene	5.00	4.76		ug/L		95	75 - 124
trans-1,2-Dichloroethene	5.00	4.90		ug/L		98	75 - 124
trans-1,3-Dichloropropene	5.00	4.97		ug/L		99	73 - 127
o-Xylene	5.00	4.47		ug/L		89	78 - 122
Trichloroethene	5.00	4.65		ug/L		93	79 - 123
m-Xylene & p-Xylene	5.00	4.41		ug/L		88	80 - 121
Trichlorofluoromethane	5.00	4.34		ug/L		87	65 - 141
Vinyl chloride	5.00	4.70		ug/L		94	58 - 137
2-Chlorotoluene	5.00	4.86		ug/L		97	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*88*		*85 - 114*
Dibromofluoromethane (Surr)	*89*		*80 - 119*

Lab Sample ID: LCSD 280-446320/27
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	5.00	5.03		ug/L		101	62 - 128	0	20
2-Butanone (MEK)	20.0	19.7		ug/L		98	56 - 143	1	20
1,2-Dichlorobenzene	5.00	4.94		ug/L		99	80 - 119	2	20
1,3-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 119	1	20
4-Chlorotoluene	5.00	4.86		ug/L		97	78 - 122	0	20
1,4-Dichlorobenzene	5.00	4.80		ug/L		96	79 - 118	1	20
1,1-Dichloroethane	5.00	4.86		ug/L		97	77 - 125	2	20
1,2-Dichloroethane	5.00	4.92		ug/L		98	73 - 128	1	20
Acetone	20.0	17.1		ug/L		86	39 - 160	2	20
1,1-Dichloroethene	5.00	4.87		ug/L		97	71 - 131	2	20
Benzene	5.00	4.52		ug/L		90	79 - 120	2	20
Bromobenzene	5.00	4.96		ug/L		99	80 - 120	1	20
Bromoform	5.00	4.96		ug/L		99	66 - 130	0	20
Bromomethane	5.00	4.48		ug/L		90	53 - 141	4	20
1,2-Dichloropropane	5.00	5.00		ug/L		100	78 - 122	2	20
Carbon disulfide	5.00	4.82		ug/L		96	64 - 133	2	20
1,3-Dichloropropane	5.00	4.93		ug/L		99	80 - 119	1	20
Carbon tetrachloride	5.00	4.71		ug/L		94	72 - 136	1	20
2,2-Dichloropropane	5.00	4.51		ug/L		90	60 - 139	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446320/27
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	5.00	4.71		ug/L		94	82 - 118	2	20
1,1-Dichloropropene	5.00	4.78		ug/L		96	79 - 125	2	20
Bromochloromethane	5.00	4.94		ug/L		99	78 - 123	2	20
Dibromochloromethane	5.00	5.03		ug/L		101	74 - 126	1	20
Chloroethane	5.00	4.47		ug/L		89	60 - 138	4	20
Chloroform	5.00	4.88		ug/L		98	79 - 124	1	20
2-Hexanone	20.0	19.9		ug/L		99	57 - 139	1	20
Chloromethane	5.00	4.57		ug/L		91	50 - 139	5	20
cis-1,2-Dichloroethene	5.00	4.86		ug/L		97	78 - 123	1	20
cis-1,3-Dichloropropene	5.00	5.14		ug/L		103	75 - 124	2	20
4-Isopropyltoluene	5.00	4.91		ug/L		98	77 - 127	3	20
Dibromomethane	5.00	4.73		ug/L		95	79 - 123	2	20
Bromodichloromethane	5.00	4.84		ug/L		97	79 - 125	0	20
4-Methyl-2-pentanone (MIBK)	20.0	20.3		ug/L		102	67 - 130	0	20
Dichlorodifluoromethane	5.00	4.53		ug/L		91	32 - 152	5	20
Ethylbenzene	5.00	4.67		ug/L		93	79 - 121	2	20
Ethylene Dibromide	5.00	4.98		ug/L		100	77 - 121	2	20
Hexachlorobutadiene	5.00	4.59		ug/L		92	66 - 134	0	20
Isopropylbenzene	5.00	4.86		ug/L		97	72 - 131	2	20
1,1,1,2-Tetrachloroethane	5.00	4.98		ug/L		100	78 - 124	2	20
Methyl tert-butyl ether	5.00	4.99		ug/L		100	71 - 124	2	20
1,1,2,2-Tetrachloroethane	5.00	5.02		ug/L		100	71 - 121	1	20
Methylene Chloride	5.00	4.84		ug/L		97	74 - 124	2	20
Naphthalene	5.00	4.85		ug/L		97	61 - 128	1	20
1,2,3-Trichlorobenzene	5.00	4.71		ug/L		94	69 - 129	1	20
n-Butylbenzene	5.00	4.30		ug/L		86	75 - 128	0	20
1,1,1-Trichloroethane	5.00	4.79		ug/L		96	74 - 131	2	20
N-Propylbenzene	5.00	5.01		ug/L		100	76 - 126	3	20
1,1,2-Trichloroethane	5.00	5.11		ug/L		102	80 - 119	0	20
sec-Butylbenzene	5.00	4.89		ug/L		98	77 - 126	3	20
Styrene	5.00	4.42		ug/L		88	78 - 123	1	20
1,2,4-Trichlorobenzene	5.00	4.66		ug/L		93	69 - 130	1	20
tert-Butylbenzene	5.00	4.43		ug/L		89	78 - 124	2	20
1,2,3-Trichloropropane	5.00	5.08		ug/L		102	73 - 122	4	20
Tetrachloroethene	5.00	4.78		ug/L		96	74 - 129	2	20
1,2,4-Trimethylbenzene	5.00	4.35		ug/L		87	76 - 124	1	20
Toluene	5.00	4.79		ug/L		96	80 - 121	3	20
1,3,5-Trimethylbenzene	5.00	4.87		ug/L		97	75 - 124	2	20
trans-1,2-Dichloroethene	5.00	5.02		ug/L		100	75 - 124	2	20
trans-1,3-Dichloropropene	5.00	4.93		ug/L		99	73 - 127	1	20
o-Xylene	5.00	4.54		ug/L		91	78 - 122	1	20
Trichloroethene	5.00	4.70		ug/L		94	79 - 123	1	20
m-Xylene & p-Xylene	5.00	4.49		ug/L		90	80 - 121	2	20
Trichlorofluoromethane	5.00	4.48		ug/L		90	65 - 141	3	20
Vinyl chloride	5.00	4.55		ug/L		91	58 - 137	3	20
2-Chlorotoluene	5.00	4.96		ug/L		99	79 - 122	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-446320/27
Matrix: Water
Analysis Batch: 446320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*91*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*92*		*81 - 118*
4-Bromofluorobenzene (Surr)	*90*		*85 - 114*
Dibromofluoromethane (Surr)	*91*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-445371/8-A
Matrix: Solid
Analysis Batch: 446543

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445371

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		01/28/19 20:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*94*		*77 - 123*	*01/28/19 09:22*	*01/28/19 20:30*	*1*

Lab Sample ID: LCS 280-445371/7-A
Matrix: Solid
Analysis Batch: 446543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	4.28	4.08		mg/Kg		95	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*96*		*77 - 123*

Lab Sample ID: MB 280-446290/4
Matrix: Water
Analysis Batch: 446290

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/01/19 17:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*93*		*82 - 110*		*02/01/19 17:17*	*1*

Lab Sample ID: LCS 280-446290/3
Matrix: Water
Analysis Batch: 446290

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	78.4	70.7		ug/L		90	78 - 122

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-446290/3
Matrix: Water
Analysis Batch: 446290

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene	94		82 - 110

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-446557/3-A
Matrix: Water
Analysis Batch: 446579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446557

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/05/19 17:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	116		70 - 130	02/05/19 10:36	02/05/19 17:01	1

Lab Sample ID: LCS 280-446557/1-A
Matrix: Water
Analysis Batch: 446579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446557

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.213		ug/L		85	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	110		70 - 130

Lab Sample ID: LCSD 280-446557/2-A
Matrix: Water
Analysis Batch: 446579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446557

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.217		ug/L		87	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	115		70 - 130

Lab Sample ID: MB 280-446587/3-A
Matrix: Solid
Analysis Batch: 447717

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446587

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		02/14/19 19:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	110		55 - 130	02/05/19 13:44	02/14/19 19:09	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-446587/1-A
Matrix: Solid
Analysis Batch: 447717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446587

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.875	0.811		ug/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*95*		*55 - 130*

Lab Sample ID: LCSD 280-446587/2-A
Matrix: Solid
Analysis Batch: 447717

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446587

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.817		ug/Kg		93	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*55 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-445176/1-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 445176

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.08	J	7.2	3.6	1.2	mg/Kg		01/28/19 20:26	1
Motor Oil (C20-C38)	21	U	22	21	7.0	mg/Kg		01/28/19 20:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*84*		*45 - 130*	*01/23/19 14:35*	*01/28/19 20:26*	*1*
n-Octacosane	*93*		*25 - 162*	*01/23/19 14:35*	*01/28/19 20:26*	*1*

Lab Sample ID: LCS 280-445176/2-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			119	110		mg/Kg		92	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*88*		*25 - 162*

Lab Sample ID: LCS 280-445176/3-A
Matrix: Solid
Analysis Batch: 445704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 445176

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			328	279		mg/Kg		85	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*89*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-119401-3 DU
Matrix: Solid
Analysis Batch: 446441

Client Sample ID: P-S7-220119-469
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	2.8			2.8		%				0.2	20

GC/MS VOA

Analysis Batch: 445655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-4	V-S7-220119-485	Total/NA	Solid	8260B	445697
MB 280-445697/3-A	Method Blank	Total/NA	Solid	8260B	445697
LCS 280-445697/1-A	Lab Control Sample	Total/NA	Solid	8260B	445697
LCSD 280-445697/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445697

Prep Batch: 445697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-4	V-S7-220119-485	Total/NA	Solid	5035	
MB 280-445697/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445697/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445697/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 445808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-2	V-S7-220119-469	Total/NA	Solid	8260B	445812
280-119401-6	V-S7-220119-495	Total/NA	Solid	8260B	445812
280-119401-8	V-S7-220119-506	Total/NA	Solid	8260B	445812
280-119401-10	V-S7-220159-506	Total/NA	Solid	8260B	445812
MB 280-445812/3-A	Method Blank	Total/NA	Solid	8260B	445812
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	8260B	445812
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445812

Prep Batch: 445812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-2	V-S7-220119-469	Total/NA	Solid	5035	
280-119401-6	V-S7-220119-495	Total/NA	Solid	5035	
280-119401-8	V-S7-220119-506	Total/NA	Solid	5035	
280-119401-10	V-S7-220159-506	Total/NA	Solid	5035	
MB 280-445812/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445812/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445812/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 445898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-6 - DL	V-S7-220119-495	Total/NA	Solid	5035	
MB 280-445898/1-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445898/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-445898/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 445903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-6 - DL	V-S7-220119-495	Total/NA	Solid	8260B	445898
MB 280-445898/1-A	Method Blank	Total/NA	Solid	8260B	445898
LCS 280-445898/2-A	Lab Control Sample	Total/NA	Solid	8260B	445898
LCSD 280-445898/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	445898

Analysis Batch: 446320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-1	TB-S7-220119-01	Total/NA	Water	8260B	
MB 280-446320/28	Method Blank	Total/NA	Water	8260B	
LCS 280-446320/26	Lab Control Sample	Total/NA	Water	8260B	

GC/MS VOA (Continued)

Analysis Batch: 446320 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 280-446320/27	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Prep Batch: 445371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-3	P-S7-220119-469	Total/NA	Solid	5035	
280-119401-5	P-S7-220119-485	Total/NA	Solid	5035	
280-119401-7 - DL	P-S7-220119-495	Total/NA	Solid	5035	
280-119401-9	P-S7-220119-506	Total/NA	Solid	5035	
280-119401-11	P-S7-220159-506	Total/NA	Solid	5035	
MB 280-445371/8-A	Method Blank	Total/NA	Solid	5035	
LCS 280-445371/7-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 446290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-1	TB-S7-220119-01	Total/NA	Water	8015D GRO	
MB 280-446290/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-446290/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Analysis Batch: 446543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-3	P-S7-220119-469	Total/NA	Solid	8015D GRO	445371
280-119401-5	P-S7-220119-485	Total/NA	Solid	8015D GRO	445371
280-119401-7 - DL	P-S7-220119-495	Total/NA	Solid	8015D GRO	445371
280-119401-9	P-S7-220119-506	Total/NA	Solid	8015D GRO	445371
280-119401-11	P-S7-220159-506	Total/NA	Solid	8015D GRO	445371
MB 280-445371/8-A	Method Blank	Total/NA	Solid	8015D GRO	445371
LCS 280-445371/7-A	Lab Control Sample	Total/NA	Solid	8015D GRO	445371

GC Semi VOA

Prep Batch: 445176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-3	P-S7-220119-469	Total/NA	Solid	3546	
280-119401-5	P-S7-220119-485	Total/NA	Solid	3546	
280-119401-7	P-S7-220119-495	Total/NA	Solid	3546	
280-119401-9	P-S7-220119-506	Total/NA	Solid	3546	
280-119401-11	P-S7-220159-506	Total/NA	Solid	3546	
MB 280-445176/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 445704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-3	P-S7-220119-469	Total/NA	Solid	8015D DRO	445176
280-119401-5	P-S7-220119-485	Total/NA	Solid	8015D DRO	445176
280-119401-7	P-S7-220119-495	Total/NA	Solid	8015D DRO	445176
280-119401-9	P-S7-220119-506	Total/NA	Solid	8015D DRO	445176
280-119401-11	P-S7-220159-506	Total/NA	Solid	8015D DRO	445176

GC Semi VOA (Continued)

Analysis Batch: 445704 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-445176/1-A	Method Blank	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176
LCS 280-445176/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	445176

Prep Batch: 446557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-1	TB-S7-220119-01	Total/NA	Water	8011	
MB 280-446557/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-446557/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-446557/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 446579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-1	TB-S7-220119-01	Total/NA	Water	8011	446557
MB 280-446557/3-A	Method Blank	Total/NA	Water	8011	446557
LCS 280-446557/1-A	Lab Control Sample	Total/NA	Water	8011	446557
LCSD 280-446557/2-A	Lab Control Sample Dup	Total/NA	Water	8011	446557

Prep Batch: 446587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-2	V-S7-220119-469	Total/NA	Solid	8011	
280-119401-4	V-S7-220119-485	Total/NA	Solid	8011	
280-119401-6	V-S7-220119-495	Total/NA	Solid	8011	
280-119401-8	V-S7-220119-506	Total/NA	Solid	8011	
280-119401-10	V-S7-220159-506	Total/NA	Solid	8011	
MB 280-446587/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-446587/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-446587/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Analysis Batch: 447717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-2	V-S7-220119-469	Total/NA	Solid	8011	446587
280-119401-4	V-S7-220119-485	Total/NA	Solid	8011	446587
280-119401-8	V-S7-220119-506	Total/NA	Solid	8011	446587
280-119401-10	V-S7-220159-506	Total/NA	Solid	8011	446587
MB 280-446587/3-A	Method Blank	Total/NA	Solid	8011	446587
LCS 280-446587/1-A	Lab Control Sample	Total/NA	Solid	8011	446587
LCSD 280-446587/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	446587

Analysis Batch: 448030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-6	V-S7-220119-495	Total/NA	Solid	8011	446587

General Chemistry

Analysis Batch: 445403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-2	V-S7-220119-469	Total/NA	Solid	Moisture	
280-119401-4	V-S7-220119-485	Total/NA	Solid	Moisture	
280-119401-5	P-S7-220119-485	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 445403 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-6	V-S7-220119-495	Total/NA	Solid	Moisture	
280-119401-7	P-S7-220119-495	Total/NA	Solid	Moisture	
280-119401-8	V-S7-220119-506	Total/NA	Solid	Moisture	
280-119401-9	P-S7-220119-506	Total/NA	Solid	Moisture	
280-119401-10	V-S7-220159-506	Total/NA	Solid	Moisture	
280-119401-11	P-S7-220159-506	Total/NA	Solid	Moisture	

Analysis Batch: 446441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119401-3	P-S7-220119-469	Total/NA	Solid	Moisture	
280-119401-3 DU	P-S7-220119-469	Total/NA	Solid	Moisture	

Client Sample ID: TB-S7-220119-01

Lab Sample ID: 280-119401-1

Date Collected: 01/22/19 12:00

Matrix: Water

Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	446320	02/02/19 07:36	GO	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	446290	02/01/19 17:41	SU	TAL DEN
Total/NA	Prep	8011			34 mL	35 mL	446557	02/05/19 10:36	MJS	TAL DEN
Total/NA	Analysis	8011		1			446579	02/05/19 21:11	JLW	TAL DEN

Client Sample ID: V-S7-220119-469

Lab Sample ID: 280-119401-2

Date Collected: 01/22/19 10:55

Matrix: Solid

Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: V-S7-220119-469

Lab Sample ID: 280-119401-2

Date Collected: 01/22/19 10:55

Matrix: Solid

Date Received: 01/23/19 09:05

Percent Solids: 97.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.048 g	5 mL	445812	01/22/19 10:55	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 16:06	GPM	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	446587	02/05/19 13:44	SU	TAL DEN
Total/NA	Analysis	8011		1			447717	02/14/19 19:29	JLW	TAL DEN

Client Sample ID: P-S7-220119-469

Lab Sample ID: 280-119401-3

Date Collected: 01/22/19 10:55

Matrix: Solid

Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446441	02/04/19 13:38	SGB	TAL DEN

Client Sample ID: P-S7-220119-469

Lab Sample ID: 280-119401-3

Date Collected: 01/22/19 10:55

Matrix: Solid

Date Received: 01/23/19 09:05

Percent Solids: 97.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.998 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446543	01/29/19 01:42	SU	TAL DEN
Total/NA	Prep	3546			15.1 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 01:26	AMB1	TAL DEN

Client Sample ID: V-S7-220119-485 — **Lab Sample ID: 280-119401-4**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: V-S7-220119-485 — **Lab Sample ID: 280-119401-4**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.809 g	5 mL	445697	01/22/19 14:20	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445655	01/28/19 19:31	GPM	TAL DEN
Total/NA	Prep	8011			10.24 g	35 mL	446587	02/05/19 13:44	SU	TAL DEN
Total/NA	Analysis	8011		1			447717	02/14/19 19:48	JLW	TAL DEN

Client Sample ID: P-S7-220119-485 — **Lab Sample ID: 280-119401-5**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: P-S7-220119-485 — **Lab Sample ID: 280-119401-5**
Date Collected: 01/22/19 14:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 90.9**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.572 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446543	01/29/19 02:06	SU	TAL DEN
Total/NA	Prep	3546			16.7 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 01:46	AMB1	TAL DEN

Client Sample ID: V-S7-220119-495 — **Lab Sample ID: 280-119401-6**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: V-S7-220119-495 — **Lab Sample ID: 280-119401-6**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.338 g	5 mL	445812	01/22/19 16:20	GPM	TAL DEN

Client Sample ID: V-S7-220119-495

Lab Sample ID: 280-119401-6
Date Collected: 01/22/19 16:20
Matrix: Solid
Date Received: 01/23/19 09:05
Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 16:51	GPM	TAL DEN
Total/NA	Prep	5035	DL		4.727 g	1000 mL	445898	01/30/19 10:47	CAS	TAL DEN
Total/NA	Analysis	8260B	DL	100	20 mL	20 mL	445903	01/30/19 14:54	JLS	TAL DEN
Total/NA	Prep	8011			10.08 g	35 mL	446587	02/05/19 13:44	SU	TAL DEN
Total/NA	Analysis	8011		200			448030	02/18/19 20:27	JLW	TAL DEN

Client Sample ID: P-S7-220119-495

Lab Sample ID: 280-119401-7
Date Collected: 01/22/19 16:20
Matrix: Solid
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: P-S7-220119-495

Lab Sample ID: 280-119401-7
Date Collected: 01/22/19 16:20
Matrix: Solid
Date Received: 01/23/19 09:05
Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	DL		5.08 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO	DL	250	0.1 mL	5 mL	446543	01/29/19 02:30	SU	TAL DEN
Total/NA	Prep	3546			16.3 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 02:06	AMB1	TAL DEN

Client Sample ID: V-S7-220119-506

Lab Sample ID: 280-119401-8
Date Collected: 01/22/19 16:20
Matrix: Solid
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: V-S7-220119-506

Lab Sample ID: 280-119401-8
Date Collected: 01/22/19 16:20
Matrix: Solid
Date Received: 01/23/19 09:05
Percent Solids: 89.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.784 g	5 mL	445812	01/22/19 16:20	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 17:13	GPM	TAL DEN
Total/NA	Prep	8011			10.03 g	35 mL	446587	02/05/19 13:44	SU	TAL DEN
Total/NA	Analysis	8011		1			447717	02/14/19 20:26	JLW	TAL DEN

Client Sample ID: P-S7-220119-506 — **Lab Sample ID: 280-119401-9**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: P-S7-220119-506 — **Lab Sample ID: 280-119401-9**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 90.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.264 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446543	01/29/19 02:54	SU	TAL DEN
Total/NA	Prep	3546			16.7 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 02:26	AMB1	TAL DEN

Client Sample ID: V-S7-220159-506 — **Lab Sample ID: 280-119401-10**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: V-S7-220159-506 — **Lab Sample ID: 280-119401-10**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 89.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.252 g	5 mL	445812	01/22/19 16:20	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	445808	01/29/19 17:36	GPM	TAL DEN
Total/NA	Prep	8011			10.02 g	35 mL	446587	02/05/19 13:44	SU	TAL DEN
Total/NA	Analysis	8011		1			447717	02/14/19 20:46	JLW	TAL DEN

Client Sample ID: P-S7-220159-506 — **Lab Sample ID: 280-119401-11**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			445403	01/24/19 18:18	JDR	TAL DEN

Client Sample ID: P-S7-220159-506 — **Lab Sample ID: 280-119401-11**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.861 g	5 mL	445371	01/24/19 14:51	SU	TAL DEN

Client Sample ID: P-S7-220159-506 — **Lab Sample ID: 280-119401-11**
Date Collected: 01/22/19 16:20 — **Matrix: Solid**
Date Received: 01/23/19 09:05 — **Percent Solids: 91.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446543	01/29/19 03:18	SU	TAL DEN
Total/NA	Prep	3546			16.2 g	1 mL	445176	01/23/19 14:35	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			445704	01/29/19 02:46	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119401-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1514 2929	COC No: COC-57-TA-20190122
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 2
Company: EA Engineering, Science, and Technology				Job #: —
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-690-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
TB-57-220119-01	01/22/19	1200	G	W	N	N	—	—	—	—	—	X	X	—	X	—	
V-57-220119-469	01/22/19	1055	G	S	N	N	X	X	X	—	—	—	—	—	—	—	
P-57-220119-469	01/22/19	1055	G	S	N	N	—	—	—	X	X	—	—	—	—	—	
V-57-220119-485	01/22/19	1420	G	S	N	N	X	X	X	—	—	—	—	—	—	—	
P-57-220119-485	01/22/19	1420	G	S	N	N	—	—	—	X	X	—	—	—	—	—	
V-57-220119-915	01/22/19	1620	G	S	N	N	X	X	X	—	—	—	—	—	—	—	
P-57-220119-915	01/22/19	1620	G	S	N	N	—	—	—	X	X	—	—	—	—	—	
HCL																	

280-119401 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if sa...)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Joshua Livingston	Date/Time: 01/22/19 1800	Company: EA	Received by:	Date/Time: 1-23-19 905	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0.2, +1.0 Corr by WA 1-23-19		

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Joshua Livingston	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1514 2429	COC No: CoC-57-TA-20190122
Client Contact: Pamela Moss	Phone: (578) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	6911_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & GRO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	6911_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & GRO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:													
~~FB-57-220119-02~~	01/22/19	1400	G	W	N						X	X	X			JPL
V-57-220119-506	01/22/19	1620	G	S	N	X	X	X								
P-57-220119-506	01/22/19	1620	G	S	N				X	X						
V-57-220159-506	01/22/19	1620	G	S	N	X	X	X								D-P
P-57-220159-506	01/22/19	1620	G	S	N				X	X						D-P

JPL

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Joshua Livingston	Date/Time: 01/22/19 1500	Company: EA	Received by:	Date/Time: 1-23-19 905	Company: DA Denver
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119401-1

Login Number: 119401
List Number: 1
Creator: Infiesto, David B

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119694-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
2/26/2019 7:35:47 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119694-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119694-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 1/31/2019 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5º C.

Receipt Exceptions

1 of 5 Voa Vials submitted for sample RB-247-290119-01 (280-119694-1) were received frozen and broken. 1 x 40mL HCl preserved Voa Vial was the only container received intact. The client was contacted and instructed the laboratory to analyze for 8260B VOCs only.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid

Sample V-247-300119-120 (280-119694-3) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 01/30/2019 and analyzed on 02/13/2019.

1,2,4-Trimethylbenzene, Acetone, Chloroform and Naphthalene were detected in method blank MB 280-447467/3-A at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged "J". Refer to the QC report for details. This is considered acceptable because the detections were less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water

Samples RB-247-290119-01 (280-119694-1) and TB-247-300119-01 (280-119694-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 02/09/2019.

The continuing calibration verification (CCV) associated with batch 280-447129 recovered above the upper control limit for 4-Methyl-2-pentanone (MIBK). The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.
4-Methyl-2-pentanone (MIBK) +20.4%D

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid

Sample V-247-300119-120 (280-119694-3) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on

Job ID: 280-119694-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

02/13/2019 and analyzed on 02/18/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water
Sample TB-247-300119-01 (280-119694-2) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/13/2019 and analyzed on 02/15/2019.

1,2-Dibromopropane failed the surrogate recovery criteria high for TB-247-300119-01 (280-119694-2). Associated results have been flagged "Q". Refer to the QC report for details. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid
Sample P-247-300119-120 (280-119694-4) was analyzed for Volatile Petroleum Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared and analyzed on 02/04/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water
Sample TB-247-300119-01 (280-119694-2) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 02/11/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)
Sample P-247-300119-120 (280-119694-4) was analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 02/06/2019 and analyzed on 02/12/2019.

Silica gel cleanup performed on following samples: P-247-300119-120 (280-119694-4), (LCS 280-446722/2-A), (LCS 280-446722/3-A), (MB 280-446722/1-A), (280-119694-A-4-E MS), (280-119694-A-4-G MS), (280-119694-A-4-F MSD) and (280-119694-A-4-H MSD). This is for preparation batch 280-446722 and analytical batch 280-447214.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples V-247-300119-120 (280-119694-3) and P-247-300119-120 (280-119694-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 01/31/2019 and 02/01/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Client Sample ID: RB-247-290119-01 — Lab Sample ID: 280-119694-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.40	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA

Client Sample ID: TB-247-300119-01 — Lab Sample ID: 280-119694-2

No Detections.

Client Sample ID: V-247-300119-120 — Lab Sample ID: 280-119694-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.6	J	22	14	5.8	ug/Kg	1	☼	8260B	Total/NA
Chloroform	0.55	J	11	0.86	0.31	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	4.2	J	5.4	3.5	1.7	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-247-300119-120 — Lab Sample ID: 280-119694-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119694-1	RB-247-290119-01	Water	01/29/19 09:50	01/31/19 09:20
280-119694-2	TB-247-300119-01	Water	01/30/19 14:00	01/31/19 09:20
280-119694-3	V-247-300119-120	Solid	01/30/19 13:55	01/31/19 09:20
280-119694-4	P-247-300119-120	Solid	01/30/19 13:55	01/31/19 09:20

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-247-290119-01
Date Collected: 01/29/19 09:50
Date Received: 01/31/19 09:20

Lab Sample ID: 280-119694-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/09/19 18:15	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/09/19 18:15	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:15	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/09/19 18:15	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/09/19 18:15	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/09/19 18:15	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/09/19 18:15	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/09/19 18:15	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/09/19 18:15	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/09/19 18:15	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:15	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/09/19 18:15	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/09/19 18:15	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:15	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:15	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 18:15	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:15	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 18:15	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/09/19 18:15	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/09/19 18:15	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:15	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:15	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:15	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:15	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:15	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:15	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/09/19 18:15	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/09/19 18:15	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:15	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 18:15	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/09/19 18:15	1
4-Methyl-2-pentanone (MIBK)	3.2	U Q	5.0	3.2	0.98	ug/L		02/09/19 18:15	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/09/19 18:15	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:15	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-247-290119-01
Date Collected: 01/29/19 09:50
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:15	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:15	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 18:15	1
Toluene	**0.40**	**J**	1.0	0.40	0.17	ug/L		02/09/19 18:15	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:15	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/09/19 18:15	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/09/19 18:15	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:15	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/09/19 18:15	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:15	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:15	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/09/19 18:15	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:15	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/09/19 18:15	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*02/09/19 18:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*02/09/19 18:15*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*02/09/19 18:15*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 119*		*02/09/19 18:15*	*1*

Client Sample ID: TB-247-300119-01
Date Collected: 01/30/19 14:00
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/09/19 18:36	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/09/19 18:36	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:36	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/09/19 18:36	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/09/19 18:36	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/09/19 18:36	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/09/19 18:36	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/09/19 18:36	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/09/19 18:36	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/09/19 18:36	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:36	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/09/19 18:36	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/09/19 18:36	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-247-300119-01
Date Collected: 01/30/19 14:00
Date Received: 01/31/19 09:20

Lab Sample ID: 280-119694-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:36	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:36	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 18:36	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:36	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 18:36	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/09/19 18:36	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/09/19 18:36	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:36	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:36	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:36	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:36	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 18:36	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:36	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:36	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/09/19 18:36	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/09/19 18:36	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:36	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 18:36	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/09/19 18:36	1
4-Methyl-2-pentanone (MIBK)	3.2	U Q	5.0	3.2	0.98	ug/L		02/09/19 18:36	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/09/19 18:36	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 18:36	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:36	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:36	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 18:36	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:36	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/09/19 18:36	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/09/19 18:36	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 18:36	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/09/19 18:36	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 18:36	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 18:36	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/09/19 18:36	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 18:36	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/09/19 18:36	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*89 - 112*		*02/09/19 18:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*81 - 118*		*02/09/19 18:36*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*02/09/19 18:36*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-247-300119-01
Date Collected: 01/30/19 14:00
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	94		80 - 119		02/09/19 18:36	1

Client Sample ID: V-247-300119-120
Date Collected: 01/30/19 13:55
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-3
Matrix: Solid
Percent Solids: 88.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.7	U	5.4	1.7	0.61	ug/Kg	☼	02/13/19 11:25	1
1,1,1-Trichloroethane	1.7	U	5.4	1.7	0.56	ug/Kg	☼	02/13/19 11:25	1
1,1,2,2-Tetrachloroethane	1.7	U	5.4	1.7	0.66	ug/Kg	☼	02/13/19 11:25	1
1,1,2-Trichloroethane	3.5	U	5.4	3.5	0.95	ug/Kg	☼	02/13/19 11:25	1
1,1-Dichloroethane	0.86	U	5.4	0.86	0.23	ug/Kg	☼	02/13/19 11:25	1
1,1-Dichloroethene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	02/13/19 11:25	1
1,1-Dichloropropene	1.7	U	5.4	1.7	0.58	ug/Kg	☼	02/13/19 11:25	1
1,2,3-Trichlorobenzene	1.7	U	5.4	1.7	0.81	ug/Kg	☼	02/13/19 11:25	1
1,2,3-Trichloropropane	3.5	U	5.4	3.5	0.88	ug/Kg	☼	02/13/19 11:25	1
1,2,4-Trichlorobenzene	1.7	U	5.4	1.7	0.79	ug/Kg	☼	02/13/19 11:25	1
1,2,4-Trimethylbenzene	3.5	U	5.4	3.5	0.63	ug/Kg	☼	02/13/19 11:25	1
1,2-Dibromo-3-Chloropropane	1.7	U	11	1.7	0.65	ug/Kg	☼	02/13/19 11:25	1
1,2-Dichlorobenzene	1.7	U	5.4	1.7	0.49	ug/Kg	☼	02/13/19 11:25	1
1,2-Dichloroethane	1.7	U	5.4	1.7	0.76	ug/Kg	☼	02/13/19 11:25	1
1,2-Dichloroethene, Total	1.7	U	5.4	1.7	0.42	ug/Kg	☼	02/13/19 11:25	1
1,2-Dichloropropane	1.7	U M	5.4	1.7	0.59	ug/Kg	☼	02/13/19 11:25	1
1,3,5-Trimethylbenzene	1.7	U M	5.4	1.7	0.62	ug/Kg	☼	02/13/19 11:25	1
1,3-Dichlorobenzene	1.7	U M	5.4	1.7	0.52	ug/Kg	☼	02/13/19 11:25	1
1,3-Dichloropropane	1.7	U	5.4	1.7	0.55	ug/Kg	☼	02/13/19 11:25	1
1,4-Dichlorobenzene	1.7	U	5.4	1.7	0.84	ug/Kg	☼	02/13/19 11:25	1
2,2-Dichloropropane	1.7	U	5.4	1.7	0.48	ug/Kg	☼	02/13/19 11:25	1
2-Butanone (MEK)	6.9	U	22	6.9	2.0	ug/Kg	☼	02/13/19 11:25	1
2-Chlorotoluene	1.7	U	5.4	1.7	0.55	ug/Kg	☼	02/13/19 11:25	1
2-Hexanone	14	U	22	14	5.3	ug/Kg	☼	02/13/19 11:25	1
4-Chlorotoluene	1.7	U	5.4	1.7	0.84	ug/Kg	☼	02/13/19 11:25	1
4-Isopropyltoluene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	02/13/19 11:25	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.7	ug/Kg	☼	02/13/19 11:25	1
Acetone	**7.6**	**J**	22	14	5.8	ug/Kg	☼	02/13/19 11:25	1
Benzene	1.7	U	5.4	1.7	0.51	ug/Kg	☼	02/13/19 11:25	1
Bromobenzene	1.7	U	5.4	1.7	0.53	ug/Kg	☼	02/13/19 11:25	1
Bromoform	0.86	U	5.4	0.86	0.25	ug/Kg	☼	02/13/19 11:25	1
Bromomethane	1.7	U	11	1.7	0.54	ug/Kg	☼	02/13/19 11:25	1
Carbon disulfide	1.7	U	5.4	1.7	0.45	ug/Kg	☼	02/13/19 11:25	1
Carbon tetrachloride	1.7	U	5.4	1.7	0.68	ug/Kg	☼	02/13/19 11:25	1
Chlorobenzene	1.7	U	5.4	1.7	0.58	ug/Kg	☼	02/13/19 11:25	1
Bromochloromethane	0.86	U	5.4	0.86	0.32	ug/Kg	☼	02/13/19 11:25	1
Dibromochloromethane	1.7	U	5.4	1.7	0.62	ug/Kg	☼	02/13/19 11:25	1
Chloroethane	3.5	U	11	3.5	0.96	ug/Kg	☼	02/13/19 11:25	1
Chloroform	**0.55**	**J**	11	0.86	0.31	ug/Kg	☼	02/13/19 11:25	1
Chloromethane	1.7	U	11	1.7	0.83	ug/Kg	☼	02/13/19 11:25	1
cis-1,2-Dichloroethene	1.7	U	5.4	1.7	0.61	ug/Kg	☼	02/13/19 11:25	1
cis-1,3-Dichloropropene	3.5	U	5.4	3.5	1.4	ug/Kg	☼	02/13/19 11:25	1
Dibromomethane	3.5	U	5.4	3.5	0.91	ug/Kg	☼	02/13/19 11:25	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-300119-120
Date Collected: 01/30/19 13:55
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-3
Matrix: Solid
Percent Solids: 88.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bromodichloromethane	0.86	U	5.4	0.86	0.24	ug/Kg	☼	02/13/19 11:25	1
Dichlorodifluoromethane	1.7	U	11	1.7	0.56	ug/Kg	☼	02/13/19 11:25	1
Ethylbenzene	1.7	U	5.4	1.7	0.72	ug/Kg	☼	02/13/19 11:25	1
Ethylene Dibromide	1.7	U	5.4	1.7	0.56	ug/Kg	☼	02/13/19 11:25	1
Hexachlorobutadiene	1.7	U	5.4	1.7	0.59	ug/Kg	☼	02/13/19 11:25	1
Isopropylbenzene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	02/13/19 11:25	1
Methyl tert-butyl ether	0.86	U	22	0.86	0.37	ug/Kg	☼	02/13/19 11:25	1
Methylene Chloride	**4.2**	**J**	5.4	3.5	1.7	ug/Kg	☼	02/13/19 11:25	1
m-Xylene & p-Xylene	3.5	U	3.5	3.5	1.1	ug/Kg	☼	02/13/19 11:25	1
Naphthalene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	02/13/19 11:25	1
n-Butylbenzene	1.7	U	5.4	1.7	0.61	ug/Kg	☼	02/13/19 11:25	1
N-Propylbenzene	1.7	U	5.4	1.7	0.63	ug/Kg	☼	02/13/19 11:25	1
o-Xylene	1.7	U	5.4	1.7	0.66	ug/Kg	☼	02/13/19 11:25	1
sec-Butylbenzene	1.7	U	5.4	1.7	0.83	ug/Kg	☼	02/13/19 11:25	1
Styrene	1.7	U	5.4	1.7	0.68	ug/Kg	☼	02/13/19 11:25	1
tert-Butylbenzene	1.7	U	5.4	1.7	0.54	ug/Kg	☼	02/13/19 11:25	1
Tetrachloroethene	1.7	U	5.4	1.7	0.64	ug/Kg	☼	02/13/19 11:25	1
Toluene	1.7	U	5.4	1.7	0.75	ug/Kg	☼	02/13/19 11:25	1
trans-1,2-Dichloroethene	0.86	U	5.4	0.86	0.42	ug/Kg	☼	02/13/19 11:25	1
trans-1,3-Dichloropropene	1.7	U	5.4	1.7	0.72	ug/Kg	☼	02/13/19 11:25	1
Trichloroethene	0.86	U	5.4	0.86	0.25	ug/Kg	☼	02/13/19 11:25	1
Trichlorofluoromethane	3.5	U	11	3.5	1.1	ug/Kg	☼	02/13/19 11:25	1
Vinyl chloride	3.5	U	5.4	3.5	1.4	ug/Kg	☼	02/13/19 11:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*01/30/19 13:55*	*02/13/19 11:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*01/30/19 13:55*	*02/13/19 11:25*	*1*
4-Bromofluorobenzene (Surr)	*98*		*79 - 119*	*01/30/19 13:55*	*02/13/19 11:25*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*01/30/19 13:55*	*02/13/19 11:25*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-247-300119-01
Date Collected: 01/30/19 14:00
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*82 - 110*		*02/11/19 16:33*	*1*

Client Sample ID: P-247-300119-120
Date Collected: 01/30/19 13:55
Date Received: 01/31/19 09:20
Lab Sample ID: 280-119694-4
Matrix: Solid
Percent Solids: 88.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.4	U	1.5	1.4	0.40	mg/Kg	☼	02/04/19 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*104*		*77 - 123*	*02/04/19 13:54*	*02/04/19 16:34*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-247-300119-01 — **Lab Sample ID: 280-119694-2**
Date Collected: 01/30/19 14:00 — **Matrix: Water**
Date Received: 01/31/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/15/19 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*132*	*Q*	*70 - 130*	*02/13/19 16:39*	*02/15/19 13:00*	*1*

Client Sample ID: V-247-300119-120 — **Lab Sample ID: 280-119694-3**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	02/18/19 22:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*55 - 130*	*02/13/19 15:55*	*02/18/19 22:02*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-247-300119-120 — **Lab Sample ID: 280-119694-4**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.4	U	8.8	4.4	1.5	mg/Kg	☼	02/12/19 08:40	1
Motor Oil (C20-C38)	26	U	27	26	8.6	mg/Kg	☼	02/12/19 08:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*54*		*45 - 130*	*02/06/19 14:57*	*02/12/19 08:40*	*1*
n-Octacosane	*50*	*Q*	*25 - 162*	*02/06/19 14:57*	*02/12/19 08:40*	*1*

General Chemistry

Client Sample ID: V-247-300119-120 — **Lab Sample ID: 280-119694-3**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.8**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.1**		0.1	0.05	0.1	%		01/31/19 16:13	1

Client Sample ID: P-247-300119-120 — **Lab Sample ID: 280-119694-4**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.1**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**11.9**		0.1	0.05	0.1	%		02/01/19 15:44	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119694-3	V-247-300119-120	99	100	98	103
LCS 280-447467/1-A	Lab Control Sample	100	98	100	99
LCSD 280-447467/2-A	Lab Control Sample Dup	100	99	100	102
MB 280-447467/3-A	Method Blank	99	102	100	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119694-1	RB-247-290119-01	95	104	98	97
280-119694-2	TB-247-300119-01	95	99	98	94
LCS 280-447129/5	Lab Control Sample	89	96	97	89
MB 280-447129/7	Method Blank	91	95	98	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119694-4	P-247-300119-120	104
280-119694-4 MS	P-247-300119-120	104
280-119694-4 MSD	P-247-300119-120	103
LCS 280-446444/1-A	Lab Control Sample	99
MB 280-446444/2-A	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-119694-2	TB-247-300119-01	102

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
LCS 280-447223/3	Lab Control Sample	101
MB 280-447223/4	Method Blank	99

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119694-3	V-247-300119-120	102
LCS 280-447554/1-A	Lab Control Sample	83
LCSD 280-447554/2-A	Lab Control Sample Dup	87
MB 280-447554/3-A	Method Blank	95

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (70-130)
280-119694-2	TB-247-300119-01	132 Q
LCS 280-447564/1-A	Lab Control Sample	122
LCSD 280-447564/2-A	Lab Control Sample Dup	123
MB 280-447564/3-A	Method Blank	128

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-119694-4	P-247-300119-120	54	50 Q
280-119694-4 MS	P-247-300119-120	83	74
280-119694-4 MS	P-247-300119-120	71	84
280-119694-4 MSD	P-247-300119-120	62	68
280-119694-4 MSD	P-247-300119-120	70	82
LCS 280-446722/2-A	Lab Control Sample	73	74
LCS 280-446722/3-A	Lab Control Sample	86	106
MB 280-446722/1-A	Method Blank	108	118

Surrogate Legend

OTPH = o-Terphenyl (Surr)

OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-447129/7
Matrix: Water
Analysis Batch: 447129

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/09/19 11:43	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/09/19 11:43	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 11:43	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 11:43	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 11:43	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 11:43	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/09/19 11:43	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/09/19 11:43	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/09/19 11:43	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/09/19 11:43	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 11:43	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/09/19 11:43	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 11:43	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/09/19 11:43	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 11:43	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/09/19 11:43	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 11:43	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 11:43	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/09/19 11:43	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/09/19 11:43	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/09/19 11:43	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/09/19 11:43	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 11:43	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 11:43	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/09/19 11:43	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/09/19 11:43	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/09/19 11:43	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/09/19 11:43	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 11:43	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 11:43	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/09/19 11:43	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 11:43	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/09/19 11:43	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/09/19 11:43	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 11:43	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/09/19 11:43	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447129/7
Matrix: Water
Analysis Batch: 447129

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/09/19 11:43	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/09/19 11:43	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/09/19 11:43	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/09/19 11:43	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 11:43	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/09/19 11:43	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 11:43	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/09/19 11:43	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/09/19 11:43	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/09/19 11:43	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/09/19 11:43	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/09/19 11:43	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/09/19 11:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*89 - 112*		*02/09/19 11:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*81 - 118*		*02/09/19 11:43*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*02/09/19 11:43*	*1*
Dibromofluoromethane (Surr)	*93*		*80 - 119*		*02/09/19 11:43*	*1*

Lab Sample ID: LCS 280-447129/5
Matrix: Water
Analysis Batch: 447129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.62	J	ug/L		92	62 - 128
2-Butanone (MEK)	20.0	21.5		ug/L		107	56 - 143
1,2-Dichlorobenzene	5.00	5.41		ug/L		108	80 - 119
1,3-Dichlorobenzene	5.00	5.34		ug/L		107	80 - 119
4-Chlorotoluene	5.00	5.75		ug/L		115	78 - 122
1,4-Dichlorobenzene	5.00	5.36		ug/L		107	79 - 118
1,1-Dichloroethane	5.00	5.42		ug/L		108	77 - 125
1,2-Dichloroethane	5.00	5.83		ug/L		117	73 - 128
Acetone	20.0	21.2		ug/L		106	39 - 160
1,1-Dichloroethene	5.00	5.16		ug/L		103	71 - 131
Benzene	5.00	5.40		ug/L		108	79 - 120
Bromobenzene	5.00	5.51		ug/L		110	80 - 120
Bromoform	5.00	5.02		ug/L		100	66 - 130
Bromomethane	5.00	5.13		ug/L		103	53 - 141
1,2-Dichloropropane	5.00	5.56		ug/L		111	78 - 122
Carbon disulfide	5.00	5.25		ug/L		105	64 - 133
1,3-Dichloropropane	5.00	5.82		ug/L		116	80 - 119
Carbon tetrachloride	5.00	5.11		ug/L		102	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447129/5
Matrix: Water
Analysis Batch: 447129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.38		ug/L		108	60 - 139
Chlorobenzene	5.00	5.26		ug/L		105	82 - 118
1,1-Dichloropropene	5.00	5.38		ug/L		108	79 - 125
Bromochloromethane	5.00	5.25		ug/L		105	78 - 123
Dibromochloromethane	5.00	5.31		ug/L		106	74 - 126
Chloroethane	5.00	5.05		ug/L		101	60 - 138
Chloroform	5.00	5.48		ug/L		110	79 - 124
2-Hexanone	20.0	21.5		ug/L		107	57 - 139
Chloromethane	5.00	4.90		ug/L		98	50 - 139
cis-1,2-Dichloroethene	5.00	5.23		ug/L		105	78 - 123
cis-1,3-Dichloropropene	5.00	5.32		ug/L		106	75 - 124
4-Isopropyltoluene	5.00	5.69		ug/L		114	77 - 127
Dibromomethane	5.00	5.51		ug/L		110	79 - 123
Bromodichloromethane	5.00	5.50		ug/L		110	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	23.0		ug/L		115	67 - 130
Dichlorodifluoromethane	5.00	4.69		ug/L		94	32 - 152
Ethylbenzene	5.00	5.28		ug/L		106	79 - 121
Ethylene Dibromide	5.00	5.42		ug/L		108	77 - 121
Hexachlorobutadiene	5.00	5.02		ug/L		100	66 - 134
Isopropylbenzene	5.00	5.69		ug/L		114	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.35		ug/L		107	78 - 124
Methyl tert-butyl ether	5.00	5.43		ug/L		109	71 - 124
1,1,2,2-Tetrachloroethane	5.00	5.83		ug/L		117	71 - 121
Methylene Chloride	5.00	5.24		ug/L		105	74 - 124
Naphthalene	5.00	4.48		ug/L		90	61 - 128
1,2,3-Trichlorobenzene	5.00	4.79		ug/L		96	69 - 129
n-Butylbenzene	5.00	5.84		ug/L		117	75 - 128
1,1,1-Trichloroethane	5.00	5.36		ug/L		107	74 - 131
N-Propylbenzene	5.00	5.68		ug/L		114	76 - 126
1,1,2-Trichloroethane	5.00	5.71		ug/L		114	80 - 119
sec-Butylbenzene	5.00	5.44		ug/L		109	77 - 126
Styrene	5.00	5.09		ug/L		102	78 - 123
1,2,4-Trichlorobenzene	5.00	4.68		ug/L		94	69 - 130
tert-Butylbenzene	5.00	5.65		ug/L		113	78 - 124
1,2,3-Trichloropropane	5.00	5.57		ug/L		111	73 - 122
Tetrachloroethene	5.00	4.99		ug/L		100	74 - 129
1,2,4-Trimethylbenzene	5.00	5.79		ug/L		116	76 - 124
Toluene	5.00	5.42		ug/L		108	80 - 121
1,3,5-Trimethylbenzene	5.00	5.61		ug/L		112	75 - 124
trans-1,2-Dichloroethene	5.00	5.45		ug/L		109	75 - 124
trans-1,3-Dichloropropene	5.00	5.33		ug/L		107	73 - 127
o-Xylene	5.00	5.63		ug/L		113	78 - 122
Trichloroethene	5.00	5.07		ug/L		101	79 - 123
m-Xylene & p-Xylene	5.00	5.54		ug/L		111	80 - 121
Trichlorofluoromethane	5.00	4.94		ug/L		99	65 - 141
Vinyl chloride	5.00	5.02		ug/L		100	58 - 137
2-Chlorotoluene	5.00	5.62		ug/L		112	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447129/5
Matrix: Water
Analysis Batch: 447129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*96*		*81 - 118*
4-Bromofluorobenzene (Surr)	*97*		*85 - 114*
Dibromofluoromethane (Surr)	*89*		*80 - 119*

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		02/13/19 11:03	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		02/13/19 11:03	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		02/13/19 11:03	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		02/13/19 11:03	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		02/13/19 11:03	1
Acetone	7.65	J	20	13	5.4	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		02/13/19 11:03	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		02/13/19 11:03	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		02/13/19 11:03	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		02/13/19 11:03	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		02/13/19 11:03	1
Chloroform	0.418	J	10	0.80	0.29	ug/Kg		02/13/19 11:03	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		02/13/19 11:03	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		02/13/19 11:03	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		02/13/19 11:03	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		02/13/19 11:03	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		02/13/19 11:03	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		02/13/19 11:03	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		02/13/19 11:03	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		02/13/19 11:03	1
Naphthalene	0.648	J	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		02/13/19 11:03	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		02/13/19 11:03	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		02/13/19 11:03	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		02/13/19 11:03	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		02/13/19 11:03	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		02/13/19 11:03	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,2,4-Trimethylbenzene	0.684	J	5.0	3.2	0.58	ug/Kg		02/13/19 11:03	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		02/13/19 11:03	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		02/13/19 11:03	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		02/13/19 11:03	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		02/13/19 11:03	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	49.5		ug/Kg		99	61 - 132
2-Butanone (MEK)	200	198		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	50.0	52.2		ug/Kg		104	78 - 121
1,3-Dichlorobenzene	50.0	52.3		ug/Kg		105	77 - 121
4-Chlorotoluene	50.0	52.6		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	51.7		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.1		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	45.2		ug/Kg		90	73 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	201		ug/Kg		101	36 - 164
1,1-Dichloroethene	50.0	51.1		ug/Kg		102	70 - 131
Benzene	50.0	48.0		ug/Kg		96	77 - 121
Bromobenzene	50.0	51.2		ug/Kg		102	78 - 121
Bromoform	50.0	48.5		ug/Kg		97	67 - 132
Bromomethane	50.0	46.4		ug/Kg		93	53 - 143
1,2-Dichloropropane	50.0	46.4		ug/Kg		93	76 - 123
Carbon disulfide	50.0	51.8		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	77 - 121
Carbon tetrachloride	50.0	52.1		ug/Kg		104	70 - 135
2,2-Dichloropropane	50.0	51.5		ug/Kg		103	67 - 133
Chlorobenzene	50.0	49.7		ug/Kg		99	79 - 120
1,1-Dichloropropene	50.0	50.6		ug/Kg		101	76 - 125
Bromochloromethane	50.0	49.2		ug/Kg		98	78 - 125
Dibromochloromethane	50.0	48.4		ug/Kg		97	74 - 126
Chloroethane	50.0	41.9		ug/Kg		84	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	204		ug/Kg		102	53 - 145
Chloromethane	50.0	39.0		ug/Kg		78	50 - 136
cis-1,2-Dichloroethene	50.0	50.0		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	53.7		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	53.9		ug/Kg		108	73 - 127
Dibromomethane	50.0	49.0		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	53.1		ug/Kg		106	75 - 127
4-Methyl-2-pentanone (MIBK)	200	199		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	42.7		ug/Kg		85	29 - 149
Ethylbenzene	50.0	50.3		ug/Kg		101	76 - 122
Ethylene Dibromide	50.0	54.7		ug/Kg		109	78 - 122
Hexachlorobutadiene	50.0	52.5		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	53.1		ug/Kg		106	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.5		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/Kg		102	70 - 124
Methylene Chloride	50.0	48.0		ug/Kg		96	70 - 128
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129
1,2,3-Trichlorobenzene	50.0	54.5		ug/Kg		109	66 - 130
n-Butylbenzene	50.0	54.1		ug/Kg		108	70 - 128
1,1,1-Trichloroethane	50.0	50.3		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	53.8		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	54.0		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 126
Styrene	50.0	52.1		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	50.0	56.1		ug/Kg		112	67 - 129
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 125
1,2,3-Trichloropropane	50.0	50.1		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	52.8		ug/Kg		106	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	50.0	52.6		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	50.0	52.3		ug/Kg		105	74 - 125
trans-1,3-Dichloropropene	50.0	48.3		ug/Kg		97	71 - 130
o-Xylene	50.0	51.2		ug/Kg		102	77 - 123
Trichloroethene	50.0	51.9		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	50.0	47.5		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	44.1		ug/Kg		88	62 - 140
Vinyl chloride	50.0	41.2		ug/Kg		82	56 - 135
2-Chlorotoluene	50.0	51.7		ug/Kg		103	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	49.0		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)	200	201		ug/Kg		100	51 - 148	1	20
1,2-Dichlorobenzene	50.0	52.9		ug/Kg		106	78 - 121	1	20
1,3-Dichlorobenzene	50.0	52.8		ug/Kg		106	77 - 121	1	20
4-Chlorotoluene	50.0	53.8		ug/Kg		108	72 - 124	2	20
1,4-Dichlorobenzene	50.0	52.1		ug/Kg		104	75 - 120	1	20
1,1-Dichloroethane	50.0	50.2		ug/Kg		100	76 - 125	4	20
1,2-Dichloroethane	50.0	47.0		ug/Kg		94	73 - 128	4	20
Acetone	200	208		ug/Kg		104	36 - 164	3	20
1,1-Dichloroethene	50.0	51.7		ug/Kg		103	70 - 131	1	20
Benzene	50.0	50.5		ug/Kg		101	77 - 121	5	20
Bromobenzene	50.0	52.4		ug/Kg		105	78 - 121	2	20
Bromoform	50.0	49.9		ug/Kg		100	67 - 132	3	20
Bromomethane	50.0	49.8		ug/Kg		100	53 - 143	7	20
1,2-Dichloropropane	50.0	48.6		ug/Kg		97	76 - 123	5	20
Carbon disulfide	50.0	53.5		ug/Kg		107	63 - 132	3	20
1,3-Dichloropropane	50.0	53.0		ug/Kg		106	77 - 121	4	20
Carbon tetrachloride	50.0	53.5		ug/Kg		107	70 - 135	3	20
2,2-Dichloropropane	50.0	54.1		ug/Kg		108	67 - 133	5	20
Chlorobenzene	50.0	50.5		ug/Kg		101	79 - 120	2	20
1,1-Dichloropropene	50.0	52.6		ug/Kg		105	76 - 125	4	20
Bromochloromethane	50.0	51.9		ug/Kg		104	78 - 125	5	20
Dibromochloromethane	50.0	49.4		ug/Kg		99	74 - 126	2	20
Chloroethane	50.0	44.5		ug/Kg		89	59 - 139	6	20
Chloroform	50.0	48.6		ug/Kg		97	78 - 123	5	20
2-Hexanone	200	203		ug/Kg		102	53 - 145	0	20
Chloromethane	50.0	41.5		ug/Kg		83	50 - 136	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene			50.0	51.9		ug/Kg		104	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	54.8		ug/Kg		110	74 - 126	2	20
4-Isopropyltoluene			50.0	54.4		ug/Kg		109	73 - 127	1	20
Dibromomethane			50.0	51.6		ug/Kg		103	78 - 125	5	20
Bromodichloromethane			50.0	55.1		ug/Kg		110	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			200	205		ug/Kg		103	65 - 135	3	20
Dichlorodifluoromethane			50.0	44.6		ug/Kg		89	29 - 149	4	20
Ethylbenzene			50.0	51.1		ug/Kg		102	76 - 122	2	20
Ethylene Dibromide			50.0	55.9		ug/Kg		112	78 - 122	2	20
Hexachlorobutadiene			50.0	54.1		ug/Kg		108	61 - 135	3	20
Isopropylbenzene			50.0	53.9		ug/Kg		108	68 - 134	1	20
1,1,1,2-Tetrachloroethane			50.0	52.7		ug/Kg		105	78 - 125	2	20
Methyl tert-butyl ether			50.0	52.7		ug/Kg		105	73 - 125	5	20
1,1,2,2-Tetrachloroethane			50.0	51.7		ug/Kg		103	70 - 124	2	20
Methylene Chloride			50.0	50.4		ug/Kg		101	70 - 128	5	20
Naphthalene			50.0	58.9		ug/Kg		118	62 - 129	0	20
1,2,3-Trichlorobenzene			50.0	55.3		ug/Kg		111	66 - 130	2	20
n-Butylbenzene			50.0	54.3		ug/Kg		109	70 - 128	0	20
1,1,1-Trichloroethane			50.0	52.3		ug/Kg		105	73 - 130	4	20
N-Propylbenzene			50.0	55.0		ug/Kg		110	73 - 125	2	20
1,1,2-Trichloroethane			50.0	56.3		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene			50.0	53.9		ug/Kg		108	73 - 126	1	20
Styrene			50.0	53.1		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	55.8		ug/Kg		112	67 - 129	1	20
tert-Butylbenzene			50.0	53.9		ug/Kg		108	73 - 125	2	20
1,2,3-Trichloropropane			50.0	51.5		ug/Kg		103	73 - 125	3	20
Tetrachloroethene			50.0	52.6		ug/Kg		105	73 - 128	1	20
1,2,4-Trimethylbenzene			50.0	53.2		ug/Kg		106	75 - 123	1	20
Toluene			50.0	52.2		ug/Kg		104	77 - 121	4	20
1,3,5-Trimethylbenzene			50.0	53.1		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene			50.0	54.1		ug/Kg		108	74 - 125	3	20
trans-1,3-Dichloropropene			50.0	50.7		ug/Kg		101	71 - 130	5	20
o-Xylene			50.0	52.1		ug/Kg		104	77 - 123	2	20
Trichloroethene			50.0	53.9		ug/Kg		108	77 - 123	4	20
m-Xylene & p-Xylene			50.0	48.6		ug/Kg		97	77 - 124	2	20
Trichlorofluoromethane			50.0	45.8		ug/Kg		92	62 - 140	4	20
Vinyl chloride			50.0	44.2		ug/Kg		88	56 - 135	7	20
2-Chlorotoluene			50.0	52.5		ug/Kg		105	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*102*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-446444/2-A
Matrix: Solid
Analysis Batch: 446450

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446444

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		02/04/19 15:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*98*		*77 - 123*	*02/04/19 13:54*	*02/04/19 15:46*	*1*

Lab Sample ID: LCS 280-446444/1-A
Matrix: Solid
Analysis Batch: 446450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446444

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	3.87		mg/Kg		90	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*99*		*77 - 123*

Lab Sample ID: 280-119694-4 MS
Matrix: Solid
Analysis Batch: 446450

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446444

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	1.4	U	4.80	4.08		mg/Kg	☼	85	79 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*104*		*77 - 123*

Lab Sample ID: 280-119694-4 MSD
Matrix: Solid
Analysis Batch: 446450

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446444

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.4	U	4.79	4.21		mg/Kg	☼	88	79 - 122	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*

Lab Sample ID: MB 280-447223/4
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 16:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*02/11/19 16:09*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-447223/3
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	64.3		ug/L		82	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*82 - 110*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-447554/3-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447554

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		02/18/19 21:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*95*		*55 - 130*	*02/13/19 15:55*	*02/18/19 21:43*	*1*

Lab Sample ID: LCS 280-447554/1-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.778		ug/Kg		89	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*83*		*55 - 130*

Lab Sample ID: LCSD 280-447554/2-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.760		ug/Kg		87	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*87*		*55 - 130*

Lab Sample ID: MB 280-447564/3-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447564

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/15/19 12:41	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-447564/3-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447564

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	128		70 - 130	02/13/19 16:39	02/15/19 12:41	1

Lab Sample ID: LCS 280-447564/1-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.262		ug/L		105	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	122		70 - 130

Lab Sample ID: LCSD 280-447564/2-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447564

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.250	0.276		ug/L		111	70 - 130	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	123		70 - 130

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-446722/1-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446722

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	8.0	4.0	1.4	mg/Kg		02/12/19 07:35	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		02/12/19 07:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	108		45 - 130	02/06/19 14:57	02/12/19 07:35	1
n-Octacosane	118		25 - 162	02/06/19 14:57	02/12/19 07:35	1

Lab Sample ID: LCS 280-446722/2-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	131	95.6		mg/Kg		73	38 - 132

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	73		45 - 130
n-Octacosane	74		25 - 162

Lab Sample ID: LCS 280-446722/3-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	334	313		mg/Kg		94	39 - 106

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*106*		*25 - 162*

Lab Sample ID: 280-119694-4 MS
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	4.4	U	151	122		mg/Kg	☼	81	38 - 132

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*83*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

Lab Sample ID: 280-119694-4 MS
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	26	U	379	288		mg/Kg	☼	76	45 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*71*		*45 - 130*
n-Octacosane	*84*		*25 - 162*

Lab Sample ID: 280-119694-4 MSD
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	4.4	U	150	99.5		mg/Kg	☼	66	38 - 132	20	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*62*		*45 - 130*
n-Octacosane	*68*		*25 - 162*

Lab Sample ID: 280-119694-4 MSD
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	26	U	372	275		mg/Kg	☼	74	45 - 130	5	30

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 280-119694-4 MSD
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: P-247-300119-120
Prep Type: Total/NA
Prep Batch: 446722

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*45 - 130*
n-Octacosane	*82*		*25 - 162*

Method: Moisture - Percent Moisture

Lab Sample ID: 280-119694-4 DU
Matrix: Solid
Analysis Batch: 446285

Client Sample ID: P-247-300119-120
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	11.9			11.3		%				5	20

GC/MS VOA

Analysis Batch: 447129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-1	RB-247-290119-01	Total/NA	Water	8260B	
280-119694-2	TB-247-300119-01	Total/NA	Water	8260B	
MB 280-447129/7	Method Blank	Total/NA	Water	8260B	
LCS 280-447129/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 447462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-3	V-247-300119-120	Total/NA	Solid	8260B	447467
MB 280-447467/3-A	Method Blank	Total/NA	Solid	8260B	447467
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	8260B	447467
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	447467

Prep Batch: 447467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-3	V-247-300119-120	Total/NA	Solid	5035	
MB 280-447467/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA

Prep Batch: 446444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-4	P-247-300119-120	Total/NA	Solid	5035	
MB 280-446444/2-A	Method Blank	Total/NA	Solid	5035	
LCS 280-446444/1-A	Lab Control Sample	Total/NA	Solid	5035	
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	5035	
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	5035	

Analysis Batch: 446450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-4	P-247-300119-120	Total/NA	Solid	8015D GRO	446444
MB 280-446444/2-A	Method Blank	Total/NA	Solid	8015D GRO	446444
LCS 280-446444/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	446444
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	8015D GRO	446444
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	8015D GRO	446444

Analysis Batch: 447223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-2	TB-247-300119-01	Total/NA	Water	8015D GRO	
MB 280-447223/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-447223/3	Lab Control Sample	Total/NA	Water	8015D GRO	

GC Semi VOA

Prep Batch: 446722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-4	P-247-300119-120	Total/NA	Solid	3546	
MB 280-446722/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-446722/2-A	Lab Control Sample	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 446722 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-446722/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	3546	
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	3546	
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	3546	
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	3546	

Analysis Batch: 447214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-4	P-247-300119-120	Total/NA	Solid	8015D DRO	446722
MB 280-446722/1-A	Method Blank	Total/NA	Solid	8015D DRO	446722
LCS 280-446722/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	446722
LCS 280-446722/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	446722
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	8015D DRO	446722
280-119694-4 MS	P-247-300119-120	Total/NA	Solid	8015D DRO	446722
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	8015D DRO	446722
280-119694-4 MSD	P-247-300119-120	Total/NA	Solid	8015D DRO	446722

Prep Batch: 447554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-3	V-247-300119-120	Total/NA	Solid	8011	
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

Prep Batch: 447564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-2	TB-247-300119-01	Total/NA	Water	8011	
MB 280-447564/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-447564/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-447564/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 447805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-2	TB-247-300119-01	Total/NA	Water	8011	447564
MB 280-447564/3-A	Method Blank	Total/NA	Water	8011	447564
LCS 280-447564/1-A	Lab Control Sample	Total/NA	Water	8011	447564
LCSD 280-447564/2-A	Lab Control Sample Dup	Total/NA	Water	8011	447564

Analysis Batch: 448030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-3	V-247-300119-120	Total/NA	Solid	8011	447554
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	447554
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	447554
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	447554

General Chemistry

Analysis Batch: 446150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-3	V-247-300119-120	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 446285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119694-4	P-247-300119-120	Total/NA	Solid	Moisture	
280-119694-4 DU	P-247-300119-120	Total/NA	Solid	Moisture	

Client Sample ID: RB-247-290119-01 — **Lab Sample ID: 280-119694-1**
Date Collected: 01/29/19 09:50 — **Matrix: Water**
Date Received: 01/31/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	447129	02/09/19 18:15	JLS	TAL DEN

Client Sample ID: TB-247-300119-01 — **Lab Sample ID: 280-119694-2**
Date Collected: 01/30/19 14:00 — **Matrix: Water**
Date Received: 01/31/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	447129	02/09/19 18:36	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	447223	02/11/19 16:33	SU	TAL DEN
Total/NA	Prep	8011			34.8 mL	35 mL	447564	02/13/19 16:39	MJS	TAL DEN
Total/NA	Analysis	8011		1			447805	02/15/19 13:00	JLW	TAL DEN

Client Sample ID: V-247-300119-120 — **Lab Sample ID: 280-119694-3**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446150	01/31/19 16:13	JDR	TAL DEN

Client Sample ID: V-247-300119-120 — **Lab Sample ID: 280-119694-3**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.205 g	5 mL	447467	01/30/19 13:55	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447462	02/13/19 11:25	GPM	TAL DEN
Total/NA	Prep	8011			9.95 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			448030	02/18/19 22:02	JLW	TAL DEN

Client Sample ID: P-247-300119-120 — **Lab Sample ID: 280-119694-4**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446285	02/01/19 15:44	KES	TAL DEN

Client Sample ID: P-247-300119-120 — **Lab Sample ID: 280-119694-4**
Date Collected: 01/30/19 13:55 — **Matrix: Solid**
Date Received: 01/31/19 09:20 — **Percent Solids: 88.1**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.118 g	5 mL	446444	02/04/19 13:54	SU	TAL DEN

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Client Sample ID: P-247-300119-120
Date Collected: 01/30/19 13:55
Date Received: 01/31/19 09:20

Lab Sample ID: 280-119694-4
Matrix: Solid
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	446450	02/04/19 16:34	SU	TAL DEN
Total/NA	Prep	3546			15.4 g	1 mL	446722	02/06/19 14:57	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			447214	02/12/19 08:40	MPF	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119694-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1513 3229	COC No: COC1-247-TA-20190[illegible]
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wastesolid, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X	
RB-247-290119-01	01/29/19	0950	G	W	N	N						X	X	X	X	6	
TB-247-300119-01	01/30/19	1400	G	W	N	N						X	X	X	X	6	
V-247-300119-120	01/30/19	1355	G	S	N	N	X	X	X							5	
P-247-300119-120	01/30/19	1355	G	S	N	N				X	X					3	
~~V-247-300119-~~	01/30/19		G	S	N	N	X	X	X							5	JRL
~~P-247-300119-~~	01/30/19		G	S	N	N				X	X					3	

JRL



Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
JOSHUA LIVINGSTON	01/30/19 1800	EA		01-31-19 0920	TADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.5, +1.0, IR-5, xfer by FDP 1-31-19

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119694-1

Login Number: 119694
List Number: 1
Creator: Dunlap, Krista M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	False	Refer to Job Narrative for details.
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119743-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Authorized for release by:
2/28/2019 10:38:58 AM
Donna Rydberg, Senior Project Manager
(303)736-0192
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Designee for

Darlene Bandy, Project Manager I
(303)736-0188
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.

GC Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119743-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119743-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 2/1/2019 at 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.4º C and 2.9º C.

Receipt Exceptions

One of Two Sodium Thiosulfate preserved VOA Vials requesting EDB analysis for sample TB-247-310119-01 (280-119743-2) was received partially frozen and broken. Volume could not be salvaged from the broken container, therefore, the Voa Vial was disposed of. The 2nd Sodium Thiosulfate Voa Vial was received frozen, but not broken. It can be noted that sufficient volume is available from the remaining Voa Vial and the laboratory proceeded with the analysis.

1 of 4 HCl preserved Voa Vials for sample TB-247-310119-01 (280-119743-2) was received with a headspace bubble >6mm in diameter. It can be noted that sufficient volume is available from the remaining Voa Vials to perform analysis without headspace.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - SOLID

Sample V-247-310119-164 (280-119743-3) was analyzed for volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared and analyzed on 02/13/2019.

The analytes 1,2,4-Trimethylbenzene, Acetone, Chloroform and Naphthalene were detected in method blank MB 280-447510/3-A at levels that were less than one half the LOQ; therefore, corrective action was deemed unnecessary. The values should be considered estimates, and have been flagged “J” in accordance with the DoD QSM.

The initial attempt at running sample V-247-310119-164 (280-119743-3) for 8260B analyses had 2 compounds fail low in the closing CCV (n-Butylbenzene -54.4% and Hexachlorobutadiene at -62.9%). The second vial sent with this sample is cracked; therefore re-analyses can not be performed from the vials sent. The client was contacted on 2/13/2019 and directed the laboratory to reanalyze the sample from the soil jar sent in.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - SOLID

Sample V-247-310119-208 (280-119743-5) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B.

Job ID: 280-119743-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

The analytes 1,2,4-Trimethylbenzene, Acetone, Chloroform and Naphthalene were detected in method blank MB 280-447467/3-A at levels that were less than one half the LOQ; therefore, corrective action was deemed unnecessary. The values should be considered estimates, and have been flagged "J" in accordance with the DoD QSM.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - WATER

Samples RB-247-310119-01 (280-119743-1) and TB-247-310119-01 (280-119743-2) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 02/13/2019.

The continuing calibration verification (CCV) associated with batch 280-447447 recovered above the upper control limit for Dichlorodifluoromethane (80-120%) at 20.9%. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - SOLID

Samples V-247-310119-164 (280-119743-3) and V-247-310119-208 (280-119743-5) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/13/2019 and analyzed on 02/18/2019 and 02/26/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - WATER

Samples RB-247-310119-01 (280-119743-1) and TB-247-310119-01 (280-119743-2) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/13/2019 and analyzed on 02/15/2019.

The recovery for surrogate 1,2-Dibromopropane exceeded the surrogate recovery criteria in samples RB-247-310119-01 (280-119743-1) and TB-247-310119-01 (280-119743-2). These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - SOLID

Samples P-247-310119-164 (280-119743-4) and P-247-310119-208 (280-119743-6) were analyzed for Volatile Petroleum Hydrocarbons (GC) in accordance with 8015D GRO. The samples were prepared on 01/31/2019 and analyzed on 02/12/2019.

The recovery for surrogate a,a,a-Trifluorotoluene exceeded the surrogate recovery criteria in sample P-247-310119-208 (280-119743-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - WATER

Samples RB-247-310119-01 (280-119743-1) and TB-247-310119-01 (280-119743-2) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 02/11/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO) - SOLID

Samples P-247-310119-164 (280-119743-4) and P-247-310119-208 (280-119743-6) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 02/06/2019 and analyzed on 02/12/2019.

Silica gel cleanup performed was performed on samples: P-247-310119-164 (280-119743-4), P-247-310119-208 (280-119743-6), (LCS 280-446722/2-A), (LCS 280-446722/3-A), (MB 280-446722/1-A), (280-119694-A-4-G MS) and (280-119694-A-4-H MSD).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-119743-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

DIESEL RANGE ORGANICS (DRO) - WATER

Sample RB-247-310119-01 (280-119743-1) was analyzed for Diesel Range Organics (DRO) in accordance with 8015D DRO. The samples were prepared on 02/06/2019 and analyzed on 02/07/2019.

The following sample was cleaned with silica gel: RB-247-310119-01 (280-119743-1) per method comments.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples V-247-310119-164 (280-119743-3), P-247-310119-164 (280-119743-4), V-247-310119-208 (280-119743-5) and P-247-310119-208 (280-119743-6) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 02/01/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Client Sample ID: RB-247-310119-01 — Lab Sample ID: 280-119743-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Styrene	0.22	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Toluene	0.38	J	1.0	0.40	0.17	ug/L	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	0.045	J	0.25	0.12	0.033	mg/L	1		8015D DRO	Total/NA

Client Sample ID: TB-247-310119-01 — Lab Sample ID: 280-119743-2

No Detections.

Client Sample ID: V-247-310119-164 — Lab Sample ID: 280-119743-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.1	J	20	13	5.4	ug/Kg	1		8260B	Total/NA
Chloroform	0.40	J	10	0.80	0.29	ug/Kg	1		8260B	Total/NA

Client Sample ID: P-247-310119-164 — Lab Sample ID: 280-119743-4

No Detections.

Client Sample ID: V-247-310119-208 — Lab Sample ID: 280-119743-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.44	J	11	0.89	0.32	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-247-310119-208 — Lab Sample ID: 280-119743-6

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030A	Purge and Trap	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119743-1	RB-247-310119-01	Water	01/31/19 15:45	02/01/19 09:20
280-119743-2	TB-247-310119-01	Water	01/31/19 14:30	02/01/19 09:20
280-119743-3	V-247-310119-164	Solid	01/31/19 08:30	02/01/19 09:20
280-119743-4	P-247-310119-164	Solid	01/31/19 08:30	02/01/19 09:20
280-119743-5	V-247-310119-208	Solid	01/31/19 13:45	02/01/19 09:20
280-119743-6	P-247-310119-208	Solid	01/31/19 13:45	02/01/19 09:20

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RB-247-310119-01
Date Collected: 01/31/19 15:45
Date Received: 02/01/19 09:20

Lab Sample ID: 280-119743-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/13/19 15:09	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/13/19 15:09	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:09	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/13/19 15:09	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/13/19 15:09	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/13/19 15:09	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/13/19 15:09	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/13/19 15:09	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/13/19 15:09	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/13/19 15:09	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:09	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/13/19 15:09	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		02/13/19 15:09	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:09	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:09	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 15:09	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:09	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 15:09	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/13/19 15:09	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/13/19 15:09	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:09	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:09	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:09	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:09	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:09	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:09	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:09	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/13/19 15:09	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/13/19 15:09	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:09	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 15:09	1
Methylene Chloride	0.80	U	5.0	0.80	0.32	ug/L		02/13/19 15:09	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/13/19 15:09	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/13/19 15:09	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:09	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Styrene	**0.22**	**J**	1.0	0.40	0.17	ug/L		02/13/19 15:09	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RB-247-310119-01
Date Collected: 01/31/19 15:45
Date Received: 02/01/19 09:20
Lab Sample ID: 280-119743-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:09	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:09	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 15:09	1
Toluene	**0.38**	**J**	1.0	0.40	0.17	ug/L		02/13/19 15:09	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:09	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/13/19 15:09	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/13/19 15:09	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:09	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/13/19 15:09	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:09	1
1,3,5-Trimethylbenzene	0.40	U M	1.0	0.40	0.16	ug/L		02/13/19 15:09	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/13/19 15:09	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:09	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/13/19 15:09	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*89 - 112*		*02/13/19 15:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*81 - 118*		*02/13/19 15:09*	*1*
4-Bromofluorobenzene (Surr)	*101*		*85 - 114*		*02/13/19 15:09*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*02/13/19 15:09*	*1*

Client Sample ID: TB-247-310119-01
Date Collected: 01/31/19 14:30
Date Received: 02/01/19 09:20
Lab Sample ID: 280-119743-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/13/19 15:28	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/13/19 15:28	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:28	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/13/19 15:28	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/13/19 15:28	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/13/19 15:28	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/13/19 15:28	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/13/19 15:28	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/13/19 15:28	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/13/19 15:28	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:28	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/13/19 15:28	1
Dichlorodifluoromethane	0.80	U Q	2.0	0.80	0.31	ug/L		02/13/19 15:28	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-247-310119-01
Date Collected: 01/31/19 14:30
Date Received: 02/01/19 09:20

Lab Sample ID: 280-119743-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:28	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:28	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 15:28	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:28	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 15:28	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/13/19 15:28	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/13/19 15:28	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:28	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:28	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:28	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:28	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 15:28	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:28	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:28	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/13/19 15:28	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/13/19 15:28	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:28	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 15:28	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		02/13/19 15:28	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/13/19 15:28	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/13/19 15:28	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 15:28	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:28	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:28	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 15:28	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:28	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/13/19 15:28	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/13/19 15:28	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 15:28	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/13/19 15:28	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 15:28	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 15:28	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/13/19 15:28	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 15:28	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/13/19 15:28	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*02/13/19 15:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*81 - 118*		*02/13/19 15:28*	*1*
4-Bromofluorobenzene (Surr)	*98*		*85 - 114*		*02/13/19 15:28*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-247-310119-01
Date Collected: 01/31/19 14:30
Date Received: 02/01/19 09:20
Lab Sample ID: 280-119743-2
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*02/13/19 15:28*	*1*

Client Sample ID: V-247-310119-164
Date Collected: 01/31/19 08:30
Date Received: 02/01/19 09:20
Lab Sample ID: 280-119743-3
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**6.1**	**J**	20	13	5.4	ug/Kg		02/13/19 13:40	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		02/13/19 13:40	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 13:40	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		02/13/19 13:40	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		02/13/19 13:40	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 13:40	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		02/13/19 13:40	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		02/13/19 13:40	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 13:40	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		02/13/19 13:40	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		02/13/19 13:40	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		02/13/19 13:40	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 13:40	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 13:40	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		02/13/19 13:40	1
Chloroform	**0.40**	**J**	10	0.80	0.29	ug/Kg		02/13/19 13:40	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		02/13/19 13:40	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 13:40	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		02/13/19 13:40	1
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		02/13/19 13:40	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		02/13/19 13:40	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		02/13/19 13:40	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 13:40	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		02/13/19 13:40	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		02/13/19 13:40	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 13:40	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		02/13/19 13:40	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		02/13/19 13:40	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 13:40	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		02/13/19 13:40	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 13:40	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		02/13/19 13:40	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		02/13/19 13:40	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 13:40	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		02/13/19 13:40	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 13:40	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 13:40	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 13:40	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 13:40	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		02/13/19 13:40	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		02/13/19 13:40	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 13:40	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 13:40	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-310119-164 — **Lab Sample ID: 280-119743-3**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		02/13/19 13:40	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		02/13/19 13:40	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		02/13/19 13:40	1
Naphthalene	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 13:40	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		02/13/19 13:40	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 13:40	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 13:40	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 13:40	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 13:40	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		02/13/19 13:40	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		02/13/19 13:40	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 13:40	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		02/13/19 13:40	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 13:40	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		02/13/19 13:40	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		02/13/19 13:40	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		02/13/19 13:40	1
1,2,4-Trimethylbenzene	3.2	U	5.0	3.2	0.58	ug/Kg		02/13/19 13:40	1
1,3,5-Trimethylbenzene	1.6	U	5.0	1.6	0.57	ug/Kg		02/13/19 13:40	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 13:40	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 13:40	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		02/13/19 13:40	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*02/13/19 09:00*	*02/13/19 13:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/13/19 09:00*	*02/13/19 13:40*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*02/13/19 09:00*	*02/13/19 13:40*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*02/13/19 09:00*	*02/13/19 13:40*	*1*

Client Sample ID: V-247-310119-208 — **Lab Sample ID: 280-119743-5**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	1.8	U	5.6	1.8	0.62	ug/Kg	☼	02/13/19 12:55	1
1,1,1-Trichloroethane	1.8	U	5.6	1.8	0.58	ug/Kg	☼	02/13/19 12:55	1
1,1,2,2-Tetrachloroethane	1.8	U	5.6	1.8	0.68	ug/Kg	☼	02/13/19 12:55	1
1,1,2-Trichloroethane	3.6	U	5.6	3.6	0.98	ug/Kg	☼	02/13/19 12:55	1
1,1-Dichloroethane	0.89	U	5.6	0.89	0.23	ug/Kg	☼	02/13/19 12:55	1
1,1-Dichloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	02/13/19 12:55	1
1,1-Dichloropropene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	02/13/19 12:55	1
1,2,3-Trichlorobenzene	1.8	U	5.6	1.8	0.84	ug/Kg	☼	02/13/19 12:55	1
1,2,3-Trichloropropane	3.6	U	5.6	3.6	0.90	ug/Kg	☼	02/13/19 12:55	1
1,2,4-Trichlorobenzene	1.8	U	5.6	1.8	0.81	ug/Kg	☼	02/13/19 12:55	1
1,2,4-Trimethylbenzene	3.6	U	5.6	3.6	0.65	ug/Kg	☼	02/13/19 12:55	1
1,2-Dibromo-3-Chloropropane	1.8	U	11	1.8	0.67	ug/Kg	☼	02/13/19 12:55	1
1,2-Dichlorobenzene	1.8	U	5.6	1.8	0.50	ug/Kg	☼	02/13/19 12:55	1
1,2-Dichloroethane	1.8	U	5.6	1.8	0.78	ug/Kg	☼	02/13/19 12:55	1
1,2-Dichloroethene, Total	1.8	U	5.6	1.8	0.43	ug/Kg	☼	02/13/19 12:55	1
1,2-Dichloropropane	1.8	U M	5.6	1.8	0.61	ug/Kg	☼	02/13/19 12:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-310119-208
Date Collected: 01/31/19 13:45
Date Received: 02/01/19 09:20

Lab Sample ID: 280-119743-5
Matrix: Solid
Percent Solids: 96.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	1.8	U	5.6	1.8	0.63	ug/Kg	☼	02/13/19 12:55	1
1,3-Dichlorobenzene	1.8	U	5.6	1.8	0.53	ug/Kg	☼	02/13/19 12:55	1
1,3-Dichloropropane	1.8	U	5.6	1.8	0.57	ug/Kg	☼	02/13/19 12:55	1
1,4-Dichlorobenzene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	02/13/19 12:55	1
2,2-Dichloropropane	1.8	U	5.6	1.8	0.49	ug/Kg	☼	02/13/19 12:55	1
2-Butanone (MEK)	7.1	U	22	7.1	2.0	ug/Kg	☼	02/13/19 12:55	1
2-Chlorotoluene	1.8	U	5.6	1.8	0.57	ug/Kg	☼	02/13/19 12:55	1
2-Hexanone	14	U	22	14	5.4	ug/Kg	☼	02/13/19 12:55	1
4-Chlorotoluene	1.8	U	5.6	1.8	0.87	ug/Kg	☼	02/13/19 12:55	1
4-Isopropyltoluene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	02/13/19 12:55	1
4-Methyl-2-pentanone (MIBK)	14	U	22	14	4.9	ug/Kg	☼	02/13/19 12:55	1
Acetone	14	U	22	14	6.0	ug/Kg	☼	02/13/19 12:55	1
Benzene	1.8	U	5.6	1.8	0.52	ug/Kg	☼	02/13/19 12:55	1
Bromobenzene	1.8	U	5.6	1.8	0.55	ug/Kg	☼	02/13/19 12:55	1
Bromoform	0.89	U	5.6	0.89	0.26	ug/Kg	☼	02/13/19 12:55	1
Bromomethane	1.8	U	11	1.8	0.56	ug/Kg	☼	02/13/19 12:55	1
Carbon disulfide	1.8	U	5.6	1.8	0.47	ug/Kg	☼	02/13/19 12:55	1
Carbon tetrachloride	1.8	U	5.6	1.8	0.70	ug/Kg	☼	02/13/19 12:55	1
Chlorobenzene	1.8	U	5.6	1.8	0.60	ug/Kg	☼	02/13/19 12:55	1
Bromochloromethane	0.89	U	5.6	0.89	0.33	ug/Kg	☼	02/13/19 12:55	1
Dibromochloromethane	1.8	U	5.6	1.8	0.63	ug/Kg	☼	02/13/19 12:55	1
Chloroethane	3.6	U	11	3.6	0.99	ug/Kg	☼	02/13/19 12:55	1
Chloroform	**0.44**	**J**	11	0.89	0.32	ug/Kg	☼	02/13/19 12:55	1
Chloromethane	1.8	U	11	1.8	0.86	ug/Kg	☼	02/13/19 12:55	1
cis-1,2-Dichloroethene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	02/13/19 12:55	1
cis-1,3-Dichloropropene	3.6	U	5.6	3.6	1.4	ug/Kg	☼	02/13/19 12:55	1
Dibromomethane	3.6	U	5.6	3.6	0.94	ug/Kg	☼	02/13/19 12:55	1
Bromodichloromethane	0.89	U	5.6	0.89	0.25	ug/Kg	☼	02/13/19 12:55	1
Dichlorodifluoromethane	1.8	U	11	1.8	0.58	ug/Kg	☼	02/13/19 12:55	1
Ethylbenzene	1.8	U	5.6	1.8	0.75	ug/Kg	☼	02/13/19 12:55	1
Ethylene Dibromide	1.8	U	5.6	1.8	0.58	ug/Kg	☼	02/13/19 12:55	1
Hexachlorobutadiene	1.8	U	5.6	1.8	0.61	ug/Kg	☼	02/13/19 12:55	1
Isopropylbenzene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	02/13/19 12:55	1
Methyl tert-butyl ether	0.89	U	22	0.89	0.38	ug/Kg	☼	02/13/19 12:55	1
Methylene Chloride	3.6	U	5.6	3.6	1.8	ug/Kg	☼	02/13/19 12:55	1
m-Xylene & p-Xylene	3.6	U	3.6	3.6	1.2	ug/Kg	☼	02/13/19 12:55	1
Naphthalene	1.8	U	5.6	1.8	0.70	ug/Kg	☼	02/13/19 12:55	1
n-Butylbenzene	1.8	U	5.6	1.8	0.62	ug/Kg	☼	02/13/19 12:55	1
N-Propylbenzene	1.8	U	5.6	1.8	0.65	ug/Kg	☼	02/13/19 12:55	1
o-Xylene	1.8	U	5.6	1.8	0.68	ug/Kg	☼	02/13/19 12:55	1
sec-Butylbenzene	1.8	U	5.6	1.8	0.86	ug/Kg	☼	02/13/19 12:55	1
Styrene	1.8	U	5.6	1.8	0.70	ug/Kg	☼	02/13/19 12:55	1
tert-Butylbenzene	1.8	U	5.6	1.8	0.56	ug/Kg	☼	02/13/19 12:55	1
Tetrachloroethene	1.8	U	5.6	1.8	0.66	ug/Kg	☼	02/13/19 12:55	1
Toluene	1.8	U	5.6	1.8	0.77	ug/Kg	☼	02/13/19 12:55	1
trans-1,2-Dichloroethene	0.89	U	5.6	0.89	0.43	ug/Kg	☼	02/13/19 12:55	1
trans-1,3-Dichloropropene	1.8	U	5.6	1.8	0.75	ug/Kg	☼	02/13/19 12:55	1
Trichloroethene	0.89	U	5.6	0.89	0.26	ug/Kg	☼	02/13/19 12:55	1
Trichlorofluoromethane	3.6	U	11	3.6	1.2	ug/Kg	☼	02/13/19 12:55	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-310119-208 — **Lab Sample ID: 280-119743-5**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Vinyl chloride	3.6	U	5.6	3.6	1.5	ug/Kg	☼	02/13/19 12:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*01/31/19 13:45*	*02/13/19 12:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*01/31/19 13:45*	*02/13/19 12:55*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*01/31/19 13:45*	*02/13/19 12:55*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*01/31/19 13:45*	*02/13/19 12:55*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: RB-247-310119-01 — **Lab Sample ID: 280-119743-1**
Date Collected: 01/31/19 15:45 — **Matrix: Water**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 16:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*82 - 110*		*02/11/19 16:57*	*1*

Client Sample ID: TB-247-310119-01 — **Lab Sample ID: 280-119743-2**
Date Collected: 01/31/19 14:30 — **Matrix: Water**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 17:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*82 - 110*		*02/11/19 17:21*	*1*

Client Sample ID: P-247-310119-164 — **Lab Sample ID: 280-119743-4**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 95.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.5	U	1.6	1.5	0.44	mg/Kg	☼	02/12/19 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*109*		*77 - 123*	*01/31/19 08:30*	*02/12/19 16:24*	*1*

Client Sample ID: P-247-310119-208 — **Lab Sample ID: 280-119743-6**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.9	U Q	2.1	1.9	0.57	mg/Kg	☼	02/12/19 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*156*	*Q*	*77 - 123*	*01/31/19 13:45*	*02/12/19 16:48*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: RB-247-310119-01 — **Lab Sample ID: 280-119743-1**
Date Collected: 01/31/19 15:45 — **Matrix: Water**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.021	0.014	0.0038	ug/L		02/15/19 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*135*	*Q*	*70 - 130*	*02/13/19 16:39*	*02/15/19 13:19*	*1*

Client Sample ID: TB-247-310119-01 — **Lab Sample ID: 280-119743-2**
Date Collected: 01/31/19 14:30 — **Matrix: Water**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0038	ug/L		02/15/19 13:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*138*	*Q*	*70 - 130*	*02/13/19 16:39*	*02/15/19 13:39*	*1*

Client Sample ID: V-247-310119-164 — **Lab Sample ID: 280-119743-3**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.0**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	02/18/19 22:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*99*		*55 - 130*	*02/13/19 15:55*	*02/18/19 22:22*	*1*

Client Sample ID: V-247-310119-208 — **Lab Sample ID: 280-119743-5**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.040	U	0.10	0.040	0.016	ug/Kg	☼	02/26/19 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*106*		*55 - 130*	*02/13/19 15:55*	*02/26/19 16:29*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: RB-247-310119-01 — **Lab Sample ID: 280-119743-1**
Date Collected: 01/31/19 15:45 — **Matrix: Water**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**0.045**	**J**	0.25	0.12	0.033	mg/L		02/07/19 18:54	1
Motor Oil (C20-C38)	0.13	U	0.51	0.13	0.057	mg/L		02/07/19 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*80*		*56 - 125*	*02/06/19 08:16*	*02/07/19 18:54*	*1*
n-Octacosane	*105*		*60 - 142*	*02/06/19 08:16*	*02/07/19 18:54*	*1*

Client Sample ID: P-247-310119-164 — **Lab Sample ID: 280-119743-4**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 95.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.1	U	8.2	4.1	1.4	mg/Kg	☼	02/12/19 10:29	1
Motor Oil (C20-C38)	24	U	25	24	8.0	mg/Kg	☼	02/12/19 10:29	1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	65		45 - 130	02/06/19 14:57	02/12/19 10:29	1
n-Octacosane	54		25 - 162	02/06/19 14:57	02/12/19 10:29	1

Client Sample ID: P-247-310119-208 — **Lab Sample ID: 280-119743-6**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	7.9	4.0	1.3	mg/Kg	☼	02/12/19 10:51	1
Motor Oil (C20-C38)	23	U	24	23	7.7	mg/Kg	☼	02/12/19 10:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl (Surr)	60		45 - 130	02/06/19 14:57	02/12/19 10:51	1
n-Octacosane	60		25 - 162	02/06/19 14:57	02/12/19 10:51	1

General Chemistry

Client Sample ID: V-247-310119-164 — **Lab Sample ID: 280-119743-3**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.0		0.1	0.05	0.1	%		02/01/19 15:44	1

Client Sample ID: P-247-310119-164 — **Lab Sample ID: 280-119743-4**
Date Collected: 01/31/19 08:30 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 95.7**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	4.3		0.1	0.05	0.1	%		02/01/19 15:44	1

Client Sample ID: V-247-310119-208 — **Lab Sample ID: 280-119743-5**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.4**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.6		0.1	0.05	0.1	%		02/01/19 15:44	1

Client Sample ID: P-247-310119-208 — **Lab Sample ID: 280-119743-6**
Date Collected: 01/31/19 13:45 — **Matrix: Solid**
Date Received: 02/01/19 09:20 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	3.4		0.1	0.05	0.1	%		02/01/19 15:44	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119743-3	V-247-310119-164	99	102	97	103
280-119743-5	V-247-310119-208	98	101	96	102
LCS 280-447467/1-A	Lab Control Sample	100	98	100	99
LCS 280-447510/1-A	Lab Control Sample	100	98	100	99
LCSD 280-447467/2-A	Lab Control Sample Dup	100	99	100	102
LCSD 280-447510/2-A	Lab Control Sample Dup	100	99	100	102
MB 280-447467/3-A	Method Blank	99	102	100	102
MB 280-447510/3-A	Method Blank	99	102	100	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119743-1	RB-247-310119-01	102	107	101	102
280-119743-2	TB-247-310119-01	99	98	98	102
LCS 280-447447/5	Lab Control Sample	97	93	95	95
MB 280-447447/4	Method Blank	106	104	109	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119743-4	P-247-310119-164	109
280-119743-6	P-247-310119-208	156 Q
LCS 280-447368/1-A	Lab Control Sample	103
LCSD 280-447368/2-A	Lab Control Sample Dup	102
MB 280-447368/3-A	Method Blank	103

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-119743-1	RB-247-310119-01	101
280-119743-2	TB-247-310119-01	100
LCS 280-447223/3	Lab Control Sample	101
MB 280-447223/4	Method Blank	99

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(55-130)
280-119743-3	V-247-310119-164	99
280-119743-5	V-247-310119-208	106
LCS 280-447554/1-A	Lab Control Sample	83
LCSD 280-447554/2-A	Lab Control Sample Dup	87
MB 280-447554/3-A	Method Blank	95

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		12DBP1
Lab Sample ID	Client Sample ID	(70-130)
280-119743-1	RB-247-310119-01	135 Q
280-119743-2	TB-247-310119-01	138 Q
LCS 280-447564/1-A	Lab Control Sample	122
LCSD 280-447564/2-A	Lab Control Sample Dup	123
MB 280-447564/3-A	Method Blank	128

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH1	OTCN1
Lab Sample ID	Client Sample ID	(45-130)	(25-162)
280-119743-4	P-247-310119-164	65	54
280-119743-6	P-247-310119-208	60	60
LCS 280-446722/2-A	Lab Control Sample	73	74
LCS 280-446722/3-A	Lab Control Sample	86	106
MB 280-446722/1-A	Method Blank	108	118

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (56-125)	OTCN1 (60-142)								
280-119743-1	RB-247-310119-01	80	105								
LCS 280-446646/2-A	Lab Control Sample	85	108								
LCS 280-446646/4-A	Lab Control Sample	91	129								
LCSD 280-446646/3-A	Lab Control Sample Dup	78	99								
LCSD 280-446646/5-A	Lab Control Sample Dup	88	123								
MB 280-446646/1-A	Method Blank	79	105								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-447447/4
Matrix: Water
Analysis Batch: 447447

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/13/19 11:59	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/13/19 11:59	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 11:59	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 11:59	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 11:59	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 11:59	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/13/19 11:59	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/13/19 11:59	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/13/19 11:59	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/13/19 11:59	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
Bromoform	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 11:59	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/13/19 11:59	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 11:59	1
Carbon disulfide	1.6	U	2.0	1.6	0.45	ug/L		02/13/19 11:59	1
1,3-Dichloropropane	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 11:59	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/13/19 11:59	1
2,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 11:59	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 11:59	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/13/19 11:59	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/13/19 11:59	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/13/19 11:59	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/13/19 11:59	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 11:59	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 11:59	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/13/19 11:59	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/13/19 11:59	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/13/19 11:59	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/13/19 11:59	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 11:59	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 11:59	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/13/19 11:59	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 11:59	1
Methylene Chloride	0.80	U M	5.0	0.80	0.32	ug/L		02/13/19 11:59	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/13/19 11:59	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 11:59	1
n-Butylbenzene	0.80	U	1.0	0.80	0.32	ug/L		02/13/19 11:59	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447447/4
Matrix: Water
Analysis Batch: 447447

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/13/19 11:59	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
Styrene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/13/19 11:59	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/13/19 11:59	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/13/19 11:59	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 11:59	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/13/19 11:59	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 11:59	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/13/19 11:59	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/13/19 11:59	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.34	ug/L		02/13/19 11:59	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/13/19 11:59	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/13/19 11:59	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/13/19 11:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*89 - 112*		*02/13/19 11:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*81 - 118*		*02/13/19 11:59*	*1*
4-Bromofluorobenzene (Surr)	*109*		*85 - 114*		*02/13/19 11:59*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 119*		*02/13/19 11:59*	*1*

Lab Sample ID: LCS 280-447447/5
Matrix: Water
Analysis Batch: 447447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	5.00	4.40	J	ug/L		88	62 - 128
2-Butanone (MEK)	20.0	20.8		ug/L		104	56 - 143
1,2-Dichlorobenzene	5.00	5.09		ug/L		102	80 - 119
1,3-Dichlorobenzene	5.00	4.92		ug/L		98	80 - 119
4-Chlorotoluene	5.00	5.40		ug/L		108	78 - 122
1,4-Dichlorobenzene	5.00	5.10		ug/L		102	79 - 118
1,1-Dichloroethane	5.00	5.17		ug/L		103	77 - 125
1,2-Dichloroethane	5.00	5.03		ug/L		101	73 - 128
Acetone	20.0	20.8		ug/L		104	39 - 160
1,1-Dichloroethene	5.00	4.95		ug/L		99	71 - 131
Benzene	5.00	5.23		ug/L		105	79 - 120
Bromobenzene	5.00	5.21		ug/L		104	80 - 120
Bromoform	5.00	4.92		ug/L		98	66 - 130
Bromomethane	5.00	3.59		ug/L		72	53 - 141
1,2-Dichloropropane	5.00	5.53		ug/L		111	78 - 122
Carbon disulfide	5.00	4.64		ug/L		93	64 - 133
1,3-Dichloropropane	5.00	5.08		ug/L		102	80 - 119
Carbon tetrachloride	5.00	4.79		ug/L		96	72 - 136

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447447/5
Matrix: Water
Analysis Batch: 447447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	5.00	5.20		ug/L		104	60 - 139
Chlorobenzene	5.00	5.07		ug/L		101	82 - 118
1,1-Dichloropropene	5.00	5.34		ug/L		107	79 - 125
Bromochloromethane	5.00	5.10		ug/L		102	78 - 123
Dibromochloromethane	5.00	4.92		ug/L		98	74 - 126
Chloroethane	5.00	3.58		ug/L		72	60 - 138
Chloroform	5.00	5.05		ug/L		101	79 - 124
2-Hexanone	20.0	20.6		ug/L		103	57 - 139
Chloromethane	5.00	3.77		ug/L		75	50 - 139
cis-1,2-Dichloroethene	5.00	5.23		ug/L		105	78 - 123
cis-1,3-Dichloropropene	5.00	5.60		ug/L		112	75 - 124
4-Isopropyltoluene	5.00	5.43		ug/L		109	77 - 127
Dibromomethane	5.00	4.94		ug/L		99	79 - 123
Bromodichloromethane	5.00	5.10		ug/L		102	79 - 125
4-Methyl-2-pentanone (MIBK)	20.0	19.6		ug/L		98	67 - 130
Dichlorodifluoromethane	5.00	3.92		ug/L		78	32 - 152
Ethylbenzene	5.00	5.27		ug/L		105	79 - 121
Ethylene Dibromide	5.00	4.83		ug/L		97	77 - 121
Hexachlorobutadiene	5.00	4.86		ug/L		97	66 - 134
Isopropylbenzene	5.00	5.61		ug/L		112	72 - 131
1,1,1,2-Tetrachloroethane	5.00	5.20		ug/L		104	78 - 124
Methyl tert-butyl ether	5.00	4.98	J	ug/L		100	71 - 124
1,1,2,2-Tetrachloroethane	5.00	4.97		ug/L		99	71 - 121
Methylene Chloride	5.00	4.60	J	ug/L		92	74 - 124
Naphthalene	5.00	5.38		ug/L		108	61 - 128
1,2,3-Trichlorobenzene	5.00	4.95		ug/L		99	69 - 129
n-Butylbenzene	5.00	5.36		ug/L		107	75 - 128
1,1,1-Trichloroethane	5.00	4.89		ug/L		98	74 - 131
N-Propylbenzene	5.00	5.60		ug/L		112	76 - 126
1,1,2-Trichloroethane	5.00	4.95		ug/L		99	80 - 119
sec-Butylbenzene	5.00	5.07		ug/L		101	77 - 126
Styrene	5.00	4.80		ug/L		96	78 - 123
1,2,4-Trichlorobenzene	5.00	4.74		ug/L		95	69 - 130
tert-Butylbenzene	5.00	5.16		ug/L		103	78 - 124
1,2,3-Trichloropropane	5.00	5.29		ug/L		106	73 - 122
Tetrachloroethene	5.00	5.00		ug/L		100	74 - 129
1,2,4-Trimethylbenzene	5.00	5.31		ug/L		106	76 - 124
Toluene	5.00	5.43		ug/L		109	80 - 121
1,3,5-Trimethylbenzene	5.00	5.07		ug/L		101	75 - 124
trans-1,2-Dichloroethene	5.00	5.06		ug/L		101	75 - 124
trans-1,3-Dichloropropene	5.00	4.93		ug/L		99	73 - 127
o-Xylene	5.00	5.29		ug/L		106	78 - 122
Trichloroethene	5.00	5.21		ug/L		104	79 - 123
m-Xylene & p-Xylene	5.00	5.28		ug/L		106	80 - 121
Trichlorofluoromethane	5.00	3.78		ug/L		76	65 - 141
Vinyl chloride	5.00	3.93		ug/L		79	58 - 137
2-Chlorotoluene	5.00	5.29		ug/L		106	79 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447447/5
Matrix: Water
Analysis Batch: 447447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*95*		*85 - 114*
Dibromofluoromethane (Surr)	*95*		*80 - 119*

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		02/13/19 11:03	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		02/13/19 11:03	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		02/13/19 11:03	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		02/13/19 11:03	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		02/13/19 11:03	1
Acetone	7.65	J	20	13	5.4	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		02/13/19 11:03	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		02/13/19 11:03	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		02/13/19 11:03	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		02/13/19 11:03	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		02/13/19 11:03	1
Chloroform	0.418	J	10	0.80	0.29	ug/Kg		02/13/19 11:03	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		02/13/19 11:03	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		02/13/19 11:03	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		02/13/19 11:03	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		02/13/19 11:03	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		02/13/19 11:03	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		02/13/19 11:03	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		02/13/19 11:03	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		02/13/19 11:03	1
Naphthalene	0.648	J	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		02/13/19 11:03	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		02/13/19 11:03	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		02/13/19 11:03	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		02/13/19 11:03	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		02/13/19 11:03	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		02/13/19 11:03	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,2,4-Trimethylbenzene	0.684	J	5.0	3.2	0.58	ug/Kg		02/13/19 11:03	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		02/13/19 11:03	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		02/13/19 11:03	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		02/13/19 11:03	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		02/13/19 11:03	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	49.5		ug/Kg		99	61 - 132
2-Butanone (MEK)	200	198		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	50.0	52.2		ug/Kg		104	78 - 121
1,3-Dichlorobenzene	50.0	52.3		ug/Kg		105	77 - 121
4-Chlorotoluene	50.0	52.6		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	51.7		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.1		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	45.2		ug/Kg		90	73 - 128

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	200	201		ug/Kg		101	36 - 164
1,1-Dichloroethene	50.0	51.1		ug/Kg		102	70 - 131
Benzene	50.0	48.0		ug/Kg		96	77 - 121
Bromobenzene	50.0	51.2		ug/Kg		102	78 - 121
Bromoform	50.0	48.5		ug/Kg		97	67 - 132
Bromomethane	50.0	46.4		ug/Kg		93	53 - 143
1,2-Dichloropropane	50.0	46.4		ug/Kg		93	76 - 123
Carbon disulfide	50.0	51.8		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	77 - 121
Carbon tetrachloride	50.0	52.1		ug/Kg		104	70 - 135
2,2-Dichloropropane	50.0	51.5		ug/Kg		103	67 - 133
Chlorobenzene	50.0	49.7		ug/Kg		99	79 - 120
1,1-Dichloropropene	50.0	50.6		ug/Kg		101	76 - 125
Bromochloromethane	50.0	49.2		ug/Kg		98	78 - 125
Dibromochloromethane	50.0	48.4		ug/Kg		97	74 - 126
Chloroethane	50.0	41.9		ug/Kg		84	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	204		ug/Kg		102	53 - 145
Chloromethane	50.0	39.0		ug/Kg		78	50 - 136
cis-1,2-Dichloroethene	50.0	50.0		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	53.7		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	53.9		ug/Kg		108	73 - 127
Dibromomethane	50.0	49.0		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	53.1		ug/Kg		106	75 - 127
4-Methyl-2-pentanone (MIBK)	200	199		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	42.7		ug/Kg		85	29 - 149
Ethylbenzene	50.0	50.3		ug/Kg		101	76 - 122
Ethylene Dibromide	50.0	54.7		ug/Kg		109	78 - 122
Hexachlorobutadiene	50.0	52.5		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	53.1		ug/Kg		106	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.5		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/Kg		102	70 - 124
Methylene Chloride	50.0	48.0		ug/Kg		96	70 - 128
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129
1,2,3-Trichlorobenzene	50.0	54.5		ug/Kg		109	66 - 130
n-Butylbenzene	50.0	54.1		ug/Kg		108	70 - 128
1,1,1-Trichloroethane	50.0	50.3		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	53.8		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	54.0		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 126
Styrene	50.0	52.1		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	50.0	56.1		ug/Kg		112	67 - 129
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 125
1,2,3-Trichloropropane	50.0	50.1		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	52.8		ug/Kg		106	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	50.0	52.6		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	50.0	52.3		ug/Kg		105	74 - 125
trans-1,3-Dichloropropene	50.0	48.3		ug/Kg		97	71 - 130
o-Xylene	50.0	51.2		ug/Kg		102	77 - 123
Trichloroethene	50.0	51.9		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	50.0	47.5		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	44.1		ug/Kg		88	62 - 140
Vinyl chloride	50.0	41.2		ug/Kg		82	56 - 135
2-Chlorotoluene	50.0	51.7		ug/Kg		103	75 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	49.0		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)	200	201		ug/Kg		100	51 - 148	1	20
1,2-Dichlorobenzene	50.0	52.9		ug/Kg		106	78 - 121	1	20
1,3-Dichlorobenzene	50.0	52.8		ug/Kg		106	77 - 121	1	20
4-Chlorotoluene	50.0	53.8		ug/Kg		108	72 - 124	2	20
1,4-Dichlorobenzene	50.0	52.1		ug/Kg		104	75 - 120	1	20
1,1-Dichloroethane	50.0	50.2		ug/Kg		100	76 - 125	4	20
1,2-Dichloroethane	50.0	47.0		ug/Kg		94	73 - 128	4	20
Acetone	200	208		ug/Kg		104	36 - 164	3	20
1,1-Dichloroethene	50.0	51.7		ug/Kg		103	70 - 131	1	20
Benzene	50.0	50.5		ug/Kg		101	77 - 121	5	20
Bromobenzene	50.0	52.4		ug/Kg		105	78 - 121	2	20
Bromoform	50.0	49.9		ug/Kg		100	67 - 132	3	20
Bromomethane	50.0	49.8		ug/Kg		100	53 - 143	7	20
1,2-Dichloropropane	50.0	48.6		ug/Kg		97	76 - 123	5	20
Carbon disulfide	50.0	53.5		ug/Kg		107	63 - 132	3	20
1,3-Dichloropropane	50.0	53.0		ug/Kg		106	77 - 121	4	20
Carbon tetrachloride	50.0	53.5		ug/Kg		107	70 - 135	3	20
2,2-Dichloropropane	50.0	54.1		ug/Kg		108	67 - 133	5	20
Chlorobenzene	50.0	50.5		ug/Kg		101	79 - 120	2	20
1,1-Dichloropropene	50.0	52.6		ug/Kg		105	76 - 125	4	20
Bromochloromethane	50.0	51.9		ug/Kg		104	78 - 125	5	20
Dibromochloromethane	50.0	49.4		ug/Kg		99	74 - 126	2	20
Chloroethane	50.0	44.5		ug/Kg		89	59 - 139	6	20
Chloroform	50.0	48.6		ug/Kg		97	78 - 123	5	20
2-Hexanone	200	203		ug/Kg		102	53 - 145	0	20
Chloromethane	50.0	41.5		ug/Kg		83	50 - 136	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene			50.0	51.9		ug/Kg		104	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	54.8		ug/Kg		110	74 - 126	2	20
4-Isopropyltoluene			50.0	54.4		ug/Kg		109	73 - 127	1	20
Dibromomethane			50.0	51.6		ug/Kg		103	78 - 125	5	20
Bromodichloromethane			50.0	55.1		ug/Kg		110	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			200	205		ug/Kg		103	65 - 135	3	20
Dichlorodifluoromethane			50.0	44.6		ug/Kg		89	29 - 149	4	20
Ethylbenzene			50.0	51.1		ug/Kg		102	76 - 122	2	20
Ethylene Dibromide			50.0	55.9		ug/Kg		112	78 - 122	2	20
Hexachlorobutadiene			50.0	54.1		ug/Kg		108	61 - 135	3	20
Isopropylbenzene			50.0	53.9		ug/Kg		108	68 - 134	1	20
1,1,1,2-Tetrachloroethane			50.0	52.7		ug/Kg		105	78 - 125	2	20
Methyl tert-butyl ether			50.0	52.7		ug/Kg		105	73 - 125	5	20
1,1,2,2-Tetrachloroethane			50.0	51.7		ug/Kg		103	70 - 124	2	20
Methylene Chloride			50.0	50.4		ug/Kg		101	70 - 128	5	20
Naphthalene			50.0	58.9		ug/Kg		118	62 - 129	0	20
1,2,3-Trichlorobenzene			50.0	55.3		ug/Kg		111	66 - 130	2	20
n-Butylbenzene			50.0	54.3		ug/Kg		109	70 - 128	0	20
1,1,1-Trichloroethane			50.0	52.3		ug/Kg		105	73 - 130	4	20
N-Propylbenzene			50.0	55.0		ug/Kg		110	73 - 125	2	20
1,1,2-Trichloroethane			50.0	56.3		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene			50.0	53.9		ug/Kg		108	73 - 126	1	20
Styrene			50.0	53.1		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene			50.0	55.8		ug/Kg		112	67 - 129	1	20
tert-Butylbenzene			50.0	53.9		ug/Kg		108	73 - 125	2	20
1,2,3-Trichloropropane			50.0	51.5		ug/Kg		103	73 - 125	3	20
Tetrachloroethene			50.0	52.6		ug/Kg		105	73 - 128	1	20
1,2,4-Trimethylbenzene			50.0	53.2		ug/Kg		106	75 - 123	1	20
Toluene			50.0	52.2		ug/Kg		104	77 - 121	4	20
1,3,5-Trimethylbenzene			50.0	53.1		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene			50.0	54.1		ug/Kg		108	74 - 125	3	20
trans-1,3-Dichloropropene			50.0	50.7		ug/Kg		101	71 - 130	5	20
o-Xylene			50.0	52.1		ug/Kg		104	77 - 123	2	20
Trichloroethene			50.0	53.9		ug/Kg		108	77 - 123	4	20
m-Xylene & p-Xylene			50.0	48.6		ug/Kg		97	77 - 124	2	20
Trichlorofluoromethane			50.0	45.8		ug/Kg		92	62 - 140	4	20
Vinyl chloride			50.0	44.2		ug/Kg		88	56 - 135	7	20
2-Chlorotoluene			50.0	52.5		ug/Kg		105	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*102*		*78 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447510/3-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447510

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	10	1.6	0.60	ug/Kg		02/13/19 11:03	1
2-Butanone (MEK)	6.4	U	20	6.4	1.8	ug/Kg		02/13/19 11:03	1
1,2-Dichlorobenzene	1.6	U	5.0	1.6	0.45	ug/Kg		02/13/19 11:03	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		02/13/19 11:03	1
4-Chlorotoluene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,4-Dichlorobenzene	1.6	U	5.0	1.6	0.78	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		02/13/19 11:03	1
Acetone	7.65	J	20	13	5.4	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
Benzene	1.6	U	5.0	1.6	0.47	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		02/13/19 11:03	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Bromoform	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
Bromomethane	1.6	U	10	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1
Carbon disulfide	1.6	U	5.0	1.6	0.42	ug/Kg		02/13/19 11:03	1
1,3-Dichloropropane	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1
Carbon tetrachloride	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		02/13/19 11:03	1
Chlorobenzene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
1,1-Dichloropropene	1.6	U	5.0	1.6	0.54	ug/Kg		02/13/19 11:03	1
Bromochloromethane	0.80	U	5.0	0.80	0.30	ug/Kg		02/13/19 11:03	1
Dibromochloromethane	1.6	U	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
Chloroethane	3.2	U	10	3.2	0.89	ug/Kg		02/13/19 11:03	1
Chloroform	0.418	J	10	0.80	0.29	ug/Kg		02/13/19 11:03	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		02/13/19 11:03	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		02/13/19 11:03	1
cis-1,2-Dichloroethene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
cis-1,3-Dichloropropene	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
4-Isopropyltoluene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Dibromomethane	3.2	U	5.0	3.2	0.84	ug/Kg		02/13/19 11:03	1
Bromodichloromethane	0.80	U	5.0	0.80	0.22	ug/Kg		02/13/19 11:03	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		02/13/19 11:03	1
Dichlorodifluoromethane	1.6	U	10	1.6	0.52	ug/Kg		02/13/19 11:03	1
Ethylbenzene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
Hexachlorobutadiene	1.6	U	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1
Isopropylbenzene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,1,1,2-Tetrachloroethane	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
Methyl tert-butyl ether	0.80	U	20	0.80	0.34	ug/Kg		02/13/19 11:03	1
1,1,2,2-Tetrachloroethane	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		02/13/19 11:03	1
Naphthalene	0.648	J	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,3-Trichlorobenzene	1.6	U	5.0	1.6	0.75	ug/Kg		02/13/19 11:03	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
1,1,1-Trichloroethane	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		02/13/19 11:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447510/3-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447510

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		02/13/19 11:03	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		02/13/19 11:03	1
Styrene	1.6	U	5.0	1.6	0.63	ug/Kg		02/13/19 11:03	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		02/13/19 11:03	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2,3-Trichloropropane	3.2	U	5.0	3.2	0.81	ug/Kg		02/13/19 11:03	1
Tetrachloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
1,2,4-Trimethylbenzene	0.684	J	5.0	3.2	0.58	ug/Kg		02/13/19 11:03	1
Toluene	1.6	U	5.0	1.6	0.69	ug/Kg		02/13/19 11:03	1
1,3,5-Trimethylbenzene	1.6	U M	5.0	1.6	0.57	ug/Kg		02/13/19 11:03	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		02/13/19 11:03	1
trans-1,3-Dichloropropene	1.6	U	5.0	1.6	0.67	ug/Kg		02/13/19 11:03	1
o-Xylene	1.6	U	5.0	1.6	0.61	ug/Kg		02/13/19 11:03	1
Trichloroethene	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		02/13/19 11:03	1
Trichlorofluoromethane	3.2	U	10	3.2	1.0	ug/Kg		02/13/19 11:03	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*

Lab Sample ID: LCS 280-447510/1-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	49.5		ug/Kg		99	61 - 132
2-Butanone (MEK)	200	198		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	50.0	52.2		ug/Kg		104	78 - 121
1,3-Dichlorobenzene	50.0	52.3		ug/Kg		105	77 - 121
4-Chlorotoluene	50.0	52.6		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	51.7		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.1		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	45.2		ug/Kg		90	73 - 128
Acetone	200	201		ug/Kg		101	36 - 164
1,1-Dichloroethene	50.0	51.1		ug/Kg		102	70 - 131
Benzene	50.0	48.0		ug/Kg		96	77 - 121
Bromobenzene	50.0	51.2		ug/Kg		102	78 - 121
Bromoform	50.0	48.5		ug/Kg		97	67 - 132
Bromomethane	50.0	46.4		ug/Kg		93	53 - 143
1,2-Dichloropropane	50.0	46.4		ug/Kg		93	76 - 123
Carbon disulfide	50.0	51.8		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	77 - 121
Carbon tetrachloride	50.0	52.1		ug/Kg		104	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447510/1-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447510

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	51.5		ug/Kg		103	67 - 133
Chlorobenzene	50.0	49.7		ug/Kg		99	79 - 120
1,1-Dichloropropene	50.0	50.6		ug/Kg		101	76 - 125
Bromochloromethane	50.0	49.2		ug/Kg		98	78 - 125
Dibromochloromethane	50.0	48.4		ug/Kg		97	74 - 126
Chloroethane	50.0	41.9		ug/Kg		84	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	204		ug/Kg		102	53 - 145
Chloromethane	50.0	39.0		ug/Kg		78	50 - 136
cis-1,2-Dichloroethene	50.0	50.0		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	53.7		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	53.9		ug/Kg		108	73 - 127
Dibromomethane	50.0	49.0		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	53.1		ug/Kg		106	75 - 127
4-Methyl-2-pentanone (MIBK)	200	199		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	42.7		ug/Kg		85	29 - 149
Ethylbenzene	50.0	50.3		ug/Kg		101	76 - 122
Ethylene Dibromide	50.0	54.7		ug/Kg		109	78 - 122
Hexachlorobutadiene	50.0	52.5		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	53.1		ug/Kg		106	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.5		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/Kg		102	70 - 124
Methylene Chloride	50.0	48.0		ug/Kg		96	70 - 128
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129
1,2,3-Trichlorobenzene	50.0	54.5		ug/Kg		109	66 - 130
n-Butylbenzene	50.0	54.1		ug/Kg		108	70 - 128
1,1,1-Trichloroethane	50.0	50.3		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	53.8		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	54.0		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 126
Styrene	50.0	52.1		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	50.0	56.1		ug/Kg		112	67 - 129
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 125
1,2,3-Trichloropropane	50.0	50.1		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	52.8		ug/Kg		106	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121
1,3,5-Trimethylbenzene	50.0	52.6		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	50.0	52.3		ug/Kg		105	74 - 125
trans-1,3-Dichloropropene	50.0	48.3		ug/Kg		97	71 - 130
o-Xylene	50.0	51.2		ug/Kg		102	77 - 123
Trichloroethene	50.0	51.9		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	50.0	47.5		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	44.1		ug/Kg		88	62 - 140
Vinyl chloride	50.0	41.2		ug/Kg		82	56 - 135
2-Chlorotoluene	50.0	51.7		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447510/1-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447510

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-447510/2-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447510

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	49.0		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)			200	201		ug/Kg		100	51 - 148	1	20
1,2-Dichlorobenzene			50.0	52.9		ug/Kg		106	78 - 121	1	20
1,3-Dichlorobenzene			50.0	52.8		ug/Kg		106	77 - 121	1	20
4-Chlorotoluene			50.0	53.8		ug/Kg		108	72 - 124	2	20
1,4-Dichlorobenzene			50.0	52.1		ug/Kg		104	75 - 120	1	20
1,1-Dichloroethane			50.0	50.2		ug/Kg		100	76 - 125	4	20
1,2-Dichloroethane			50.0	47.0		ug/Kg		94	73 - 128	4	20
Acetone			200	208		ug/Kg		104	36 - 164	3	20
1,1-Dichloroethene			50.0	51.7		ug/Kg		103	70 - 131	1	20
Benzene			50.0	50.5		ug/Kg		101	77 - 121	5	20
Bromobenzene			50.0	52.4		ug/Kg		105	78 - 121	2	20
Bromoform			50.0	49.9		ug/Kg		100	67 - 132	3	20
Bromomethane			50.0	49.8		ug/Kg		100	53 - 143	7	20
1,2-Dichloropropane			50.0	48.6		ug/Kg		97	76 - 123	5	20
Carbon disulfide			50.0	53.5		ug/Kg		107	63 - 132	3	20
1,3-Dichloropropane			50.0	53.0		ug/Kg		106	77 - 121	4	20
Carbon tetrachloride			50.0	53.5		ug/Kg		107	70 - 135	3	20
2,2-Dichloropropane			50.0	54.1		ug/Kg		108	67 - 133	5	20
Chlorobenzene			50.0	50.5		ug/Kg		101	79 - 120	2	20
1,1-Dichloropropene			50.0	52.6		ug/Kg		105	76 - 125	4	20
Bromochloromethane			50.0	51.9		ug/Kg		104	78 - 125	5	20
Dibromochloromethane			50.0	49.4		ug/Kg		99	74 - 126	2	20
Chloroethane			50.0	44.5		ug/Kg		89	59 - 139	6	20
Chloroform			50.0	48.6		ug/Kg		97	78 - 123	5	20
2-Hexanone			200	203		ug/Kg		102	53 - 145	0	20
Chloromethane			50.0	41.5		ug/Kg		83	50 - 136	6	20
cis-1,2-Dichloroethene			50.0	51.9		ug/Kg		104	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	54.8		ug/Kg		110	74 - 126	2	20
4-Isopropyltoluene			50.0	54.4		ug/Kg		109	73 - 127	1	20
Dibromomethane			50.0	51.6		ug/Kg		103	78 - 125	5	20
Bromodichloromethane			50.0	55.1		ug/Kg		110	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			200	205		ug/Kg		103	65 - 135	3	20
Dichlorodifluoromethane			50.0	44.6		ug/Kg		89	29 - 149	4	20
Ethylbenzene			50.0	51.1		ug/Kg		102	76 - 122	2	20
Ethylene Dibromide			50.0	55.9		ug/Kg		112	78 - 122	2	20
Hexachlorobutadiene			50.0	54.1		ug/Kg		108	61 - 135	3	20
Isopropylbenzene			50.0	53.9		ug/Kg		108	68 - 134	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-447510/2-A
Matrix: Solid
Analysis Batch: 447516

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447510

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	52.7		ug/Kg		105	78 - 125	2	20
Methyl tert-butyl ether	50.0	52.7		ug/Kg		105	73 - 125	5	20
1,1,2,2-Tetrachloroethane	50.0	51.7		ug/Kg		103	70 - 124	2	20
Methylene Chloride	50.0	50.4		ug/Kg		101	70 - 128	5	20
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129	0	20
1,2,3-Trichlorobenzene	50.0	55.3		ug/Kg		111	66 - 130	2	20
n-Butylbenzene	50.0	54.3		ug/Kg		109	70 - 128	0	20
1,1,1-Trichloroethane	50.0	52.3		ug/Kg		105	73 - 130	4	20
N-Propylbenzene	50.0	55.0		ug/Kg		110	73 - 125	2	20
1,1,2-Trichloroethane	50.0	56.3		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene	50.0	53.9		ug/Kg		108	73 - 126	1	20
Styrene	50.0	53.1		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene	50.0	55.8		ug/Kg		112	67 - 129	1	20
tert-Butylbenzene	50.0	53.9		ug/Kg		108	73 - 125	2	20
1,2,3-Trichloropropane	50.0	51.5		ug/Kg		103	73 - 125	3	20
Tetrachloroethene	50.0	52.6		ug/Kg		105	73 - 128	1	20
1,2,4-Trimethylbenzene	50.0	53.2		ug/Kg		106	75 - 123	1	20
Toluene	50.0	52.2		ug/Kg		104	77 - 121	4	20
1,3,5-Trimethylbenzene	50.0	53.1		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene	50.0	54.1		ug/Kg		108	74 - 125	3	20
trans-1,3-Dichloropropene	50.0	50.7		ug/Kg		101	71 - 130	5	20
o-Xylene	50.0	52.1		ug/Kg		104	77 - 123	2	20
Trichloroethene	50.0	53.9		ug/Kg		108	77 - 123	4	20
m-Xylene & p-Xylene	50.0	48.6		ug/Kg		97	77 - 124	2	20
Trichlorofluoromethane	50.0	45.8		ug/Kg		92	62 - 140	4	20
Vinyl chloride	50.0	44.2		ug/Kg		88	56 - 135	7	20
2-Chlorotoluene	50.0	52.5		ug/Kg		105	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*102*		*78 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-447223/4
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 16:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*02/11/19 16:09*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: LCS 280-447223/3
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	78.4	64.3		ug/L		82	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*82 - 110*

Lab Sample ID: MB 280-447368/3-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447368

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	1.1	U	1.2	1.1	0.33	mg/Kg		02/12/19 16:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*	*02/12/19 13:44*	*02/12/19 16:00*	*1*

Lab Sample ID: LCS 280-447368/1-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	3.61		mg/Kg		84	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*

Lab Sample ID: LCSD 280-447368/2-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	3.62		mg/Kg		85	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-447554/3-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447554

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		02/18/19 21:43	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MB 280-447554/3-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447554

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	95		55 - 130	02/13/19 15:55	02/18/19 21:43	1

Lab Sample ID: LCS 280-447554/1-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.778		ug/Kg		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	83		55 - 130

Lab Sample ID: LCSD 280-447554/2-A
Matrix: Solid
Analysis Batch: 448030

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.875	0.760		ug/Kg		87	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dibromopropane	87		55 - 130

Lab Sample ID: MB 280-447564/3-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447564

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/15/19 12:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane	128		70 - 130	02/13/19 16:39	02/15/19 12:41	1

Lab Sample ID: LCS 280-447564/1-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.250	0.262		ug/L		105	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane	122		70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCSD 280-447564/2-A
Matrix: Water
Analysis Batch: 447805

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447564

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.276		ug/L		111	70 - 130	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*123*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-446646/1-A
Matrix: Water
Analysis Batch: 446900

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446646

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	0.12	U	0.25	0.12	0.033	mg/L		02/07/19 17:14	1
Motor Oil (C20-C38)	0.13	U	0.50	0.13	0.056	mg/L		02/07/19 17:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*56 - 125*	*02/06/19 08:16*	*02/07/19 17:14*	*1*
n-Octacosane	*105*		*60 - 142*	*02/06/19 08:16*	*02/07/19 17:14*	*1*

Lab Sample ID: LCS 280-446646/2-A
Matrix: Water
Analysis Batch: 446900

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			2.00	1.99		mg/L		100	36 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*85*		*56 - 125*
n-Octacosane	*108*		*60 - 142*

Lab Sample ID: LCS 280-446646/4-A
Matrix: Water
Analysis Batch: 446900

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446646

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			5.02	5.09		mg/L		101	41 - 113		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*91*		*56 - 125*
n-Octacosane	*129*		*60 - 142*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 280-446646/3-A
Matrix: Water
Analysis Batch: 446900

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446646

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			2.00	1.91		mg/L		96	36 - 132	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*78*		*56 - 125*
n-Octacosane	*99*		*60 - 142*

Lab Sample ID: LCSD 280-446646/5-A
Matrix: Water
Analysis Batch: 446900

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 446646

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)			5.02	4.95		mg/L		99	41 - 113	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*88*		*56 - 125*
n-Octacosane	*123*		*60 - 142*

Lab Sample ID: MB 280-446722/1-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446722

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	4.0	U	8.0	4.0	1.4	mg/Kg		02/12/19 07:35	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		02/12/19 07:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*108*		*45 - 130*	*02/06/19 14:57*	*02/12/19 07:35*	*1*
n-Octacosane	*118*		*25 - 162*	*02/06/19 14:57*	*02/12/19 07:35*	*1*

Lab Sample ID: LCS 280-446722/2-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			131	95.6		mg/Kg		73	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*45 - 130*
n-Octacosane	*74*		*25 - 162*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280-446722/3-A
Matrix: Solid
Analysis Batch: 447214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			334	313		mg/Kg		94	39 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*86*		*45 - 130*
n-Octacosane	*106*		*25 - 162*

GC/MS VOA

Analysis Batch: 447447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	8260B	
280-119743-2	TB-247-310119-01	Total/NA	Water	8260B	
MB 280-447447/4	Method Blank	Total/NA	Water	8260B	
LCS 280-447447/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 447462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-5	V-247-310119-208	Total/NA	Solid	8260B	447467
MB 280-447467/3-A	Method Blank	Total/NA	Solid	8260B	447467
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	8260B	447467
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	447467

Prep Batch: 447467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-5	V-247-310119-208	Total/NA	Solid	5035	
MB 280-447467/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Prep Batch: 447510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-3	V-247-310119-164	Total/NA	Solid	5030A	
MB 280-447510/3-A	Method Blank	Total/NA	Solid	5030A	
LCS 280-447510/1-A	Lab Control Sample	Total/NA	Solid	5030A	
LCSD 280-447510/2-A	Lab Control Sample Dup	Total/NA	Solid	5030A	

Analysis Batch: 447516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-3	V-247-310119-164	Total/NA	Solid	8260B	447510
MB 280-447510/3-A	Method Blank	Total/NA	Solid	8260B	447510
LCS 280-447510/1-A	Lab Control Sample	Total/NA	Solid	8260B	447510
LCSD 280-447510/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	447510

GC VOA

Analysis Batch: 447223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	8015D GRO	
280-119743-2	TB-247-310119-01	Total/NA	Water	8015D GRO	
MB 280-447223/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-447223/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Prep Batch: 447368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-4	P-247-310119-164	Total/NA	Solid	5035	
280-119743-6	P-247-310119-208	Total/NA	Solid	5035	
MB 280-447368/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-447368/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-447368/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC VOA (Continued)

Analysis Batch: 447384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-4	P-247-310119-164	Total/NA	Solid	8015D GRO	447368
280-119743-6	P-247-310119-208	Total/NA	Solid	8015D GRO	447368
MB 280-447368/3-A	Method Blank	Total/NA	Solid	8015D GRO	447368
LCS 280-447368/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	447368
LCSD 280-447368/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	447368

GC Semi VOA

Prep Batch: 446646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	3510C	
MB 280-446646/1-A	Method Blank	Total/NA	Water	3510C	
LCS 280-446646/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 280-446646/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 280-446646/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 280-446646/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 446722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-4	P-247-310119-164	Total/NA	Solid	3546	
280-119743-6	P-247-310119-208	Total/NA	Solid	3546	
MB 280-446722/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-446722/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-446722/3-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 446900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	8015D DRO	446646
MB 280-446646/1-A	Method Blank	Total/NA	Water	8015D DRO	446646
LCS 280-446646/2-A	Lab Control Sample	Total/NA	Water	8015D DRO	446646
LCS 280-446646/4-A	Lab Control Sample	Total/NA	Water	8015D DRO	446646
LCSD 280-446646/3-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	446646
LCSD 280-446646/5-A	Lab Control Sample Dup	Total/NA	Water	8015D DRO	446646

Analysis Batch: 447214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-4	P-247-310119-164	Total/NA	Solid	8015D DRO	446722
280-119743-6	P-247-310119-208	Total/NA	Solid	8015D DRO	446722
MB 280-446722/1-A	Method Blank	Total/NA	Solid	8015D DRO	446722
LCS 280-446722/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	446722
LCS 280-446722/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	446722

Prep Batch: 447554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-3	V-247-310119-164	Total/NA	Solid	8011	
280-119743-5	V-247-310119-208	Total/NA	Solid	8011	
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	

GC Semi VOA (Continued)

Prep Batch: 447564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	8011	
280-119743-2	TB-247-310119-01	Total/NA	Water	8011	
MB 280-447564/3-A	Method Blank	Total/NA	Water	8011	
LCS 280-447564/1-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-447564/2-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 447805

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-1	RB-247-310119-01	Total/NA	Water	8011	447564
280-119743-2	TB-247-310119-01	Total/NA	Water	8011	447564
MB 280-447564/3-A	Method Blank	Total/NA	Water	8011	447564
LCS 280-447564/1-A	Lab Control Sample	Total/NA	Water	8011	447564
LCSD 280-447564/2-A	Lab Control Sample Dup	Total/NA	Water	8011	447564

Analysis Batch: 448030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-3	V-247-310119-164	Total/NA	Solid	8011	447554
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	447554
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	447554
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	447554

Analysis Batch: 448922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-5	V-247-310119-208	Total/NA	Solid	8011	447554

General Chemistry

Analysis Batch: 446285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119743-3	V-247-310119-164	Total/NA	Solid	Moisture	
280-119743-4	P-247-310119-164	Total/NA	Solid	Moisture	
280-119743-5	V-247-310119-208	Total/NA	Solid	Moisture	
280-119743-6	P-247-310119-208	Total/NA	Solid	Moisture	

Client Sample ID: RB-247-310119-01

Lab Sample ID: 280-119743-1

Date Collected: 01/31/19 15:45

Matrix: Water

Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	447447	02/13/19 15:09	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	447223	02/11/19 16:57	SU	TAL DEN
Total/NA	Prep	8011			34 mL	35 mL	447564	02/13/19 16:39	MJS	TAL DEN
Total/NA	Analysis	8011		1			447805	02/15/19 13:19	JLW	TAL DEN
Total/NA	Prep	3510C			982.4 mL	1 mL	446646	02/06/19 08:16	JT	TAL DEN
Total/NA	Analysis	8015D DRO		1			446900	02/07/19 18:54	MPF	TAL DEN

Client Sample ID: TB-247-310119-01

Lab Sample ID: 280-119743-2

Date Collected: 01/31/19 14:30

Matrix: Water

Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	20 mL	20 mL	447447	02/13/19 15:28	JLS	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	447223	02/11/19 17:21	SU	TAL DEN
Total/NA	Prep	8011			34.2 mL	35 mL	447564	02/13/19 16:39	MJS	TAL DEN
Total/NA	Analysis	8011		1			447805	02/15/19 13:39	JLW	TAL DEN

Client Sample ID: V-247-310119-164

Lab Sample ID: 280-119743-3

Date Collected: 01/31/19 08:30

Matrix: Solid

Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030A			4.977 g	5 mL	447510	02/13/19 09:00	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447516	02/13/19 13:40	GPM	TAL DEN
Total/NA	Analysis	Moisture		1			446285	02/01/19 15:44	KES	TAL DEN

Client Sample ID: V-247-310119-164

Lab Sample ID: 280-119743-3

Date Collected: 01/31/19 08:30

Matrix: Solid

Date Received: 02/01/19 09:20

Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8011			10.02 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			448030	02/18/19 22:22	JLW	TAL DEN

Client Sample ID: P-247-310119-164

Lab Sample ID: 280-119743-4

Date Collected: 01/31/19 08:30

Matrix: Solid

Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446285	02/01/19 15:44	KES	TAL DEN

Client Sample ID: P-247-310119-164

Lab Sample ID: 280-119743-4
Date Collected: 01/31/19 08:30
Matrix: Solid
Date Received: 02/01/19 09:20
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			3.953 g	5 mL	447368	01/31/19 08:30	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	447384	02/12/19 16:24	SU	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	446722	02/06/19 14:57	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			447214	02/12/19 10:29	MPF	TAL DEN

Client Sample ID: V-247-310119-208

Lab Sample ID: 280-119743-5
Date Collected: 01/31/19 13:45
Matrix: Solid
Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446285	02/01/19 15:44	KES	TAL DEN

Client Sample ID: V-247-310119-208

Lab Sample ID: 280-119743-5
Date Collected: 01/31/19 13:45
Matrix: Solid
Date Received: 02/01/19 09:20
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.656 g	5 mL	447467	01/31/19 13:45	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447462	02/13/19 12:55	GPM	TAL DEN
Total/NA	Prep	8011			9.95 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			448922	02/26/19 16:29	JLW	TAL DEN

Client Sample ID: P-247-310119-208

Lab Sample ID: 280-119743-6
Date Collected: 01/31/19 13:45
Matrix: Solid
Date Received: 02/01/19 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446285	02/01/19 15:44	KES	TAL DEN

Client Sample ID: P-247-310119-208

Lab Sample ID: 280-119743-6
Date Collected: 01/31/19 13:45
Matrix: Solid
Date Received: 02/01/19 09:20
Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2.987 g	5 mL	447368	01/31/19 13:45	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	447384	02/12/19 16:48	SU	TAL DEN
Total/NA	Prep	3546			15.7 g	1 mL	446722	02/06/19 14:57	DFB1	TAL DEN
Total/NA	Analysis	8015D DRO		1			447214	02/12/19 10:51	MPF	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119743-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1513 2910	COC No: COC2-247-TA-2019 0131
Client Contact: Pamela Moss	Phone: (575)430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DMD2.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
Preservation Code:					X	X	J/F	N	N	N	F	A	R	N	A	X	
RB-247-310119-01	01/31/19	1545	G	W	MM						X	X	X	X		13	

280-119743 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: JOSHUA LIVINGSTON	Date/Time: 01/31/19 1800	Company: EA	Received by:	Date/Time: 1/1/19 0920	Company: TAEN		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.4, 1.4 IR 1.6°C + temp blank by RD

JPL

IFS

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1513 3218	COC No: COC1-247-TA-20190131
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#: —			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=soil, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X
TB-247-310119-01	01/31/19	1430	G	W	N	N	—	—	—	—	—	X	X	—	X	6	
V-247-310119-164	01/31/19	0830	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-247-310119-164	01/31/19	0830	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
~~RB-247-310119-01~~	~~01/31/19~~		G	W	N	N						X	X	X	X		JRC
V-247-310119-208	01/31/19	1345	G	S	N	N	X	X	X	—	—	—	—	—	—	5	
P-247-310119-208	01/31/19	1345	G	S	N	N	—	—	—	X	X	—	—	—	—	3	
JRC																	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: JOSHUA LIVINGSTON	Date/Time: 01/31/19	1800	Company EA	Received by:	Date/Time: 2/1/19	0920	Company TADEN
Relinquished by:	Date/Time:		Company	Received by:	Date/Time:		Company
Relinquished by:	Date/Time:		Company	Received by:	Date/Time:		Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 1.9, 1.4°C ± transferred by 830 2/1 0920

FRS

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119743-1

Login Number: 119743
List Number: 1
Creator: Paul, Ryan D

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to Job Narrative for details.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	False	Refer to Job Narrative for details.
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-119877-1
Client Project/Site: Kirtland BFF Vadose Zone Coring

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Pamela J Moss

Darlene Bandy

Authorized for release by:
3/8/2019 4:14:00 PM

Darlene Bandy, Project Manager I
(303)736-0188
darlene.bandy@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

GC Semi VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-119877-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland BFF Vadose Zone Coring

Report Number: 280-119877-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 2/6/2019 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.9º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Solid
Samples V-247-050219-480 (280-119877-3), V-247-050219-489 (280-119877-5) and V-247-050219-499 (280-119877-7) were analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were prepared on 02/05/2019 and analyzed on 02/13/2019.

Chloroform was detected in method blank MB 280-447467/3-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". Refer to the QC report for details. This is considered acceptable because the detection was less than one-half the LOQ.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GC/MS) - Water
Sample TB-247-050219-01 (280-119877-1) was analyzed for volatile organic compounds (GC/MS) in accordance with 8260B. The samples were analyzed on 02/19/2019.

Internal standard (ISTD) response for TBA-IS for the following sample was outside acceptance criteria: (CCVC 280-448055/35). This ISTD does not correspond to any of the requested target compounds; therefore, the data have been reported.
analytical batch 280-448055

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Solid
Samples V-247-050219-480 (280-119877-3), V-247-050219-489 (280-119877-5) and V-247-050219-499 (280-119877-7) were analyzed for EDB and DBCP in accordance with 8011. The samples were prepared on 02/13/2019 and analyzed on 03/05/2019.

1,2-Dibromopropane failed the surrogate recovery criteria high for V-247-050219-480 (280-119877-3) and V-247-050219-489 (280-119877-5). Associated results have been flagged "Q". Refer to the QC report for details. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Job ID: 280-119877-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

Compound 1,2-Dibromopropane and Ethylene Dibromide eluted outside the retention time window on front and back columns for the following sample: (280-119877-B-7-C MSD). This retention time shift was taken into account when reviewing the sample(s) for target compounds. All associated samples were non-detect.

Compound 1,2-Dibromopropane, 1,2,3-Trichloropropane, and Ethylene Dibromide eluted outside the retention time window on front and back columns for the following sample: (CCV 280-449748/17). This retention time shift was taken into account when reviewing the sample(s) for target compounds. All associated samples were non-detect.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

EDB AND DBCP - Water

Sample TB-247-050219-01 (280-119877-1) was analyzed for EDB and DBCP in accordance with 8011. The samples were prepared and analyzed on 02/16/2019.

Data have been reported from the secondary column. All QC is in control. The following samples are associated: TB-247-050219-01 (280-119877-1), (CCV 280-447906/19), (CCV 280-447906/30), (CCVRT 280-447906/5), (LCS 280-447894/2-A), (LCSD 280-447894/3-A) and (MB 280-447894/4-A)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Solid

Samples P-247-050219-480 (280-119877-2), P-247-050219-489 (280-119877-4) and P-247-050219-499 (280-119877-6) were analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were prepared on 02/05/2019 and analyzed on 02/12/2019.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-447368 and analytical batch 280-447384.
LCS/LCSD used in lieu of MS/MSD.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO) - Water

Sample TB-247-050219-01 (280-119877-1) was analyzed for Gasoline Range Organics (GRO) in accordance with 8015D GRO. The samples were analyzed on 02/11/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO)

Samples P-247-050219-480 (280-119877-2), P-247-050219-489 (280-119877-4) and P-247-050219-499 (280-119877-6) were analyzed for Diesel Range Organics (DRO) in accordance with SW846 8015D. The samples were prepared on 02/10/2019 and analyzed on 02/13/2019.

Silica gel clean-up was performed on the following samples: P-247-050219-480 (280-119877-2), P-247-050219-489 (280-119877-4), P-247-050219-499 (280-119877-6), (LCS 280-447167/2-A), (LCS 280-447167/3-A), (MB 280-447167/1-A), (280-119877-A-2-B MS), (280-119877-A-2-D MS), (280-119877-A-2-C MSD) and (280-119877-A-2-E MSD). This is for preparation batch 280-447167 and analytical batch 280-447317. Silica Gel ID: Active_silgel_00007

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples P-247-050219-480 (280-119877-2), V-247-050219-480 (280-119877-3), P-247-050219-489 (280-119877-4), V-247-050219-489 (280-119877-5), P-247-050219-499 (280-119877-6) and V-247-050219-499 (280-119877-7) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 02/07/2019 and 02/08/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Client Sample ID: TB-247-050219-01 — Lab Sample ID: 280-119877-1

No Detections.

Client Sample ID: P-247-050219-480 — Lab Sample ID: 280-119877-2

No Detections.

Client Sample ID: V-247-050219-480 — Lab Sample ID: 280-119877-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.44	J	9.3	0.75	0.27	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	2.6	J	4.7	3.0	1.5	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-247-050219-489 — Lab Sample ID: 280-119877-4

No Detections.

Client Sample ID: V-247-050219-489 — Lab Sample ID: 280-119877-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.41	J	9.9	0.79	0.29	ug/Kg	1	☼	8260B	Total/NA

Client Sample ID: P-247-050219-499 — Lab Sample ID: 280-119877-6

No Detections.

Client Sample ID: V-247-050219-499 — Lab Sample ID: 280-119877-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.50	J	10	0.82	0.30	ug/Kg	1	☼	8260B	Total/NA
Methylene Chloride	1.9	J	5.1	3.3	1.6	ug/Kg	1	☼	8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015D GRO	Gasoline Range Organics (GRO)	SW846	TAL DEN
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL DEN
8015D DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN
5030B	Purge and Trap	SW846	TAL DEN
5035	Closed System Purge and Trap	SW846	TAL DEN
8011	Microextraction	SW846	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-119877-1	TB-247-050219-01	Water	02/05/19 13:00	02/06/19 09:05
280-119877-2	P-247-050219-480	Solid	02/05/19 08:40	02/06/19 09:05
280-119877-3	V-247-050219-480	Solid	02/05/19 08:40	02/06/19 09:05
280-119877-4	P-247-050219-489	Solid	02/05/19 09:35	02/06/19 09:05
280-119877-5	V-247-050219-489	Solid	02/05/19 09:35	02/06/19 09:05
280-119877-6	P-247-050219-499	Solid	02/05/19 10:30	02/06/19 09:05
280-119877-7	V-247-050219-499	Solid	02/05/19 10:30	02/06/19 09:05

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-247-050219-01
Date Collected: 02/05/19 13:00
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	6.4	U	10	6.4	1.9	ug/L		02/19/19 05:15	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/19/19 05:15	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		02/19/19 05:15	1
Bromomethane	0.80	U	2.0	0.80	0.21	ug/L		02/19/19 05:15	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/19/19 05:15	1
n-Butylbenzene	0.80	U	1.0	0.80	0.14	ug/L		02/19/19 05:15	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Carbon disulfide	0.80	U	2.0	0.80	0.17	ug/L		02/19/19 05:15	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/19/19 05:15	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/19/19 05:15	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/19/19 05:15	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 05:15	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/19/19 05:15	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/19/19 05:15	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/19/19 05:15	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 05:15	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/19/19 05:15	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/19/19 05:15	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/19/19 05:15	1
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/19/19 05:15	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/19/19 05:15	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 05:15	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 05:15	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/19/19 05:15	1
1,3-Dichloropropane	0.20	U	1.0	0.20	0.090	ug/L		02/19/19 05:15	1
2,2-Dichloropropane	0.80	U	1.0	0.80	0.38	ug/L		02/19/19 05:15	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 05:15	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 05:15	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/19/19 05:15	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/19/19 05:15	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 05:15	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/19/19 05:15	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		02/19/19 05:15	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/19/19 05:15	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/19/19 05:15	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/19/19 05:15	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		02/19/19 05:15	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-247-050219-01
Date Collected: 02/05/19 13:00
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 05:15	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 05:15	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/19/19 05:15	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 05:15	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/19/19 05:15	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/19/19 05:15	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 05:15	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/19/19 05:15	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 05:15	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 05:15	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/19/19 05:15	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 05:15	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.15	ug/L		02/19/19 05:15	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 05:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*89 - 112*		*02/19/19 05:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*		*02/19/19 05:15*	*1*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*		*02/19/19 05:15*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 119*		*02/19/19 05:15*	*1*

Client Sample ID: V-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-3
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	4.7	U	4.7	4.7	2.1	ug/Kg	☼	02/13/19 11:47	1
1,1,1-Trichloroethane	4.7	U	4.7	4.7	1.8	ug/Kg	☼	02/13/19 11:47	1
1,1,2,2-Tetrachloroethane	0.75	U	4.7	0.75	0.27	ug/Kg	☼	02/13/19 11:47	1
1,1,2-Trichloroethane	3.0	U	4.7	3.0	0.82	ug/Kg	☼	02/13/19 11:47	1
1,1-Dichloroethane	0.75	U	4.7	0.75	0.20	ug/Kg	☼	02/13/19 11:47	1
1,1-Dichloroethene	1.5	U	4.7	1.5	0.55	ug/Kg	☼	02/13/19 11:47	1
1,1-Dichloropropene	0.37	U	4.7	0.37	0.15	ug/Kg	☼	02/13/19 11:47	1
1,2,3-Trichlorobenzene	3.0	U	4.7	3.0	0.76	ug/Kg	☼	02/13/19 11:47	1
1,2,3-Trichloropropane	0.75	U	4.7	0.75	0.20	ug/Kg	☼	02/13/19 11:47	1
1,2,4-Trichlorobenzene	1.5	U	4.7	1.5	0.68	ug/Kg	☼	02/13/19 11:47	1
1,2,4-Trimethylbenzene	4.7	U	4.7	4.7	2.2	ug/Kg	☼	02/13/19 11:47	1
1,2-Dibromo-3-Chloropropane	9.3	U	9.3	9.3	3.4	ug/Kg	☼	02/13/19 11:47	1
1,2-Dichlorobenzene	4.7	U	4.7	4.7	1.7	ug/Kg	☼	02/13/19 11:47	1
1,2-Dichloroethane	1.5	U	4.7	1.5	0.65	ug/Kg	☼	02/13/19 11:47	1
1,2-Dichloroethene, Total	1.5	U	4.7	1.5	0.36	ug/Kg	☼	02/13/19 11:47	1
1,2-Dichloropropane	1.5	U M	4.7	1.5	0.51	ug/Kg	☼	02/13/19 11:47	1
1,3,5-Trimethylbenzene	4.7	U	4.7	4.7	2.3	ug/Kg	☼	02/13/19 11:47	1
1,3-Dichlorobenzene	1.5	U	4.7	1.5	0.45	ug/Kg	☼	02/13/19 11:47	1
1,3-Dichloropropane	0.37	U	4.7	0.37	0.16	ug/Kg	☼	02/13/19 11:47	1
1,4-Dichlorobenzene	0.75	U	4.7	0.75	0.23	ug/Kg	☼	02/13/19 11:47	1
2,2-Dichloropropane	1.5	U	4.7	1.5	0.41	ug/Kg	☼	02/13/19 11:47	1
2-Butanone (MEK)	12	U	19	12	3.6	ug/Kg	☼	02/13/19 11:47	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-3
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
2-Chlorotoluene	1.5	U	4.7	1.5	0.48	ug/Kg	☼	02/13/19 11:47	1
2-Hexanone	12	U	19	12	4.6	ug/Kg	☼	02/13/19 11:47	1
4-Chlorotoluene	0.75	U	4.7	0.75	0.34	ug/Kg	☼	02/13/19 11:47	1
4-Isopropyltoluene	3.0	U	4.7	3.0	1.1	ug/Kg	☼	02/13/19 11:47	1
4-Methyl-2-pentanone (MIBK)	12	U	19	12	4.1	ug/Kg	☼	02/13/19 11:47	1
Acetone	67	U	67	67	33	ug/Kg	☼	02/13/19 11:47	1
Benzene	0.37	U	4.7	0.37	0.14	ug/Kg	☼	02/13/19 11:47	1
Bromobenzene	1.5	U	4.7	1.5	0.46	ug/Kg	☼	02/13/19 11:47	1
Bromoform	4.8	U	4.8	4.8	2.4	ug/Kg	☼	02/13/19 11:47	1
Bromomethane	3.0	U	9.3	3.0	1.3	ug/Kg	☼	02/13/19 11:47	1
Carbon disulfide	4.7	U	4.7	4.7	1.5	ug/Kg	☼	02/13/19 11:47	1
Carbon tetrachloride	4.7	U	4.7	4.7	1.9	ug/Kg	☼	02/13/19 11:47	1
Chlorobenzene	4.7	U	4.7	4.7	1.9	ug/Kg	☼	02/13/19 11:47	1
Bromochloromethane	4.7	U	4.7	4.7	2.3	ug/Kg	☼	02/13/19 11:47	1
Dibromochloromethane	4.7	U	4.7	4.7	2.1	ug/Kg	☼	02/13/19 11:47	1
Chloroethane	6.0	U	9.3	6.0	1.9	ug/Kg	☼	02/13/19 11:47	1
Chloroform	**0.44**	**J**	9.3	0.75	0.27	ug/Kg	☼	02/13/19 11:47	1
Chloromethane	1.5	U	9.3	1.5	0.72	ug/Kg	☼	02/13/19 11:47	1
cis-1,2-Dichloroethene	0.75	U	4.7	0.75	0.19	ug/Kg	☼	02/13/19 11:47	1
cis-1,3-Dichloropropene	0.37	U	4.7	0.37	0.093	ug/Kg	☼	02/13/19 11:47	1
Dibromomethane	0.75	U	4.7	0.75	0.30	ug/Kg	☼	02/13/19 11:47	1
Bromodichloromethane	4.7	U	4.7	4.7	2.0	ug/Kg	☼	02/13/19 11:47	1
Dichlorodifluoromethane	6.0	U	9.3	6.0	2.6	ug/Kg	☼	02/13/19 11:47	1
Ethylbenzene	0.75	U	4.7	0.75	0.28	ug/Kg	☼	02/13/19 11:47	1
Ethylene Dibromide	1.5	U	4.7	1.5	0.49	ug/Kg	☼	02/13/19 11:47	1
Hexachlorobutadiene	4.7	U	4.7	4.7	2.0	ug/Kg	☼	02/13/19 11:47	1
Isopropylbenzene	4.7	U	4.7	4.7	2.2	ug/Kg	☼	02/13/19 11:47	1
Methyl tert-butyl ether	6.0	U	19	6.0	2.0	ug/Kg	☼	02/13/19 11:47	1
Methylene Chloride	**2.6**	**J**	4.7	3.0	1.5	ug/Kg	☼	02/13/19 11:47	1
m-Xylene & p-Xylene	3.0	U	3.0	3.0	0.97	ug/Kg	☼	02/13/19 11:47	1
Naphthalene	6.3	U	6.3	6.3	3.1	ug/Kg	☼	02/13/19 11:47	1
n-Butylbenzene	1.5	U	4.7	1.5	0.52	ug/Kg	☼	02/13/19 11:47	1
N-Propylbenzene	1.5	U	4.7	1.5	0.54	ug/Kg	☼	02/13/19 11:47	1
o-Xylene	0.75	U	4.7	0.75	0.25	ug/Kg	☼	02/13/19 11:47	1
sec-Butylbenzene	1.5	U	4.7	1.5	0.72	ug/Kg	☼	02/13/19 11:47	1
Styrene	0.75	U	4.7	0.75	0.26	ug/Kg	☼	02/13/19 11:47	1
tert-Butylbenzene	1.5	U	4.7	1.5	0.47	ug/Kg	☼	02/13/19 11:47	1
Tetrachloroethene	4.7	U	4.7	4.7	1.8	ug/Kg	☼	02/13/19 11:47	1
Toluene	0.75	U	4.7	0.75	0.21	ug/Kg	☼	02/13/19 11:47	1
trans-1,2-Dichloroethene	0.75	U	4.7	0.75	0.36	ug/Kg	☼	02/13/19 11:47	1
trans-1,3-Dichloropropene	0.19	U	4.7	0.19	0.077	ug/Kg	☼	02/13/19 11:47	1
Trichloroethene	4.7	U	4.7	4.7	1.8	ug/Kg	☼	02/13/19 11:47	1
Trichlorofluoromethane	9.3	U	9.3	9.3	3.0	ug/Kg	☼	02/13/19 11:47	1
Vinyl chloride	3.0	U	4.7	3.0	1.3	ug/Kg	☼	02/13/19 11:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*02/05/19 08:40*	*02/13/19 11:47*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*02/05/19 08:40*	*02/13/19 11:47*	*1*
4-Bromofluorobenzene (Surr)	*97*		*79 - 119*	*02/05/19 08:40*	*02/13/19 11:47*	*1*
Dibromofluoromethane (Surr)	*104*		*78 - 119*	*02/05/19 08:40*	*02/13/19 11:47*	*1*

Client Sample ID: V-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-5
Matrix: Solid
Percent Solids: 87.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	5.0	U	5.0	5.0	2.2	ug/Kg	☼	02/13/19 12:10	1
1,1,1-Trichloroethane	5.0	U	5.0	5.0	2.0	ug/Kg	☼	02/13/19 12:10	1
1,1,2,2-Tetrachloroethane	0.79	U	5.0	0.79	0.28	ug/Kg	☼	02/13/19 12:10	1
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.87	ug/Kg	☼	02/13/19 12:10	1
1,1-Dichloroethane	0.79	U	5.0	0.79	0.21	ug/Kg	☼	02/13/19 12:10	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg	☼	02/13/19 12:10	1
1,1-Dichloropropene	0.40	U	5.0	0.40	0.16	ug/Kg	☼	02/13/19 12:10	1
1,2,3-Trichlorobenzene	3.2	U	5.0	3.2	0.80	ug/Kg	☼	02/13/19 12:10	1
1,2,3-Trichloropropane	0.79	U	5.0	0.79	0.22	ug/Kg	☼	02/13/19 12:10	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.72	ug/Kg	☼	02/13/19 12:10	1
1,2,4-Trimethylbenzene	5.0	U	5.0	5.0	2.3	ug/Kg	☼	02/13/19 12:10	1
1,2-Dibromo-3-Chloropropane	9.9	U	9.9	9.9	3.6	ug/Kg	☼	02/13/19 12:10	1
1,2-Dichlorobenzene	5.0	U	5.0	5.0	1.9	ug/Kg	☼	02/13/19 12:10	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.69	ug/Kg	☼	02/13/19 12:10	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg	☼	02/13/19 12:10	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg	☼	02/13/19 12:10	1
1,3,5-Trimethylbenzene	5.0	U	5.0	5.0	2.4	ug/Kg	☼	02/13/19 12:10	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg	☼	02/13/19 12:10	1
1,3-Dichloropropane	0.40	U	5.0	0.40	0.17	ug/Kg	☼	02/13/19 12:10	1
1,4-Dichlorobenzene	0.79	U	5.0	0.79	0.24	ug/Kg	☼	02/13/19 12:10	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg	☼	02/13/19 12:10	1
2-Butanone (MEK)	13	U	20	13	3.9	ug/Kg	☼	02/13/19 12:10	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg	☼	02/13/19 12:10	1
2-Hexanone	13	U	20	13	4.9	ug/Kg	☼	02/13/19 12:10	1
4-Chlorotoluene	0.79	U	5.0	0.79	0.36	ug/Kg	☼	02/13/19 12:10	1
4-Isopropyltoluene	3.2	U	5.0	3.2	1.1	ug/Kg	☼	02/13/19 12:10	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.3	ug/Kg	☼	02/13/19 12:10	1
Acetone	71	U	71	71	35	ug/Kg	☼	02/13/19 12:10	1
Benzene	0.40	U M	5.0	0.40	0.15	ug/Kg	☼	02/13/19 12:10	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg	☼	02/13/19 12:10	1
Bromoform	5.1	U	5.1	5.1	2.5	ug/Kg	☼	02/13/19 12:10	1
Bromomethane	3.2	U	9.9	3.2	1.3	ug/Kg	☼	02/13/19 12:10	1
Carbon disulfide	5.0	U	5.0	5.0	1.6	ug/Kg	☼	02/13/19 12:10	1
Carbon tetrachloride	5.0	U	5.0	5.0	2.0	ug/Kg	☼	02/13/19 12:10	1
Chlorobenzene	5.0	U	5.0	5.0	2.0	ug/Kg	☼	02/13/19 12:10	1
Bromochloromethane	5.0	U	5.0	5.0	2.4	ug/Kg	☼	02/13/19 12:10	1
Dibromochloromethane	5.0	U	5.0	5.0	2.3	ug/Kg	☼	02/13/19 12:10	1
Chloroethane	6.3	U	9.9	6.3	2.0	ug/Kg	☼	02/13/19 12:10	1
Chloroform	**0.41**	**J**	9.9	0.79	0.29	ug/Kg	☼	02/13/19 12:10	1
Chloromethane	1.6	U	9.9	1.6	0.76	ug/Kg	☼	02/13/19 12:10	1
cis-1,2-Dichloroethene	0.79	U	5.0	0.79	0.20	ug/Kg	☼	02/13/19 12:10	1
cis-1,3-Dichloropropene	0.40	U	5.0	0.40	0.099	ug/Kg	☼	02/13/19 12:10	1
Dibromomethane	0.79	U	5.0	0.79	0.31	ug/Kg	☼	02/13/19 12:10	1
Bromodichloromethane	5.0	U	5.0	5.0	2.1	ug/Kg	☼	02/13/19 12:10	1
Dichlorodifluoromethane	6.3	U	9.9	6.3	2.7	ug/Kg	☼	02/13/19 12:10	1
Ethylbenzene	0.79	U	5.0	0.79	0.30	ug/Kg	☼	02/13/19 12:10	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg	☼	02/13/19 12:10	1
Hexachlorobutadiene	5.0	U	5.0	5.0	2.2	ug/Kg	☼	02/13/19 12:10	1
Isopropylbenzene	5.0	U	5.0	5.0	2.4	ug/Kg	☼	02/13/19 12:10	1
Methyl tert-butyl ether	6.3	U	20	6.3	2.1	ug/Kg	☼	02/13/19 12:10	1
Methylene Chloride	3.2	U	5.0	3.2	1.6	ug/Kg	☼	02/13/19 12:10	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-5
Matrix: Solid
Percent Solids: 87.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
m-Xylene & p-Xylene	3.2	U M	3.2	3.2	1.0	ug/Kg	☼	02/13/19 12:10	1
Naphthalene	6.6	U	6.6	6.6	3.3	ug/Kg	☼	02/13/19 12:10	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg	☼	02/13/19 12:10	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg	☼	02/13/19 12:10	1
o-Xylene	0.79	U	5.0	0.79	0.26	ug/Kg	☼	02/13/19 12:10	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.76	ug/Kg	☼	02/13/19 12:10	1
Styrene	0.79	U	5.0	0.79	0.28	ug/Kg	☼	02/13/19 12:10	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg	☼	02/13/19 12:10	1
Tetrachloroethene	5.0	U	5.0	5.0	1.9	ug/Kg	☼	02/13/19 12:10	1
Toluene	0.79	U	5.0	0.79	0.23	ug/Kg	☼	02/13/19 12:10	1
trans-1,2-Dichloroethene	0.79	U	5.0	0.79	0.39	ug/Kg	☼	02/13/19 12:10	1
trans-1,3-Dichloropropene	0.20	U	5.0	0.20	0.082	ug/Kg	☼	02/13/19 12:10	1
Trichloroethene	5.0	U	5.0	5.0	1.9	ug/Kg	☼	02/13/19 12:10	1
Trichlorofluoromethane	9.9	U	9.9	9.9	3.2	ug/Kg	☼	02/13/19 12:10	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg	☼	02/13/19 12:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*85 - 116*	*02/05/19 09:35*	*02/13/19 12:10*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/05/19 09:35*	*02/13/19 12:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*02/05/19 09:35*	*02/13/19 12:10*	*1*
Dibromofluoromethane (Surr)	*103*		*78 - 119*	*02/05/19 09:35*	*02/13/19 12:10*	*1*

Client Sample ID: V-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-7
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	5.1	U	5.1	5.1	2.3	ug/Kg	☼	02/13/19 12:33	1
1,1,1-Trichloroethane	5.1	U	5.1	5.1	2.0	ug/Kg	☼	02/13/19 12:33	1
1,1,2,2-Tetrachloroethane	0.82	U	5.1	0.82	0.29	ug/Kg	☼	02/13/19 12:33	1
1,1,2-Trichloroethane	3.3	U	5.1	3.3	0.90	ug/Kg	☼	02/13/19 12:33	1
1,1-Dichloroethane	0.82	U	5.1	0.82	0.22	ug/Kg	☼	02/13/19 12:33	1
1,1-Dichloroethene	1.6	U	5.1	1.6	0.60	ug/Kg	☼	02/13/19 12:33	1
1,1-Dichloropropene	0.41	U	5.1	0.41	0.17	ug/Kg	☼	02/13/19 12:33	1
1,2,3-Trichlorobenzene	3.3	U	5.1	3.3	0.83	ug/Kg	☼	02/13/19 12:33	1
1,2,3-Trichloropropane	0.82	U	5.1	0.82	0.22	ug/Kg	☼	02/13/19 12:33	1
1,2,4-Trichlorobenzene	1.6	U	5.1	1.6	0.75	ug/Kg	☼	02/13/19 12:33	1
1,2,4-Trimethylbenzene	5.1	U	5.1	5.1	2.4	ug/Kg	☼	02/13/19 12:33	1
1,2-Dibromo-3-Chloropropane	10	U	10	10	3.7	ug/Kg	☼	02/13/19 12:33	1
1,2-Dichlorobenzene	5.1	U	5.1	5.1	1.9	ug/Kg	☼	02/13/19 12:33	1
1,2-Dichloroethane	1.6	U	5.1	1.6	0.72	ug/Kg	☼	02/13/19 12:33	1
1,2-Dichloroethene, Total	1.6	U	5.1	1.6	0.40	ug/Kg	☼	02/13/19 12:33	1
1,2-Dichloropropane	1.6	U M	5.1	1.6	0.56	ug/Kg	☼	02/13/19 12:33	1
1,3,5-Trimethylbenzene	5.1	U	5.1	5.1	2.5	ug/Kg	☼	02/13/19 12:33	1
1,3-Dichlorobenzene	1.6	U	5.1	1.6	0.49	ug/Kg	☼	02/13/19 12:33	1
1,3-Dichloropropane	0.41	U	5.1	0.41	0.18	ug/Kg	☼	02/13/19 12:33	1
1,4-Dichlorobenzene	0.82	U	5.1	0.82	0.25	ug/Kg	☼	02/13/19 12:33	1
2,2-Dichloropropane	1.6	U	5.1	1.6	0.45	ug/Kg	☼	02/13/19 12:33	1
2-Butanone (MEK)	13	U	20	13	4.0	ug/Kg	☼	02/13/19 12:33	1
2-Chlorotoluene	1.6	U	5.1	1.6	0.52	ug/Kg	☼	02/13/19 12:33	1
2-Hexanone	13	U	20	13	5.0	ug/Kg	☼	02/13/19 12:33	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: V-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-7
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
4-Chlorotoluene	0.82	U	5.1	0.82	0.37	ug/Kg	☼	02/13/19 12:33	1
4-Isopropyltoluene	3.3	U	5.1	3.3	1.2	ug/Kg	☼	02/13/19 12:33	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.5	ug/Kg	☼	02/13/19 12:33	1
Acetone	74	U	74	74	36	ug/Kg	☼	02/13/19 12:33	1
Benzene	0.41	U	5.1	0.41	0.15	ug/Kg	☼	02/13/19 12:33	1
Bromobenzene	1.6	U	5.1	1.6	0.50	ug/Kg	☼	02/13/19 12:33	1
Bromoform	5.2	U	5.2	5.2	2.6	ug/Kg	☼	02/13/19 12:33	1
Bromomethane	3.3	U	10	3.3	1.4	ug/Kg	☼	02/13/19 12:33	1
Carbon disulfide	5.1	U	5.1	5.1	1.7	ug/Kg	☼	02/13/19 12:33	1
Carbon tetrachloride	5.1	U	5.1	5.1	2.1	ug/Kg	☼	02/13/19 12:33	1
Chlorobenzene	5.1	U	5.1	5.1	2.1	ug/Kg	☼	02/13/19 12:33	1
Bromochloromethane	5.1	U	5.1	5.1	2.5	ug/Kg	☼	02/13/19 12:33	1
Dibromochloromethane	5.1	U	5.1	5.1	2.3	ug/Kg	☼	02/13/19 12:33	1
Chloroethane	6.6	U	10	6.6	2.0	ug/Kg	☼	02/13/19 12:33	1
Chloroform	**0.50**	**J**	10	0.82	0.30	ug/Kg	☼	02/13/19 12:33	1
Chloromethane	1.6	U	10	1.6	0.79	ug/Kg	☼	02/13/19 12:33	1
cis-1,2-Dichloroethene	0.82	U	5.1	0.82	0.21	ug/Kg	☼	02/13/19 12:33	1
cis-1,3-Dichloropropene	0.41	U	5.1	0.41	0.10	ug/Kg	☼	02/13/19 12:33	1
Dibromomethane	0.82	U	5.1	0.82	0.32	ug/Kg	☼	02/13/19 12:33	1
Bromodichloromethane	5.1	U	5.1	5.1	2.2	ug/Kg	☼	02/13/19 12:33	1
Dichlorodifluoromethane	6.6	U	10	6.6	2.8	ug/Kg	☼	02/13/19 12:33	1
Ethylbenzene	0.82	U	5.1	0.82	0.31	ug/Kg	☼	02/13/19 12:33	1
Ethylene Dibromide	1.6	U	5.1	1.6	0.53	ug/Kg	☼	02/13/19 12:33	1
Hexachlorobutadiene	5.1	U	5.1	5.1	2.2	ug/Kg	☼	02/13/19 12:33	1
Isopropylbenzene	5.1	U	5.1	5.1	2.5	ug/Kg	☼	02/13/19 12:33	1
Methyl tert-butyl ether	6.6	U	20	6.6	2.2	ug/Kg	☼	02/13/19 12:33	1
Methylene Chloride	**1.9**	**J**	5.1	3.3	1.6	ug/Kg	☼	02/13/19 12:33	1
m-Xylene & p-Xylene	3.3	U	3.3	3.3	1.1	ug/Kg	☼	02/13/19 12:33	1
Naphthalene	6.9	U	6.9	6.9	3.4	ug/Kg	☼	02/13/19 12:33	1
n-Butylbenzene	1.6	U	5.1	1.6	0.57	ug/Kg	☼	02/13/19 12:33	1
N-Propylbenzene	1.6	U	5.1	1.6	0.59	ug/Kg	☼	02/13/19 12:33	1
o-Xylene	0.82	U	5.1	0.82	0.27	ug/Kg	☼	02/13/19 12:33	1
sec-Butylbenzene	1.6	U	5.1	1.6	0.79	ug/Kg	☼	02/13/19 12:33	1
Styrene	0.82	U	5.1	0.82	0.29	ug/Kg	☼	02/13/19 12:33	1
tert-Butylbenzene	1.6	U	5.1	1.6	0.51	ug/Kg	☼	02/13/19 12:33	1
Tetrachloroethene	5.1	U	5.1	5.1	2.0	ug/Kg	☼	02/13/19 12:33	1
Toluene	0.82	U	5.1	0.82	0.23	ug/Kg	☼	02/13/19 12:33	1
trans-1,2-Dichloroethene	0.82	U	5.1	0.82	0.40	ug/Kg	☼	02/13/19 12:33	1
trans-1,3-Dichloropropene	0.20	U	5.1	0.20	0.085	ug/Kg	☼	02/13/19 12:33	1
Trichloroethene	5.1	U	5.1	5.1	2.0	ug/Kg	☼	02/13/19 12:33	1
Trichlorofluoromethane	10	U	10	10	3.3	ug/Kg	☼	02/13/19 12:33	1
Vinyl chloride	3.3	U	5.1	3.3	1.4	ug/Kg	☼	02/13/19 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*85 - 116*	*02/05/19 10:30*	*02/13/19 12:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*02/05/19 10:30*	*02/13/19 12:33*	*1*
4-Bromofluorobenzene (Surr)	*96*		*79 - 119*	*02/05/19 10:30*	*02/13/19 12:33*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*02/05/19 10:30*	*02/13/19 12:33*	*1*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Client Sample ID: TB-247-050219-01
Date Collected: 02/05/19 13:00
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*82 - 110*		*02/11/19 19:21*	*1*

Client Sample ID: P-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-2
Matrix: Solid
Percent Solids: 86.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.5	U	2.5	2.5	0.95	mg/Kg	☼	02/12/19 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*110*		*77 - 123*	*02/05/19 08:40*	*02/12/19 17:12*	*1*

Client Sample ID: P-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.4	U	2.4	2.4	0.93	mg/Kg	☼	02/12/19 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*114*		*77 - 123*	*02/05/19 09:35*	*02/12/19 17:35*	*1*

Client Sample ID: P-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-6
Matrix: Solid
Percent Solids: 91.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.2	U	2.2	2.2	0.84	mg/Kg	☼	02/12/19 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*	*02/05/19 10:30*	*02/12/19 17:59*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: TB-247-050219-01
Date Collected: 02/05/19 13:00
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/16/19 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*91*		*70 - 130*	*02/16/19 11:20*	*02/16/19 21:51*	*1*

Client Sample ID: V-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-3
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.043	U	0.11	0.043	0.017	ug/Kg	☼	03/05/19 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*137*	*Q*	*55 - 130*	*02/13/19 15:55*	*03/05/19 19:45*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Client Sample ID: V-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-5
Matrix: Solid
Percent Solids: 87.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.044	U	0.11	0.044	0.017	ug/Kg	☼	03/05/19 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*188*	*Q*	*55 - 130*	*02/13/19 15:55*	*03/05/19 20:04*	*1*

Client Sample ID: V-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-7
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.042	U	0.11	0.042	0.017	ug/Kg	☼	03/05/19 20:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*110*		*55 - 130*	*02/13/19 15:55*	*03/05/19 20:23*	*1*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: P-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-2
Matrix: Solid
Percent Solids: 86.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	8.8	U	8.8	8.8	4.0	mg/Kg	☼	02/13/19 05:02	1
Motor Oil (C20-C38)	26	U	26	26	8.6	mg/Kg	☼	02/13/19 05:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*76*		*45 - 130*	*02/10/19 14:08*	*02/13/19 05:02*	*1*
n-Octacosane	*89*		*25 - 162*	*02/10/19 14:08*	*02/13/19 05:02*	*1*

Client Sample ID: P-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	8.5	U	8.5	8.5	3.9	mg/Kg	☼	02/13/19 06:43	1
Motor Oil (C20-C38)	25	U	26	25	8.3	mg/Kg	☼	02/13/19 06:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*45 - 130*	*02/10/19 14:08*	*02/13/19 06:43*	*1*
n-Octacosane	*86*		*25 - 162*	*02/10/19 14:08*	*02/13/19 06:43*	*1*

Client Sample ID: P-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05

Lab Sample ID: 280-119877-6
Matrix: Solid
Percent Solids: 91.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	8.0	U	8.0	8.0	3.7	mg/Kg	☼	02/13/19 07:03	1
Motor Oil (C20-C38)	24	U	24	24	7.9	mg/Kg	☼	02/13/19 07:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*66*		*45 - 130*	*02/10/19 14:08*	*02/13/19 07:03*	*1*
n-Octacosane	*75*		*25 - 162*	*02/10/19 14:08*	*02/13/19 07:03*	*1*

General Chemistry

Client Sample ID: P-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-2
Matrix: Solid
Percent Solids: 86.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.2		0.1	0.05	0.1	%		02/07/19 15:56	1

Client Sample ID: V-247-050219-480
Date Collected: 02/05/19 08:40
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-3
Matrix: Solid
Percent Solids: 86.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	13.1		0.1	0.05	0.1	%		02/08/19 15:34	1

Client Sample ID: P-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-4
Matrix: Solid
Percent Solids: 87.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.7		0.1	0.05	0.1	%		02/07/19 15:56	1

Client Sample ID: V-247-050219-489
Date Collected: 02/05/19 09:35
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-5
Matrix: Solid
Percent Solids: 87.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	12.8		0.1	0.05	0.1	%		02/08/19 15:34	1

Client Sample ID: P-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-6
Matrix: Solid
Percent Solids: 91.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	8.5		0.1	0.05	0.1	%		02/07/19 15:56	1

Client Sample ID: V-247-050219-499
Date Collected: 02/05/19 10:30
Date Received: 02/06/19 09:05
Lab Sample ID: 280-119877-7
Matrix: Solid
Percent Solids: 90.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	9.6		0.1	0.05	0.1	%		02/08/19 15:34	1

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-116)	(71-136)	(79-119)	(78-119)
280-119877-3	V-247-050219-480	98	101	97	104
280-119877-5	V-247-050219-489	97	102	96	103
280-119877-7	V-247-050219-499	98	100	96	102
LCS 280-447467/1-A	Lab Control Sample	100	98	100	99
LCSD 280-447467/2-A	Lab Control Sample Dup	100	99	100	102
MB 280-447467/3-A	Method Blank	99	102	100	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(89-112)	(81-118)	(85-114)	(80-119)
280-119877-1	TB-247-050219-01	99	93	100	96
LCS 280-448055/11	Lab Control Sample	100	93	100	98
LCSD 280-448055/12	Lab Control Sample Dup	100	91	102	97
MB 280-448055/10	Method Blank	100	97	99	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(77-123)
280-119877-2	P-247-050219-480	110
280-119877-4	P-247-050219-489	114
280-119877-6	P-247-050219-499	102
LCS 280-447368/1-A	Lab Control Sample	103
LCSD 280-447368/2-A	Lab Control Sample Dup	102
MB 280-447368/3-A	Method Blank	103

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (Surr)

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method: 8015D GRO - Gasoline Range Organics (GRO)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFT1 (82-110)
280-119877-1	TB-247-050219-01	101
LCS 280-447223/3	Lab Control Sample	101
MB 280-447223/4	Method Blank	99

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP1 (55-130)
280-119877-3	V-247-050219-480	137 Q
280-119877-5	V-247-050219-489	188 Q
280-119877-7	V-247-050219-499	110
280-119877-7 MS	V-247-050219-499	102
280-119877-7 MSD	V-247-050219-499	114 M
LCS 280-447554/1-A	Lab Control Sample	104
LCSD 280-447554/2-A	Lab Control Sample Dup	112
MB 280-447554/3-A	Method Blank	118

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	12DBP2 (70-130)
280-119877-1	TB-247-050219-01	91
LCS 280-447894/2-A	Lab Control Sample	115
LCSD 280-447894/3-A	Lab Control Sample Dup	104
MB 280-447894/4-A	Method Blank	102

Surrogate Legend

12DBP = 1,2-Dibromopropane

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)
280-119877-2	P-247-050219-480	76	89
280-119877-2 MS	P-247-050219-480	78	91
280-119877-2 MS	P-247-050219-480	72	100
280-119877-2 MSD	P-247-050219-480	77	80
280-119877-2 MSD	P-247-050219-480	82	123

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method: 8015D DRO - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	OTPH1 (45-130)	OTCN1 (25-162)								
280-119877-4	P-247-050219-489	75	86								
280-119877-6	P-247-050219-499	66	75								
LCS 280-447167/2-A	Lab Control Sample	81	92								
LCS 280-447167/3-A	Lab Control Sample	91	118								
MB 280-447167/1-A	Method Blank	80	91								

Surrogate Legend

OTPH = o-Terphenyl (Surr)
OTCN = n-Octacosane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	10	U	10	10	3.7	ug/Kg		02/13/19 11:03	1
2-Butanone (MEK)	13	U	20	13	3.9	ug/Kg		02/13/19 11:03	1
1,2-Dichlorobenzene	5.0	U	5.0	5.0	1.9	ug/Kg		02/13/19 11:03	1
1,3-Dichlorobenzene	1.6	U	5.0	1.6	0.48	ug/Kg		02/13/19 11:03	1
4-Chlorotoluene	0.80	U	5.0	0.80	0.36	ug/Kg		02/13/19 11:03	1
1,4-Dichlorobenzene	0.80	U	5.0	0.80	0.25	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethane	0.80	U	5.0	0.80	0.21	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethane	1.6	U	5.0	1.6	0.70	ug/Kg		02/13/19 11:03	1
Acetone	72	U	72	72	36	ug/Kg		02/13/19 11:03	1
1,1-Dichloroethene	1.6	U	5.0	1.6	0.59	ug/Kg		02/13/19 11:03	1
Benzene	0.40	U	5.0	0.40	0.15	ug/Kg		02/13/19 11:03	1
1,2-Dichloroethene, Total	1.6	U	5.0	1.6	0.39	ug/Kg		02/13/19 11:03	1
Bromobenzene	1.6	U	5.0	1.6	0.49	ug/Kg		02/13/19 11:03	1
Bromoform	5.1	U	5.1	5.1	2.6	ug/Kg		02/13/19 11:03	1
Bromomethane	3.2	U	10	3.2	1.4	ug/Kg		02/13/19 11:03	1
1,2-Dichloropropane	1.6	U M	5.0	1.6	0.55	ug/Kg		02/13/19 11:03	1
Carbon disulfide	5.0	U	5.0	5.0	1.7	ug/Kg		02/13/19 11:03	1
1,3-Dichloropropane	0.40	U	5.0	0.40	0.17	ug/Kg		02/13/19 11:03	1
Carbon tetrachloride	5.0	U	5.0	5.0	2.0	ug/Kg		02/13/19 11:03	1
2,2-Dichloropropane	1.6	U	5.0	1.6	0.44	ug/Kg		02/13/19 11:03	1
Chlorobenzene	5.0	U	5.0	5.0	2.1	ug/Kg		02/13/19 11:03	1
1,1-Dichloropropene	0.40	U	5.0	0.40	0.16	ug/Kg		02/13/19 11:03	1
Bromochloromethane	5.0	U	5.0	5.0	2.5	ug/Kg		02/13/19 11:03	1
Dibromochloromethane	5.0	U	5.0	5.0	2.3	ug/Kg		02/13/19 11:03	1
Chloroethane	6.4	U	10	6.4	2.0	ug/Kg		02/13/19 11:03	1
Chloroform	0.418	J	10	0.80	0.29	ug/Kg		02/13/19 11:03	1
2-Hexanone	13	U	20	13	4.9	ug/Kg		02/13/19 11:03	1
Chloromethane	1.6	U	10	1.6	0.77	ug/Kg		02/13/19 11:03	1
cis-1,2-Dichloroethene	0.80	U	5.0	0.80	0.20	ug/Kg		02/13/19 11:03	1
cis-1,3-Dichloropropene	0.40	U	5.0	0.40	0.10	ug/Kg		02/13/19 11:03	1
4-Isopropyltoluene	3.2	U	5.0	3.2	1.1	ug/Kg		02/13/19 11:03	1
Dibromomethane	0.80	U	5.0	0.80	0.32	ug/Kg		02/13/19 11:03	1
Bromodichloromethane	5.0	U	5.0	5.0	2.1	ug/Kg		02/13/19 11:03	1
4-Methyl-2-pentanone (MIBK)	13	U	20	13	4.4	ug/Kg		02/13/19 11:03	1
Dichlorodifluoromethane	6.4	U	10	6.4	2.7	ug/Kg		02/13/19 11:03	1
Ethylbenzene	0.80	U	5.0	0.80	0.31	ug/Kg		02/13/19 11:03	1
Ethylene Dibromide	1.6	U	5.0	1.6	0.52	ug/Kg		02/13/19 11:03	1
Hexachlorobutadiene	5.0	U	5.0	5.0	2.2	ug/Kg		02/13/19 11:03	1
Isopropylbenzene	5.0	U	5.0	5.0	2.4	ug/Kg		02/13/19 11:03	1
1,1,1,2-Tetrachloroethane	5.0	U	5.0	5.0	2.2	ug/Kg		02/13/19 11:03	1
Methyl tert-butyl ether	6.4	U	20	6.4	2.1	ug/Kg		02/13/19 11:03	1
1,1,2,2-Tetrachloroethane	0.80	U	5.0	0.80	0.29	ug/Kg		02/13/19 11:03	1
Methylene Chloride	3.2	U M	5.0	3.2	1.6	ug/Kg		02/13/19 11:03	1
Naphthalene	6.7	U	6.7	6.7	3.3	ug/Kg		02/13/19 11:03	1
1,2,3-Trichlorobenzene	3.2	U	5.0	3.2	0.81	ug/Kg		02/13/19 11:03	1
n-Butylbenzene	1.6	U	5.0	1.6	0.56	ug/Kg		02/13/19 11:03	1
1,1,1-Trichloroethane	5.0	U	5.0	5.0	2.0	ug/Kg		02/13/19 11:03	1
N-Propylbenzene	1.6	U	5.0	1.6	0.58	ug/Kg		02/13/19 11:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-447467/3-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447467

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,2-Trichloroethane	3.2	U	5.0	3.2	0.88	ug/Kg		02/13/19 11:03	1
sec-Butylbenzene	1.6	U	5.0	1.6	0.77	ug/Kg		02/13/19 11:03	1
Styrene	0.80	U	5.0	0.80	0.28	ug/Kg		02/13/19 11:03	1
1,2,4-Trichlorobenzene	1.6	U	5.0	1.6	0.73	ug/Kg		02/13/19 11:03	1
tert-Butylbenzene	1.6	U	5.0	1.6	0.50	ug/Kg		02/13/19 11:03	1
1,2,3-Trichloropropane	0.80	U	5.0	0.80	0.22	ug/Kg		02/13/19 11:03	1
Tetrachloroethene	5.0	U	5.0	5.0	1.9	ug/Kg		02/13/19 11:03	1
1,2,4-Trimethylbenzene	5.0	U	5.0	5.0	2.3	ug/Kg		02/13/19 11:03	1
Toluene	0.80	U	5.0	0.80	0.23	ug/Kg		02/13/19 11:03	1
1,3,5-Trimethylbenzene	5.0	U M	5.0	5.0	2.4	ug/Kg		02/13/19 11:03	1
trans-1,2-Dichloroethene	0.80	U	5.0	0.80	0.39	ug/Kg		02/13/19 11:03	1
trans-1,3-Dichloropropene	0.20	U	5.0	0.20	0.083	ug/Kg		02/13/19 11:03	1
o-Xylene	0.80	U	5.0	0.80	0.27	ug/Kg		02/13/19 11:03	1
Trichloroethene	5.0	U	5.0	5.0	1.9	ug/Kg		02/13/19 11:03	1
m-Xylene & p-Xylene	3.2	U	3.2	3.2	1.0	ug/Kg		02/13/19 11:03	1
Trichlorofluoromethane	10	U	10	10	3.2	ug/Kg		02/13/19 11:03	1
Vinyl chloride	3.2	U	5.0	3.2	1.3	ug/Kg		02/13/19 11:03	1
2-Chlorotoluene	1.6	U	5.0	1.6	0.51	ug/Kg		02/13/19 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*85 - 116*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*
Dibromofluoromethane (Surr)	*102*		*78 - 119*	*02/13/19 09:00*	*02/13/19 11:03*	*1*

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	49.5		ug/Kg		99	61 - 132
2-Butanone (MEK)	200	198		ug/Kg		99	51 - 148
1,2-Dichlorobenzene	50.0	52.2		ug/Kg		104	78 - 121
1,3-Dichlorobenzene	50.0	52.3		ug/Kg		105	77 - 121
4-Chlorotoluene	50.0	52.6		ug/Kg		105	72 - 124
1,4-Dichlorobenzene	50.0	51.7		ug/Kg		103	75 - 120
1,1-Dichloroethane	50.0	48.1		ug/Kg		96	76 - 125
1,2-Dichloroethane	50.0	45.2		ug/Kg		90	73 - 128
Acetone	200	201		ug/Kg		101	36 - 164
1,1-Dichloroethene	50.0	51.1		ug/Kg		102	70 - 131
Benzene	50.0	48.0		ug/Kg		96	77 - 121
Bromobenzene	50.0	51.2		ug/Kg		102	78 - 121
Bromoform	50.0	48.5		ug/Kg		97	67 - 132
Bromomethane	50.0	46.4		ug/Kg		93	53 - 143
1,2-Dichloropropane	50.0	46.4		ug/Kg		93	76 - 123
Carbon disulfide	50.0	51.8		ug/Kg		104	63 - 132
1,3-Dichloropropane	50.0	51.0		ug/Kg		102	77 - 121
Carbon tetrachloride	50.0	52.1		ug/Kg		104	70 - 135

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,2-Dichloropropane	50.0	51.5		ug/Kg		103	67 - 133
Chlorobenzene	50.0	49.7		ug/Kg		99	79 - 120
1,1-Dichloropropene	50.0	50.6		ug/Kg		101	76 - 125
Bromochloromethane	50.0	49.2		ug/Kg		98	78 - 125
Dibromochloromethane	50.0	48.4		ug/Kg		97	74 - 126
Chloroethane	50.0	41.9		ug/Kg		84	59 - 139
Chloroform	50.0	46.0		ug/Kg		92	78 - 123
2-Hexanone	200	204		ug/Kg		102	53 - 145
Chloromethane	50.0	39.0		ug/Kg		78	50 - 136
cis-1,2-Dichloroethene	50.0	50.0		ug/Kg		100	77 - 123
cis-1,3-Dichloropropene	50.0	53.7		ug/Kg		107	74 - 126
4-Isopropyltoluene	50.0	53.9		ug/Kg		108	73 - 127
Dibromomethane	50.0	49.0		ug/Kg		98	78 - 125
Bromodichloromethane	50.0	53.1		ug/Kg		106	75 - 127
4-Methyl-2-pentanone (MIBK)	200	199		ug/Kg		99	65 - 135
Dichlorodifluoromethane	50.0	42.7		ug/Kg		85	29 - 149
Ethylbenzene	50.0	50.3		ug/Kg		101	76 - 122
Ethylene Dibromide	50.0	54.7		ug/Kg		109	78 - 122
Hexachlorobutadiene	50.0	52.5		ug/Kg		105	61 - 135
Isopropylbenzene	50.0	53.1		ug/Kg		106	68 - 134
1,1,1,2-Tetrachloroethane	50.0	51.5		ug/Kg		103	78 - 125
Methyl tert-butyl ether	50.0	50.4		ug/Kg		101	73 - 125
1,1,2,2-Tetrachloroethane	50.0	50.9		ug/Kg		102	70 - 124
Methylene Chloride	50.0	48.0		ug/Kg		96	70 - 128
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129
1,2,3-Trichlorobenzene	50.0	54.5		ug/Kg		109	66 - 130
n-Butylbenzene	50.0	54.1		ug/Kg		108	70 - 128
1,1,1-Trichloroethane	50.0	50.3		ug/Kg		101	73 - 130
N-Propylbenzene	50.0	53.8		ug/Kg		108	73 - 125
1,1,2-Trichloroethane	50.0	54.0		ug/Kg		108	78 - 121
sec-Butylbenzene	50.0	53.4		ug/Kg		107	73 - 126
Styrene	50.0	52.1		ug/Kg		104	76 - 124
1,2,4-Trichlorobenzene	50.0	56.1		ug/Kg		112	67 - 129
tert-Butylbenzene	50.0	53.0		ug/Kg		106	73 - 125
1,2,3-Trichloropropane	50.0	50.1		ug/Kg		100	73 - 125
Tetrachloroethene	50.0	52.0		ug/Kg		104	73 - 128
1,2,4-Trimethylbenzene	50.0	52.8		ug/Kg		106	75 - 123
Toluene	50.0	49.9		ug/Kg		100	77 - 121
1,3,5-Trimethylbenzene	50.0	52.6		ug/Kg		105	73 - 124
trans-1,2-Dichloroethene	50.0	52.3		ug/Kg		105	74 - 125
trans-1,3-Dichloropropene	50.0	48.3		ug/Kg		97	71 - 130
o-Xylene	50.0	51.2		ug/Kg		102	77 - 123
Trichloroethene	50.0	51.9		ug/Kg		104	77 - 123
m-Xylene & p-Xylene	50.0	47.5		ug/Kg		95	77 - 124
Trichlorofluoromethane	50.0	44.1		ug/Kg		88	62 - 140
Vinyl chloride	50.0	41.2		ug/Kg		82	56 - 135
2-Chlorotoluene	50.0	51.7		ug/Kg		103	75 - 122

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-447467/1-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447467

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*78 - 119*

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane			50.0	49.0		ug/Kg		98	61 - 132	1	20
2-Butanone (MEK)			200	201		ug/Kg		100	51 - 148	1	20
1,2-Dichlorobenzene			50.0	52.9		ug/Kg		106	78 - 121	1	20
1,3-Dichlorobenzene			50.0	52.8		ug/Kg		106	77 - 121	1	20
4-Chlorotoluene			50.0	53.8		ug/Kg		108	72 - 124	2	20
1,4-Dichlorobenzene			50.0	52.1		ug/Kg		104	75 - 120	1	20
1,1-Dichloroethane			50.0	50.2		ug/Kg		100	76 - 125	4	20
1,2-Dichloroethane			50.0	47.0		ug/Kg		94	73 - 128	4	20
Acetone			200	208		ug/Kg		104	36 - 164	3	20
1,1-Dichloroethene			50.0	51.7		ug/Kg		103	70 - 131	1	20
Benzene			50.0	50.5		ug/Kg		101	77 - 121	5	20
Bromobenzene			50.0	52.4		ug/Kg		105	78 - 121	2	20
Bromoform			50.0	49.9		ug/Kg		100	67 - 132	3	20
Bromomethane			50.0	49.8		ug/Kg		100	53 - 143	7	20
1,2-Dichloropropane			50.0	48.6		ug/Kg		97	76 - 123	5	20
Carbon disulfide			50.0	53.5		ug/Kg		107	63 - 132	3	20
1,3-Dichloropropane			50.0	53.0		ug/Kg		106	77 - 121	4	20
Carbon tetrachloride			50.0	53.5		ug/Kg		107	70 - 135	3	20
2,2-Dichloropropane			50.0	54.1		ug/Kg		108	67 - 133	5	20
Chlorobenzene			50.0	50.5		ug/Kg		101	79 - 120	2	20
1,1-Dichloropropene			50.0	52.6		ug/Kg		105	76 - 125	4	20
Bromochloromethane			50.0	51.9		ug/Kg		104	78 - 125	5	20
Dibromochloromethane			50.0	49.4		ug/Kg		99	74 - 126	2	20
Chloroethane			50.0	44.5		ug/Kg		89	59 - 139	6	20
Chloroform			50.0	48.6		ug/Kg		97	78 - 123	5	20
2-Hexanone			200	203		ug/Kg		102	53 - 145	0	20
Chloromethane			50.0	41.5		ug/Kg		83	50 - 136	6	20
cis-1,2-Dichloroethene			50.0	51.9		ug/Kg		104	77 - 123	4	20
cis-1,3-Dichloropropene			50.0	54.8		ug/Kg		110	74 - 126	2	20
4-Isopropyltoluene			50.0	54.4		ug/Kg		109	73 - 127	1	20
Dibromomethane			50.0	51.6		ug/Kg		103	78 - 125	5	20
Bromodichloromethane			50.0	55.1		ug/Kg		110	75 - 127	4	20
4-Methyl-2-pentanone (MIBK)			200	205		ug/Kg		103	65 - 135	3	20
Dichlorodifluoromethane			50.0	44.6		ug/Kg		89	29 - 149	4	20
Ethylbenzene			50.0	51.1		ug/Kg		102	76 - 122	2	20
Ethylene Dibromide			50.0	55.9		ug/Kg		112	78 - 122	2	20
Hexachlorobutadiene			50.0	54.1		ug/Kg		108	61 - 135	3	20
Isopropylbenzene			50.0	53.9		ug/Kg		108	68 - 134	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-447467/2-A
Matrix: Solid
Analysis Batch: 447462

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447467

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	50.0	52.7		ug/Kg		105	78 - 125	2	20
Methyl tert-butyl ether	50.0	52.7		ug/Kg		105	73 - 125	5	20
1,1,2,2-Tetrachloroethane	50.0	51.7		ug/Kg		103	70 - 124	2	20
Methylene Chloride	50.0	50.4		ug/Kg		101	70 - 128	5	20
Naphthalene	50.0	58.9		ug/Kg		118	62 - 129	0	20
1,2,3-Trichlorobenzene	50.0	55.3		ug/Kg		111	66 - 130	2	20
n-Butylbenzene	50.0	54.3		ug/Kg		109	70 - 128	0	20
1,1,1-Trichloroethane	50.0	52.3		ug/Kg		105	73 - 130	4	20
N-Propylbenzene	50.0	55.0		ug/Kg		110	73 - 125	2	20
1,1,2-Trichloroethane	50.0	56.3		ug/Kg		113	78 - 121	4	20
sec-Butylbenzene	50.0	53.9		ug/Kg		108	73 - 126	1	20
Styrene	50.0	53.1		ug/Kg		106	76 - 124	2	20
1,2,4-Trichlorobenzene	50.0	55.8		ug/Kg		112	67 - 129	1	20
tert-Butylbenzene	50.0	53.9		ug/Kg		108	73 - 125	2	20
1,2,3-Trichloropropane	50.0	51.5		ug/Kg		103	73 - 125	3	20
Tetrachloroethene	50.0	52.6		ug/Kg		105	73 - 128	1	20
1,2,4-Trimethylbenzene	50.0	53.2		ug/Kg		106	75 - 123	1	20
Toluene	50.0	52.2		ug/Kg		104	77 - 121	4	20
1,3,5-Trimethylbenzene	50.0	53.1		ug/Kg		106	73 - 124	1	20
trans-1,2-Dichloroethene	50.0	54.1		ug/Kg		108	74 - 125	3	20
trans-1,3-Dichloropropene	50.0	50.7		ug/Kg		101	71 - 130	5	20
o-Xylene	50.0	52.1		ug/Kg		104	77 - 123	2	20
Trichloroethene	50.0	53.9		ug/Kg		108	77 - 123	4	20
m-Xylene & p-Xylene	50.0	48.6		ug/Kg		97	77 - 124	2	20
Trichlorofluoromethane	50.0	45.8		ug/Kg		92	62 - 140	4	20
Vinyl chloride	50.0	44.2		ug/Kg		88	56 - 135	7	20
2-Chlorotoluene	50.0	52.5		ug/Kg		105	75 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*85 - 116*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*102*		*78 - 119*

Lab Sample ID: MB 280-448055/10
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	1.6	0.47	ug/L		02/19/19 00:14	1
2-Butanone (MEK)	4.0	U	6.0	4.0	2.0	ug/L		02/19/19 00:14	1
1,2-Dichlorobenzene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 00:14	1
1,3-Dichlorobenzene	0.40	U	1.0	0.40	0.13	ug/L		02/19/19 00:14	1
4-Chlorotoluene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 00:14	1
1,4-Dichlorobenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
1,1-Dichloroethane	0.80	U	1.0	0.80	0.22	ug/L		02/19/19 00:14	1
1,2-Dichloroethane	0.40	U	1.0	0.40	0.13	ug/L		02/19/19 00:14	1
Acetone	6.4	U	10	6.4	1.9	ug/L		02/19/19 00:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-448055/10
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1-Dichloroethene	0.80	U	1.0	0.80	0.23	ug/L		02/19/19 00:14	1
Benzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.20	0.24	ug/L		02/19/19 00:14	1
Bromobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
Bromoform	1.0	U	1.0	1.0	0.46	ug/L		02/19/19 00:14	1
Bromomethane	0.80	U M	2.0	0.80	0.21	ug/L		02/19/19 00:14	1
1,2-Dichloropropane	0.40	U	1.0	0.40	0.18	ug/L		02/19/19 00:14	1
Carbon disulfide	0.80	U	2.0	0.80	0.17	ug/L		02/19/19 00:14	1
1,3-Dichloropropane	0.20	U	1.0	0.20	0.090	ug/L		02/19/19 00:14	1
Carbon tetrachloride	0.40	U	2.0	0.40	0.19	ug/L		02/19/19 00:14	1
2,2-Dichloropropane	0.80	U	1.0	0.80	0.38	ug/L		02/19/19 00:14	1
Chlorobenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
1,1-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 00:14	1
Bromochloromethane	0.20	U	1.0	0.20	0.10	ug/L		02/19/19 00:14	1
Dibromochloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
Chloroethane	1.6	U	2.0	1.6	0.41	ug/L		02/19/19 00:14	1
Chloroform	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
2-Hexanone	4.0	U	5.0	4.0	1.7	ug/L		02/19/19 00:14	1
Chloromethane	0.80	U	2.0	0.80	0.30	ug/L		02/19/19 00:14	1
cis-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 00:14	1
cis-1,3-Dichloropropene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
4-Isopropyltoluene	0.40	U	1.0	0.40	0.20	ug/L		02/19/19 00:14	1
Dibromomethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
Bromodichloromethane	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	3.2	0.98	ug/L		02/19/19 00:14	1
Dichlorodifluoromethane	0.80	U	2.0	0.80	0.31	ug/L		02/19/19 00:14	1
Ethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
Ethylene Dibromide	0.40	U	1.0	0.40	0.18	ug/L		02/19/19 00:14	1
Hexachlorobutadiene	0.80	U	1.0	0.80	0.36	ug/L		02/19/19 00:14	1
Isopropylbenzene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 00:14	1
1,1,1,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 00:14	1
Methyl tert-butyl ether	0.80	U	5.0	0.80	0.25	ug/L		02/19/19 00:14	1
1,1,2,2-Tetrachloroethane	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 00:14	1
Methylene Chloride	2.0	U	5.0	2.0	0.94	ug/L		02/19/19 00:14	1
Naphthalene	0.80	U	1.0	0.80	0.22	ug/L		02/19/19 00:14	1
1,2,3-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 00:14	1
n-Butylbenzene	0.80	U	1.0	0.80	0.14	ug/L		02/19/19 00:14	1
1,1,1-Trichloroethane	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
N-Propylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
1,1,2-Trichloroethane	0.80	U	1.0	0.80	0.27	ug/L		02/19/19 00:14	1
sec-Butylbenzene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1
Styrene	0.80	U	1.0	0.80	0.36	ug/L		02/19/19 00:14	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.80	0.21	ug/L		02/19/19 00:14	1
tert-Butylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
1,2,3-Trichloropropane	0.80	U	3.0	0.80	0.33	ug/L		02/19/19 00:14	1
Tetrachloroethene	0.40	U	1.0	0.40	0.20	ug/L		02/19/19 00:14	1
1,2,4-Trimethylbenzene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 00:14	1
Toluene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-448055/10
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
trans-1,2-Dichloroethene	0.40	U	1.0	0.40	0.15	ug/L		02/19/19 00:14	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 00:14	1
o-Xylene	0.40	U	1.0	0.40	0.19	ug/L		02/19/19 00:14	1
Trichloroethene	0.40	U	1.0	0.40	0.16	ug/L		02/19/19 00:14	1
m-Xylene & p-Xylene	0.80	U	2.0	0.80	0.15	ug/L		02/19/19 00:14	1
Trichlorofluoromethane	0.80	U	2.0	0.80	0.29	ug/L		02/19/19 00:14	1
Vinyl chloride	0.20	U	1.5	0.20	0.10	ug/L		02/19/19 00:14	1
2-Chlorotoluene	0.40	U	1.0	0.40	0.17	ug/L		02/19/19 00:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*89 - 112*		*02/19/19 00:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*81 - 118*		*02/19/19 00:14*	*1*
4-Bromofluorobenzene (Surr)	*99*		*85 - 114*		*02/19/19 00:14*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 119*		*02/19/19 00:14*	*1*

Lab Sample ID: LCS 280-448055/11
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromo-3-Chloropropane	50.0	48.5		ug/L		97	62 - 128
2-Butanone (MEK)	200	230		ug/L		115	56 - 143
1,2-Dichlorobenzene	50.0	52.0		ug/L		104	80 - 119
1,3-Dichlorobenzene	50.0	52.6		ug/L		105	80 - 119
4-Chlorotoluene	50.0	54.8		ug/L		110	78 - 122
1,4-Dichlorobenzene	50.0	50.7		ug/L		101	79 - 118
1,1-Dichloroethane	50.0	52.9		ug/L		106	77 - 125
1,2-Dichloroethane	50.0	51.1		ug/L		102	73 - 128
Acetone	200	221		ug/L		111	39 - 160
1,1-Dichloroethene	50.0	54.5		ug/L		109	71 - 131
Benzene	50.0	51.7		ug/L		103	79 - 120
Bromobenzene	50.0	53.0		ug/L		106	80 - 120
Bromoform	50.0	47.3		ug/L		95	66 - 130
Bromomethane	50.0	44.7		ug/L		89	53 - 141
1,2-Dichloropropane	50.0	51.2		ug/L		102	78 - 122
Carbon disulfide	50.0	54.0		ug/L		108	64 - 133
1,3-Dichloropropane	50.0	52.6		ug/L		105	80 - 119
Carbon tetrachloride	50.0	54.3		ug/L		109	72 - 136
2,2-Dichloropropane	50.0	53.8		ug/L		108	60 - 139
Chlorobenzene	50.0	51.4		ug/L		103	82 - 118
1,1-Dichloropropene	50.0	54.7		ug/L		109	79 - 125
Bromochloromethane	50.0	52.9		ug/L		106	78 - 123
Dibromochloromethane	50.0	47.2		ug/L		94	74 - 126
Chloroethane	50.0	45.9		ug/L		92	60 - 138
Chloroform	50.0	52.6		ug/L		105	79 - 124
2-Hexanone	200	226		ug/L		113	57 - 139
Chloromethane	50.0	44.7		ug/L		89	50 - 139

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-448055/11
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	50.0	53.1		ug/L		106	78 - 123
cis-1,3-Dichloropropene	50.0	48.5		ug/L		97	75 - 124
4-Isopropyltoluene	50.0	53.1		ug/L		106	77 - 127
Dibromomethane	50.0	52.9		ug/L		106	79 - 123
Bromodichloromethane	50.0	49.7		ug/L		99	79 - 125
4-Methyl-2-pentanone (MIBK)	200	250		ug/L		125	67 - 130
Dichlorodifluoromethane	50.0	41.4		ug/L		83	32 - 152
Ethylbenzene	50.0	54.6		ug/L		109	79 - 121
Ethylene Dibromide	50.0	51.6		ug/L		103	77 - 121
Hexachlorobutadiene	50.0	55.7		ug/L		111	66 - 134
Isopropylbenzene	50.0	52.2		ug/L		104	72 - 131
1,1,1,2-Tetrachloroethane	50.0	49.1		ug/L		98	78 - 124
Methyl tert-butyl ether	50.0	53.4		ug/L		107	71 - 124
1,1,2,2-Tetrachloroethane	50.0	52.8		ug/L		106	71 - 121
Methylene Chloride	50.0	50.8		ug/L		102	74 - 124
Naphthalene	50.0	51.5		ug/L		103	61 - 128
1,2,3-Trichlorobenzene	50.0	53.7		ug/L		107	69 - 129
n-Butylbenzene	50.0	52.3		ug/L		105	75 - 128
1,1,1-Trichloroethane	50.0	58.4		ug/L		117	74 - 131
N-Propylbenzene	50.0	50.7		ug/L		101	76 - 126
1,1,2-Trichloroethane	50.0	53.7		ug/L		107	80 - 119
sec-Butylbenzene	50.0	51.5		ug/L		103	77 - 126
Styrene	50.0	52.3		ug/L		105	78 - 123
1,2,4-Trichlorobenzene	50.0	54.7		ug/L		109	69 - 130
tert-Butylbenzene	50.0	56.3		ug/L		113	78 - 124
1,2,3-Trichloropropane	50.0	57.9		ug/L		116	73 - 122
Tetrachloroethene	50.0	54.3		ug/L		109	74 - 129
1,2,4-Trimethylbenzene	50.0	51.4		ug/L		103	76 - 124
Toluene	50.0	52.9		ug/L		106	80 - 121
1,3,5-Trimethylbenzene	50.0	52.1		ug/L		104	75 - 124
trans-1,2-Dichloroethene	50.0	55.0		ug/L		110	75 - 124
trans-1,3-Dichloropropene	50.0	48.1		ug/L		96	73 - 127
o-Xylene	50.0	54.9		ug/L		110	78 - 122
Trichloroethene	50.0	54.6		ug/L		109	79 - 123
m-Xylene & p-Xylene	50.0	53.7		ug/L		107	80 - 121
Trichlorofluoromethane	50.0	45.1		ug/L		90	65 - 141
Vinyl chloride	50.0	43.4		ug/L		87	58 - 137
2-Chlorotoluene	50.0	54.6		ug/L		109	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*93*		*81 - 118*
4-Bromofluorobenzene (Surr)	*100*		*85 - 114*
Dibromofluoromethane (Surr)	*98*		*80 - 119*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-448055/12
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromo-3-Chloropropane	50.0	49.4		ug/L		99	62 - 128	2	20
2-Butanone (MEK)	200	233		ug/L		117	56 - 143	1	20
1,2-Dichlorobenzene	50.0	53.3		ug/L		107	80 - 119	2	20
1,3-Dichlorobenzene	50.0	53.5		ug/L		107	80 - 119	2	20
4-Chlorotoluene	50.0	56.5		ug/L		113	78 - 122	3	20
1,4-Dichlorobenzene	50.0	52.4		ug/L		105	79 - 118	3	20
1,1-Dichloroethane	50.0	53.5		ug/L		107	77 - 125	1	20
1,2-Dichloroethane	50.0	50.4		ug/L		101	73 - 128	1	20
Acetone	200	219		ug/L		109	39 - 160	1	20
1,1-Dichloroethene	50.0	55.5		ug/L		111	71 - 131	2	20
Benzene	50.0	52.9		ug/L		106	79 - 120	2	20
Bromobenzene	50.0	54.9		ug/L		110	80 - 120	3	20
Bromoform	50.0	49.0		ug/L		98	66 - 130	4	20
Bromomethane	50.0	45.3		ug/L		91	53 - 141	1	20
1,2-Dichloropropane	50.0	51.7		ug/L		103	78 - 122	1	20
Carbon disulfide	50.0	55.1		ug/L		110	64 - 133	2	20
1,3-Dichloropropane	50.0	53.9		ug/L		108	80 - 119	2	20
Carbon tetrachloride	50.0	54.7		ug/L		109	72 - 136	1	20
2,2-Dichloropropane	50.0	52.9		ug/L		106	60 - 139	2	20
Chlorobenzene	50.0	52.7		ug/L		105	82 - 118	3	20
1,1-Dichloropropene	50.0	55.2		ug/L		110	79 - 125	1	20
Bromochloromethane	50.0	53.5		ug/L		107	78 - 123	1	20
Dibromochloromethane	50.0	48.4		ug/L		97	74 - 126	2	20
Chloroethane	50.0	45.8		ug/L		92	60 - 138	0	20
Chloroform	50.0	52.4		ug/L		105	79 - 124	0	20
2-Hexanone	200	230		ug/L		115	57 - 139	2	20
Chloromethane	50.0	46.5		ug/L		93	50 - 139	4	20
cis-1,2-Dichloroethene	50.0	54.0		ug/L		108	78 - 123	2	20
cis-1,3-Dichloropropene	50.0	49.6		ug/L		99	75 - 124	2	20
4-Isopropyltoluene	50.0	53.7		ug/L		107	77 - 127	1	20
Dibromomethane	50.0	53.2		ug/L		106	79 - 123	1	20
Bromodichloromethane	50.0	49.6		ug/L		99	79 - 125	0	20
4-Methyl-2-pentanone (MIBK)	200	253		ug/L		127	67 - 130	1	20
Dichlorodifluoromethane	50.0	41.8		ug/L		84	32 - 152	1	20
Ethylbenzene	50.0	56.2		ug/L		112	79 - 121	3	20
Ethylene Dibromide	50.0	52.9		ug/L		106	77 - 121	2	20
Hexachlorobutadiene	50.0	56.7		ug/L		113	66 - 134	2	20
Isopropylbenzene	50.0	53.3		ug/L		107	72 - 131	2	20
1,1,1,2-Tetrachloroethane	50.0	50.3		ug/L		101	78 - 124	2	20
Methyl tert-butyl ether	50.0	53.5		ug/L		107	71 - 124	0	20
1,1,2,2-Tetrachloroethane	50.0	54.4		ug/L		109	71 - 121	3	20
Methylene Chloride	50.0	51.0		ug/L		102	74 - 124	0	20
Naphthalene	50.0	53.7		ug/L		107	61 - 128	4	20
1,2,3-Trichlorobenzene	50.0	56.1		ug/L		112	69 - 129	4	20
n-Butylbenzene	50.0	53.1		ug/L		106	75 - 128	1	20
1,1,1-Trichloroethane	50.0	58.2		ug/L		116	74 - 131	0	20
N-Propylbenzene	50.0	52.1		ug/L		104	76 - 126	3	20
1,1,2-Trichloroethane	50.0	54.7		ug/L		109	80 - 119	2	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-448055/12
Matrix: Water
Analysis Batch: 448055

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
sec-Butylbenzene			50.0	52.3		ug/L		105	77 - 126	2	20
Styrene			50.0	54.0		ug/L		108	78 - 123	3	20
1,2,4-Trichlorobenzene			50.0	56.1		ug/L		112	69 - 130	2	20
tert-Butylbenzene			50.0	57.5		ug/L		115	78 - 124	2	20
1,2,3-Trichloropropane			50.0	58.7		ug/L		117	73 - 122	1	20
Tetrachloroethene			50.0	55.5		ug/L		111	74 - 129	2	20
1,2,4-Trimethylbenzene			50.0	52.5		ug/L		105	76 - 124	2	20
Toluene			50.0	53.6		ug/L		107	80 - 121	1	20
1,3,5-Trimethylbenzene			50.0	53.1		ug/L		106	75 - 124	2	20
trans-1,2-Dichloroethene			50.0	55.8		ug/L		112	75 - 124	2	20
trans-1,3-Dichloropropene			50.0	48.5		ug/L		97	73 - 127	1	20
o-Xylene			50.0	56.0		ug/L		112	78 - 122	2	20
Trichloroethene			50.0	55.5		ug/L		111	79 - 123	2	20
m-Xylene & p-Xylene			50.0	55.3		ug/L		111	80 - 121	3	20
Trichlorofluoromethane			50.0	45.4		ug/L		91	65 - 141	1	20
Vinyl chloride			50.0	44.9		ug/L		90	58 - 137	3	20
2-Chlorotoluene			50.0	55.6		ug/L		111	79 - 122	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*89 - 112*
1,2-Dichloroethane-d4 (Surr)	*91*		*81 - 118*
4-Bromofluorobenzene (Surr)	*102*		*85 - 114*
Dibromofluoromethane (Surr)	*97*		*80 - 119*

Method: 8015D GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 280-447223/4
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	25	U	25	25	10	ug/L		02/11/19 16:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*82 - 110*		*02/11/19 16:09*	*1*

Lab Sample ID: LCS 280-447223/3
Matrix: Water
Analysis Batch: 447223

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			78.4	64.3		ug/L		82	78 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*82 - 110*

Method: 8015D GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: MB 280-447368/3-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447368

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	2.0	U	2.0	2.0	0.76	mg/Kg		02/12/19 16:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*	*02/12/19 13:44*	*02/12/19 16:00*	*1*

Lab Sample ID: LCS 280-447368/1-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	4.28	3.61		mg/Kg		84	79 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*103*		*77 - 123*

Lab Sample ID: LCSD 280-447368/2-A
Matrix: Solid
Analysis Batch: 447384

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	4.28	3.62		mg/Kg		85	79 - 122	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (Surr)	*102*		*77 - 123*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 280-447554/3-A
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447554

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.038	U	0.10	0.038	0.015	ug/Kg		03/05/19 18:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*118*		*55 - 130*	*02/13/19 15:55*	*03/05/19 18:28*	*1*

Lab Sample ID: LCS 280-447554/1-A
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.875	0.751		ug/Kg		86	70 - 130

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-447554/1-A
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447554

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*55 - 130*

Lab Sample ID: LCSD 280-447554/2-A
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447554

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.875	0.801		ug/Kg		91	70 - 130	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*112*		*55 - 130*

Lab Sample ID: 280-119877-7 MS
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: V-247-050219-499
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide	0.042	U	0.966	0.866		ug/Kg	☼	90	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dibromopropane	*102*		*55 - 130*

Lab Sample ID: 280-119877-7 MSD
Matrix: Solid
Analysis Batch: 449748

Client Sample ID: V-247-050219-499
Prep Type: Total/NA
Prep Batch: 447554

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.042	U	0.960	0.851	M	ug/Kg	☼	89	70 - 130	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dibromopropane	*114*	*M*	*55 - 130*

Lab Sample ID: MB 280-447894/4-A
Matrix: Water
Analysis Batch: 447906

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447894

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Ethylene Dibromide	0.014	U	0.020	0.014	0.0037	ug/L		02/16/19 15:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*102*		*70 - 130*	*02/16/19 11:20*	*02/16/19 15:08*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 280-447894/2-A
Matrix: Water
Analysis Batch: 447906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447894

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylene Dibromide			0.250	0.232		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*115*		*70 - 130*

Lab Sample ID: LCSD 280-447894/3-A
Matrix: Water
Analysis Batch: 447906

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 447894

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide			0.250	0.237		ug/L		95	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*104*		*70 - 130*

Method: 8015D DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-447167/1-A
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 447167

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	8.0	U	8.0	8.0	3.6	mg/Kg		02/13/19 04:02	1
Motor Oil (C20-C38)	23	U	24	23	7.8	mg/Kg		02/13/19 04:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*80*		*45 - 130*	*02/10/19 14:08*	*02/13/19 04:02*	*1*
n-Octacosane	*91*		*25 - 162*	*02/10/19 14:08*	*02/13/19 04:02*	*1*

Lab Sample ID: LCS 280-447167/2-A
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447167

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics [C10-C28]			132	132		mg/Kg		100	38 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*81*		*45 - 130*
n-Octacosane	*92*		*25 - 162*

Lab Sample ID: LCS 280-447167/3-A
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 447167

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (C20-C38)			332	339		mg/Kg		102	39 - 106		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	91		45 - 130
n-Octacosane	118		25 - 162

Lab Sample ID: 280-119877-2 MS
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: P-247-050219-480
Prep Type: Total/NA
Prep Batch: 447167

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	8.8	U	152	137		mg/Kg	☼	90	38 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	78		45 - 130
n-Octacosane	91		25 - 162

Lab Sample ID: 280-119877-2 MS
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: P-247-050219-480
Prep Type: Total/NA
Prep Batch: 447167

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Motor Oil (C20-C38)	26	U	363	321		mg/Kg	☼	88	45 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr)	72		45 - 130
n-Octacosane	100		25 - 162

Lab Sample ID: 280-119877-2 MSD
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: P-247-050219-480
Prep Type: Total/NA
Prep Batch: 447167

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	8.8	U	144	122		mg/Kg	☼	85	38 - 132	12	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	77		45 - 130
n-Octacosane	80		25 - 162

Lab Sample ID: 280-119877-2 MSD
Matrix: Solid
Analysis Batch: 447317

Client Sample ID: P-247-050219-480
Prep Type: Total/NA
Prep Batch: 447167

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Motor Oil (C20-C38)	26	U	370	373		mg/Kg	☼	101	45 - 130	15	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr)	82		45 - 130
n-Octacosane	123		25 - 162

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Method: Moisture - Percent Moisture

Lab Sample ID: 280-119877-2 DU
Matrix: Solid
Analysis Batch: 446933

Client Sample ID: P-247-050219-480
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	13.2			12.8		%				3	20

Lab Sample ID: 280-119877-3 DU
Matrix: Solid
Analysis Batch: 447084

Client Sample ID: V-247-050219-480
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	13.1			12.7		%				3	20

GC/MS VOA

Analysis Batch: 447462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-3	V-247-050219-480	Total/NA	Solid	8260B	447467
280-119877-5	V-247-050219-489	Total/NA	Solid	8260B	447467
280-119877-7	V-247-050219-499	Total/NA	Solid	8260B	447467
MB 280-447467/3-A	Method Blank	Total/NA	Solid	8260B	447467
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	8260B	447467
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	447467

Prep Batch: 447467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-3	V-247-050219-480	Total/NA	Solid	5035	
280-119877-5	V-247-050219-489	Total/NA	Solid	5035	
280-119877-7	V-247-050219-499	Total/NA	Solid	5035	
MB 280-447467/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-447467/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-447467/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 448055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-1	TB-247-050219-01	Total/NA	Water	8260B	
MB 280-448055/10	Method Blank	Total/NA	Water	8260B	
LCS 280-448055/11	Lab Control Sample	Total/NA	Water	8260B	
LCSD 280-448055/12	Lab Control Sample Dup	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 447223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-1	TB-247-050219-01	Total/NA	Water	8015D GRO	
MB 280-447223/4	Method Blank	Total/NA	Water	8015D GRO	
LCS 280-447223/3	Lab Control Sample	Total/NA	Water	8015D GRO	

Prep Batch: 447368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-2	P-247-050219-480	Total/NA	Solid	5035	
280-119877-4	P-247-050219-489	Total/NA	Solid	5035	
280-119877-6	P-247-050219-499	Total/NA	Solid	5035	
MB 280-447368/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-447368/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-447368/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 447384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-2	P-247-050219-480	Total/NA	Solid	8015D GRO	447368
280-119877-4	P-247-050219-489	Total/NA	Solid	8015D GRO	447368
280-119877-6	P-247-050219-499	Total/NA	Solid	8015D GRO	447368
MB 280-447368/3-A	Method Blank	Total/NA	Solid	8015D GRO	447368
LCS 280-447368/1-A	Lab Control Sample	Total/NA	Solid	8015D GRO	447368
LCSD 280-447368/2-A	Lab Control Sample Dup	Total/NA	Solid	8015D GRO	447368

GC Semi VOA

Prep Batch: 447167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-2	P-247-050219-480	Total/NA	Solid	3546	
280-119877-4	P-247-050219-489	Total/NA	Solid	3546	
280-119877-6	P-247-050219-499	Total/NA	Solid	3546	
MB 280-447167/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-447167/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-447167/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-119877-2 MS	P-247-050219-480	Total/NA	Solid	3546	
280-119877-2 MS	P-247-050219-480	Total/NA	Solid	3546	
280-119877-2 MSD	P-247-050219-480	Total/NA	Solid	3546	
280-119877-2 MSD	P-247-050219-480	Total/NA	Solid	3546	

Analysis Batch: 447317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-2	P-247-050219-480	Total/NA	Solid	8015D DRO	447167
280-119877-4	P-247-050219-489	Total/NA	Solid	8015D DRO	447167
280-119877-6	P-247-050219-499	Total/NA	Solid	8015D DRO	447167
MB 280-447167/1-A	Method Blank	Total/NA	Solid	8015D DRO	447167
LCS 280-447167/2-A	Lab Control Sample	Total/NA	Solid	8015D DRO	447167
LCS 280-447167/3-A	Lab Control Sample	Total/NA	Solid	8015D DRO	447167
280-119877-2 MS	P-247-050219-480	Total/NA	Solid	8015D DRO	447167
280-119877-2 MS	P-247-050219-480	Total/NA	Solid	8015D DRO	447167
280-119877-2 MSD	P-247-050219-480	Total/NA	Solid	8015D DRO	447167
280-119877-2 MSD	P-247-050219-480	Total/NA	Solid	8015D DRO	447167

Prep Batch: 447554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-3	V-247-050219-480	Total/NA	Solid	8011	
280-119877-5	V-247-050219-489	Total/NA	Solid	8011	
280-119877-7	V-247-050219-499	Total/NA	Solid	8011	
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	
280-119877-7 MS	V-247-050219-499	Total/NA	Solid	8011	
280-119877-7 MSD	V-247-050219-499	Total/NA	Solid	8011	

Prep Batch: 447894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-1	TB-247-050219-01	Total/NA	Water	8011	
MB 280-447894/4-A	Method Blank	Total/NA	Water	8011	
LCS 280-447894/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 280-447894/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 447906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-1	TB-247-050219-01	Total/NA	Water	8011	447894
MB 280-447894/4-A	Method Blank	Total/NA	Water	8011	447894
LCS 280-447894/2-A	Lab Control Sample	Total/NA	Water	8011	447894
LCSD 280-447894/3-A	Lab Control Sample Dup	Total/NA	Water	8011	447894

GC Semi VOA (Continued)

Analysis Batch: 449748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-3	V-247-050219-480	Total/NA	Solid	8011	447554
280-119877-5	V-247-050219-489	Total/NA	Solid	8011	447554
280-119877-7	V-247-050219-499	Total/NA	Solid	8011	447554
MB 280-447554/3-A	Method Blank	Total/NA	Solid	8011	447554
LCS 280-447554/1-A	Lab Control Sample	Total/NA	Solid	8011	447554
LCSD 280-447554/2-A	Lab Control Sample Dup	Total/NA	Solid	8011	447554
280-119877-7 MS	V-247-050219-499	Total/NA	Solid	8011	447554
280-119877-7 MSD	V-247-050219-499	Total/NA	Solid	8011	447554

General Chemistry

Analysis Batch: 446933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-2	P-247-050219-480	Total/NA	Solid	Moisture	
280-119877-4	P-247-050219-489	Total/NA	Solid	Moisture	
280-119877-6	P-247-050219-499	Total/NA	Solid	Moisture	
280-119877-2 DU	P-247-050219-480	Total/NA	Solid	Moisture	

Analysis Batch: 447084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-119877-3	V-247-050219-480	Total/NA	Solid	Moisture	
280-119877-5	V-247-050219-489	Total/NA	Solid	Moisture	
280-119877-7	V-247-050219-499	Total/NA	Solid	Moisture	
280-119877-3 DU	V-247-050219-480	Total/NA	Solid	Moisture	

Client Sample ID: TB-247-050219-01

Lab Sample ID: 280-119877-1

Date Collected: 02/05/19 13:00

Matrix: Water

Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	448055	02/19/19 05:15	GO	TAL DEN
Total/NA	Analysis	8015D GRO		1	5 mL	5 mL	447223	02/11/19 19:21	SU	TAL DEN
Total/NA	Prep	8011			35.1 mL	35 mL	447894	02/16/19 11:20	MJS	TAL DEN
Total/NA	Analysis	8011		1			447906	02/16/19 21:51	JLW	TAL DEN

Client Sample ID: P-247-050219-480

Lab Sample ID: 280-119877-2

Date Collected: 02/05/19 08:40

Matrix: Solid

Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446933	02/07/19 15:56	JDR	TAL DEN

Client Sample ID: P-247-050219-480

Lab Sample ID: 280-119877-2

Date Collected: 02/05/19 08:40

Matrix: Solid

Date Received: 02/06/19 09:05

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.238 g	5 mL	447368	02/05/19 08:40	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	447384	02/12/19 17:12	SU	TAL DEN
Total/NA	Prep	3546			15.8 g	1 mL	447167	02/10/19 14:08	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			447317	02/13/19 05:02	MPF	TAL DEN

Client Sample ID: V-247-050219-480

Lab Sample ID: 280-119877-3

Date Collected: 02/05/19 08:40

Matrix: Solid

Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			447084	02/08/19 15:34	KES	TAL DEN

Client Sample ID: V-247-050219-480

Lab Sample ID: 280-119877-3

Date Collected: 02/05/19 08:40

Matrix: Solid

Date Received: 02/06/19 09:05

Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.169 g	5 mL	447467	02/05/19 08:40	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447462	02/13/19 11:47	GPM	TAL DEN
Total/NA	Prep	8011			10.08 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			449748	03/05/19 19:45	JLW	TAL DEN

Client Sample ID: P-247-050219-489 — **Lab Sample ID: 280-119877-4**
Date Collected: 02/05/19 09:35 — **Matrix: Solid**
Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446933	02/07/19 15:56	JDR	TAL DEN

Client Sample ID: P-247-050219-489 — **Lab Sample ID: 280-119877-4**
Date Collected: 02/05/19 09:35 — **Matrix: Solid**
Date Received: 02/06/19 09:05 — **Percent Solids: 87.3**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.32 g	5 mL	447368	02/05/19 09:35	SU	TAL DEN
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	447384	02/12/19 17:35	SU	TAL DEN
Total/NA	Prep	3546			16.1 g	1 mL	447167	02/10/19 14:08	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			447317	02/13/19 06:43	MPF	TAL DEN

Client Sample ID: V-247-050219-489 — **Lab Sample ID: 280-119877-5**
Date Collected: 02/05/19 09:35 — **Matrix: Solid**
Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			447084	02/08/19 15:34	KES	TAL DEN

Client Sample ID: V-247-050219-489 — **Lab Sample ID: 280-119877-5**
Date Collected: 02/05/19 09:35 — **Matrix: Solid**
Date Received: 02/06/19 09:05 — **Percent Solids: 87.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.784 g	5 mL	447467	02/05/19 09:35	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447462	02/13/19 12:10	GPM	TAL DEN
Total/NA	Prep	8011			9.99 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			449748	03/05/19 20:04	JLW	TAL DEN

Client Sample ID: P-247-050219-499 — **Lab Sample ID: 280-119877-6**
Date Collected: 02/05/19 10:30 — **Matrix: Solid**
Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			446933	02/07/19 15:56	JDR	TAL DEN

Client Sample ID: P-247-050219-499 — **Lab Sample ID: 280-119877-6**
Date Collected: 02/05/19 10:30 — **Matrix: Solid**
Date Received: 02/06/19 09:05 — **Percent Solids: 91.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.359 g	5 mL	447368	02/05/19 10:30	SU	TAL DEN

Client Sample ID: P-247-050219-499

Lab Sample ID: 280-119877-6
Date Collected: 02/05/19 10:30
Matrix: Solid
Date Received: 02/06/19 09:05
Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015D GRO		1	0.1 mL	5 mL	447384	02/12/19 17:59	SU	TAL DEN
Total/NA	Prep	3546			16.3 g	1 mL	447167	02/10/19 14:08	DWC	TAL DEN
Total/NA	Analysis	8015D DRO		1			447317	02/13/19 07:03	MPF	TAL DEN

Client Sample ID: V-247-050219-499

Lab Sample ID: 280-119877-7
Date Collected: 02/05/19 10:30
Matrix: Solid
Date Received: 02/06/19 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			447084	02/08/19 15:34	KES	TAL DEN

Client Sample ID: V-247-050219-499

Lab Sample ID: 280-119877-7
Date Collected: 02/05/19 10:30
Matrix: Solid
Date Received: 02/06/19 09:05
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.401 g	5 mL	447467	02/05/19 10:30	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	447462	02/13/19 12:33	GPM	TAL DEN
Total/NA	Prep	8011			9.95 g	35 mL	447554	02/13/19 15:55	MJS	TAL DEN
Total/NA	Analysis	8011		1			449748	03/05/19 20:23	JLW	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland BFF Vadose Zone Coring

TestAmerica Job ID: 280-119877-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD / DOE		2907.01	10-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JOSHUA LIVINGSTON	Lab PM: Rothmeyer, Stephanie K	Carrier Tracking No(s): 8119 1513 2921	COC No: COC1-247-TA-20190205
Client Contact: Pamela Moss	Phone: (575) 430-8078	E-Mail: stephanie.rothmeyer@testamericainc.com		Page: 1 of 1
Company: EA Engineering, Science, and Technology				Job #:
Address: 7995 E. Prentice Ave, Suite 206E	Due Date Requested: Per PO			
City: Greenwood Village	TAT Requested (days): Per PO			
State, Zip: CO, 80111				
Phone: 303-590-9143(Tel)	PO #: 16065			
Email: pmoss@eaest.com	WO #: 62735DM02.1017			
Project Name: Kirtland Vadose Zone Coring	Project #: 28016071			
Site: Kirtland BFF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Wewater, Sewage, Groundwater, Storm water, Air)	Field Filtered Sample (Yes or No)	8260B_DOD5 - VOCs, Soil	8011_DOD5 - Ethylene Dibromide (EDB), Soil	Moisture - Percent Moisture	8015D_DRO_DOD5 - DRO & ORO, Soil	8015D_GRO_DOD5 - GRO, Soil	8260B_DOD5 - VOCs, Water	8011_DOD5 - Ethylene Dibromide (EDB) Water	8015D_DRO_DOD5 - DRO & ORO, Water	8015D_GRO_DOD5 - GRO, Water	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	J/F	N	N	N	F	A	R	N	A	X
TB-247-050219-01	02/05/19	1300	G	W	N	N						X	X		X	6
P-247-050219-480	02/05/19	0840		S	N	N				X	X					3
V-247-050219-480		0840			N	N	X	X	X							5
P-247-050219-489		0935			N	N				X	X					3
V-247-050219-489		0935			N	N	X	X	X							5
P-247-050219-499		1030			N	N				X	X					3
V-247-050219-499	↓	1030	↓	↓	N	N	X	X	X							5
JRL																

280-119877 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Level 2, Level 4, EQUIS, ERPIMS

Special Instructions/QC Requirements: DOD QSM

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: JOSHUA LIVINGSTON	02/05/19 1500	EA		2/6/19 0905	TAADEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.7 c +1.0 c from sweetbay ESD 2/6/19 0906

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 280-119877-1

Login Number: 119877
List Number: 1
Creator: Zimmerman, Steven M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

March 28, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48218
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 & 2 – S9-PTS-20181022

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**

Project Number: **62735DM02.1017**

PTS File No: **48218**

Client: **EA Engineering, Science and Technology**

TEST PROGRAM - 20190219

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Fluid Properties Pkg.	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	Bulk	
Date Received: 20181023														
GUV-S9-171018-473	**473-475**	**2.0**	**2**	**474.10-474.20**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		
GUV-S9-181018-484	**484-486**	**2.0**	**2**	**484.20-484.40**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		
TOTAL # OF SAMPLES		**4.0**	**4**		**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**		

Laboratory Test Program Notes

Contaminant identification:

Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.

Sample locations to be selected by EA Engineering, Science, and Technology, Inc., PBC personnel from core photography.

Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

Pore Fluid Saturation Package: API RP40 Dean-Stark Method: Includes initial pore fluid saturations, total porosity, air-filled porosity, grain density, dry bulk density and moisture content.

Air/Water Drainage Capillarity Package: Air/Water Drainage Capillary Pressure Curve (air displacing water) with Air Permeability and Hydraulic Conductivity: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations.

Oil/Water Drainage or Imbibition Capillary Pressure Curve: Oil/Water Capillary Pressure Curve: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations. Does not include hydraulic conductivity or oil permeability tests. Requires 500 ml of LNAPL per sample.

Free Product Mobility Package: Applied centrifugal force demonstrates product mobility; includes residual saturations by Dean-Stark, total porosity, grain and dry bulk density.

Residual Saturation by Water Drive: Sample driven to residual saturation by water/NAPL displacement. Residual saturations by Dean-Stark extraction, total porosity, bulk and grain density.

If no groundwater received, use filtered Houston tap water for testing.

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/20/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		PORE FLUID SATURATIONS, % Pv (3)	
					DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	WATER	NAPL
GUV-S9-171018-473	1	474.1-474.2	H	19.3	1.49	2.69	44.6	15.4	62.0	3.5
GUV-S9-181018-484	2	484.2-484.4	H	15.1	1.57	2.67	41.1	16.9	53.9	4.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/20/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:	API RP 40			API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY			Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S9-171018-473	474.1-474.2	H	20190317	64.89	60.30	1.51	2.64	42.7	47.6	0.35	28.8	0.35
NOTE: No Visible NAPL produced. Produced water clear with moderate gasoline odor. Sample Intact.												
GUV-S9-181018-484	484.2-484.4	H	20190317	62.05	58.93	1.71	2.63	35.0	64.6	1.99	25.1	1.99
NOTE: No Visible NAPL produced. Produced water clear with faint gasoline odor. Sample Intact with produced fines.												

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	25 PSI CONFINING STRESS		
							EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S9-171018-473 (474.10-474.20)	474.1-474.2	H	20190326	*Filtered Tap Water	0.9775	71.0	113.01	1.09E-04	1.12E-09
GUV-S9-181018-484 (484.20-484.40)	484.2-484.4	H	20190326	*Filtered Tap Water	1.0058	69.0	108.10	1.01E-04	1.07E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S9-171018-473 (474.10-474.20)	474.1-474.2	H	20190326	1.62	2.63	38.5	65.4	4.1	65.4	4.1
NOTE: No visible NAPL produced; 10.62 pore volumes (250ml) of water injected. Produced water - clear yellow with moderate hydrocarbon odor. Sample intact, small spotted fluorescense on sample teflon tape but none on the screens.										
GUV-S9-181018-484 (484.20-484.40)	484.2-484.4	H	20190326	1.68	2.63	36.1	60.8	5.7	60.8	5.7
NOTE: No visible NAPL produced; 11.18 pore volumes (250ml) of water injected. Produced water - clear yellow with strong hydrocarbon odor. Sample intact, small spotted fluorescense on sample teflon tape but none on the screens.										

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S9-171018-473 (474.10-474.20)	474.1-474.2	H	20190322	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7562	71.2	1719.885	2.14E-03	1.70E-08
GUV-S9-181018-484 (484.20-484.40)	484.2-484.4	H	20190322	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7547	71.4	583.23	7.27E-04	5.76E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.

*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-S9-171018-473	474.1-474.2	H	18.6	1.72	2.63	34.7	2.7	92.1
GUV-S9-181018-484	484.2-484.4	H	16.1	1.79	2.63	31.8	2.9	90.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-S9-171018-473	474.1-474.2	H	780	52.352	4.99E-05
GUV-S9-181018-484	484.2-484.4	H	190	89.909	8.62E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 48218
Client: EA Engineering, Science and Technology
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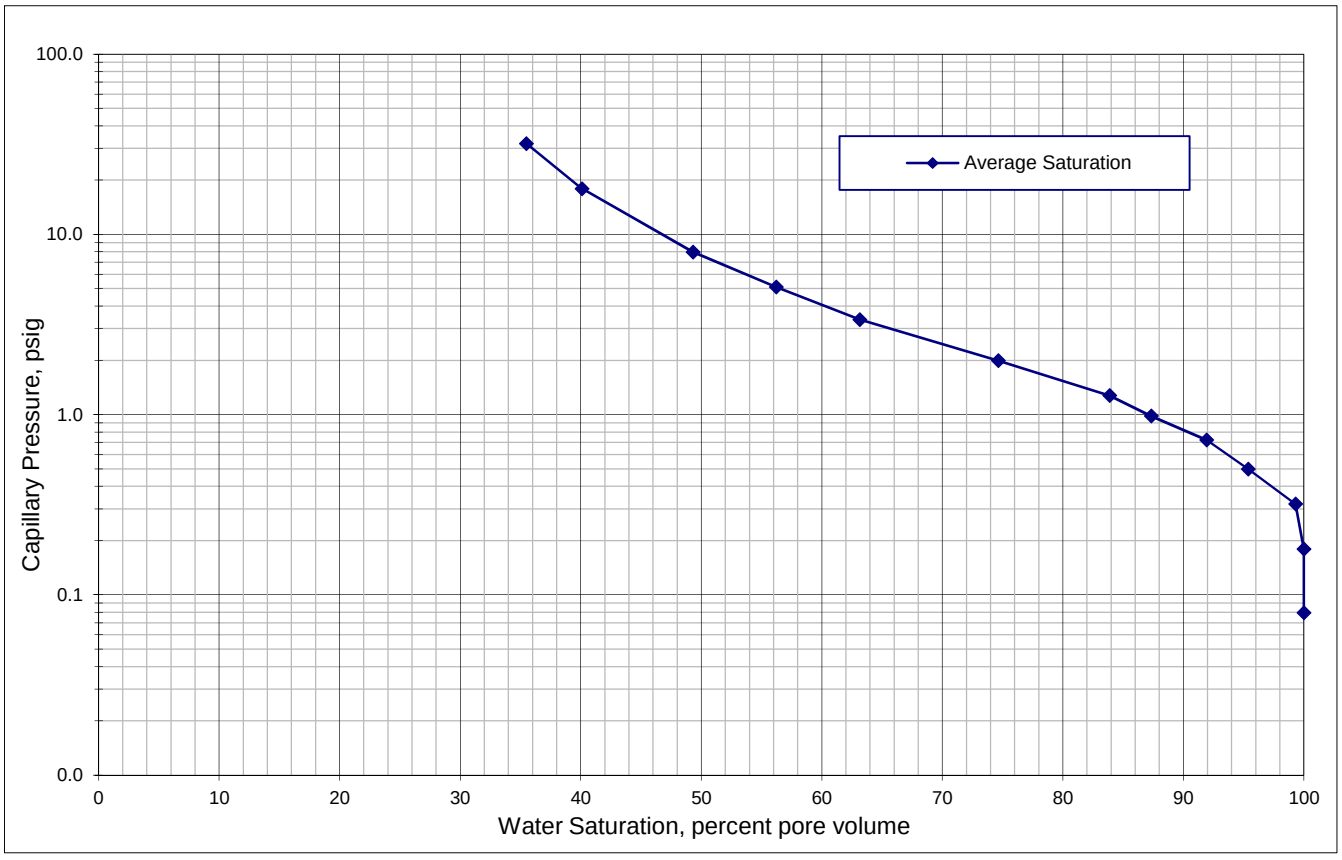
PTS Laboratories

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S9-171018-473 (474.10-474.20) at 474.15 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	18.6
0.080	5.60	0.184	100.0	18.6
0.179	12.6	0.415	100.0	18.6
0.319	22.4	0.737	99.3	18.4
0.498	35.0	1.15	95.4	17.7
0.722	50.7	1.67	91.9	17.1
0.981	69.0	2.27	87.3	16.2
1.27	89.6	2.95	83.9	15.6
1.99	140	4.61	74.7	13.9
3.37	237	7.79	63.1	11.7
5.10	358	11.8	56.2	10.5
7.97	560	18.4	49.3	9.2
17.9	1260	41.5	40.1	7.5
31.9	2240	73.7	35.5	6.6



PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

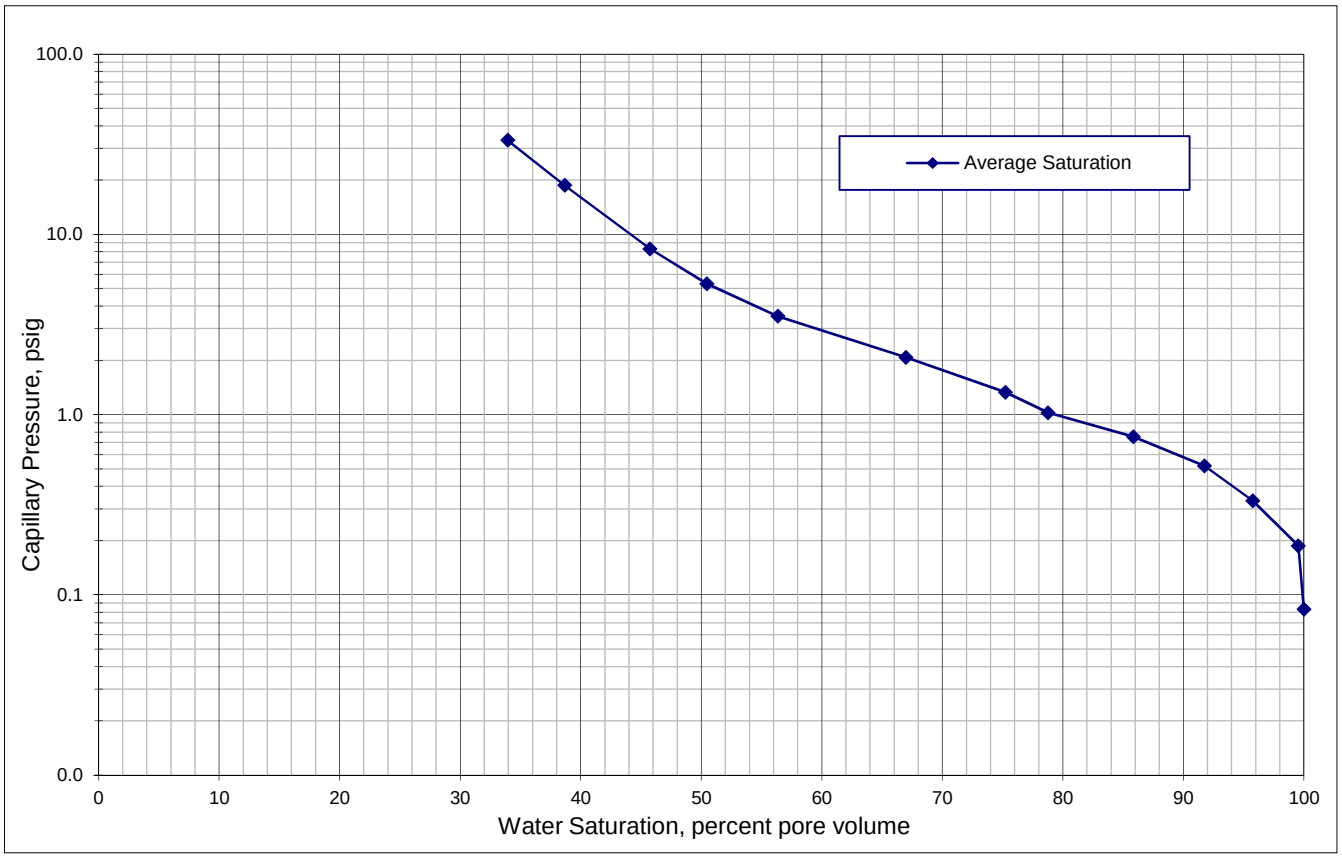
PTS Laboratories

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S9-181018-484 (484.20-484.40) at 484.30 ft	
psi	cm water	ft	Average Saturation % pore volume	Moisture, % dry weight
0.000	0.00	0.000	100.0	16.1
0.083	5.84	0.192	100.0	16.1
0.187	13.1	0.433	99.5	16.0
0.332	23.4	0.769	95.8	15.4
0.519	36.5	1.20	91.7	14.8
0.753	52.9	1.74	85.8	13.8
1.024	72.0	2.37	78.8	12.7
1.33	93.5	3.08	75.2	12.1
2.08	146	4.81	67.0	10.8
3.51	247	8.13	56.4	9.1
5.32	374	12.3	50.5	8.1
8.31	584	19.2	45.7	7.4
18.7	1315	43.3	38.7	6.2
33.2	2338	76.9	33.9	5.5



PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S9-171018-473	474.1-474.2	H	14.4	1.45	2.60	44.4	12.4	72.1
GUV-S9-181018-484	484.2-484.4	H	12.9	1.61	2.65	39.4	10.4	73.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	25 PSI CONFINING STRESS: EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	25 PSI CONFINING STRESS: NAPL CONDUCTIVITY (3), cm/s
GUV-S9-171018-473	474.1-474.2	H	20190321	2984.70	2.71E-03
GUV-S9-181018-484	484.2-484.4	H	20190321	1057.7	9.63E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 72.0°F: Viscosity = 0.7504 cP; Density = 0.7235 g/cc.

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S9-171018-473 at 474.15ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.022	1.57	0.188	100.0	0.0
0.050	3.53	0.424	100.0	0.0
0.089	6.28	0.754	98.1	1.9
0.140	9.81	1.18	95.1	4.9
0.201	14.13	1.70	93.2	6.8
0.273	19.23	2.31	91.2	8.8
0.359	25.24	3.03	89.3	10.7
0.558	39.24	4.71	84.4	15.6
0.946	66.52	7.99	73.7	26.3
1.429	100.46	12.1	65.0	35.0
2.233	156.97	18.8	58.2	41.8
5.02	353.18	42.4	48.4	51.6
8.93	627.88	75.4	43.6	56.4

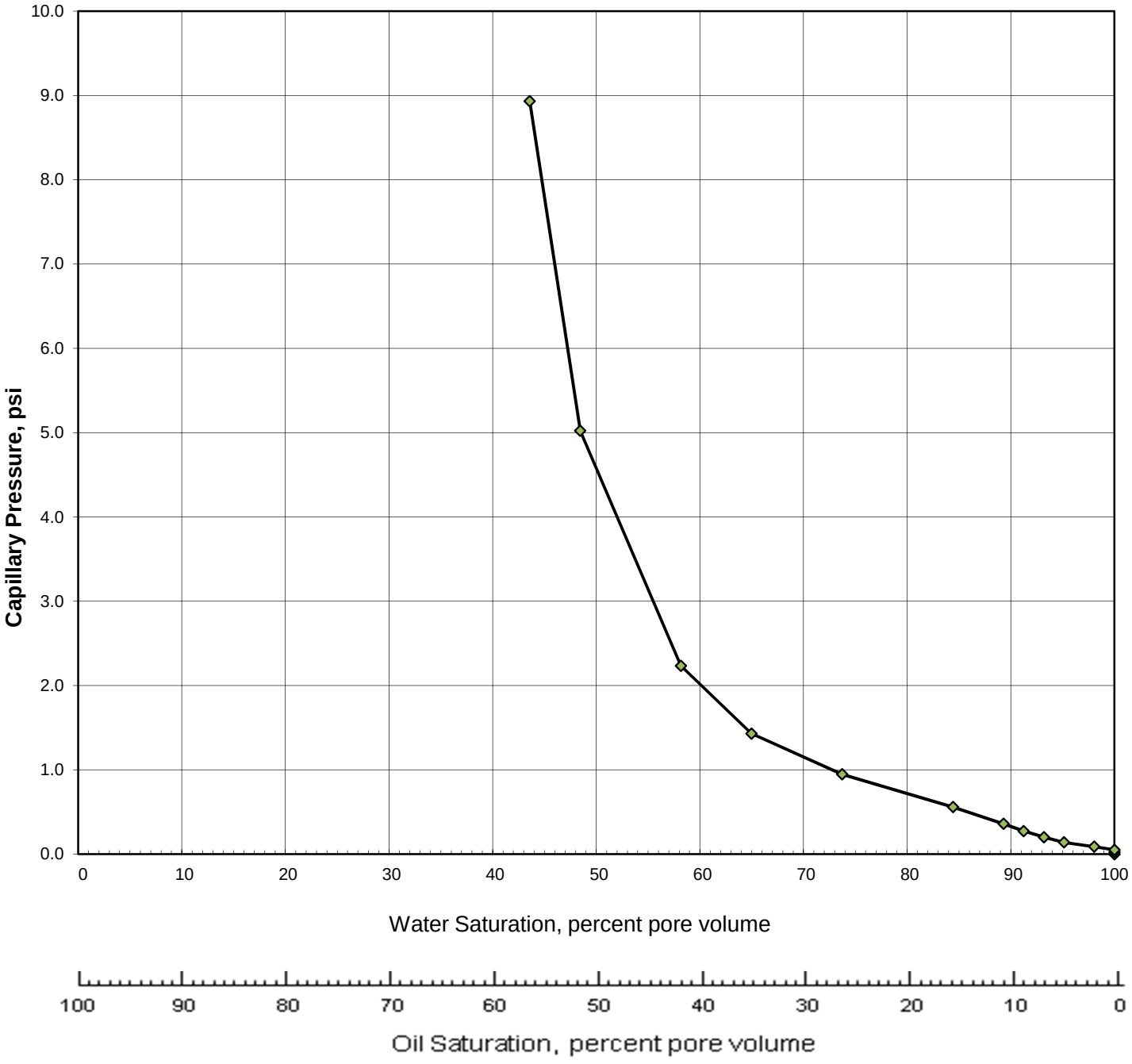
Effective Permaeability to Water, mD.: 169.621

Hydraulic Conductivity, cm/sec: 1.62E-04

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S9-171018-473**
Depth, ft:- **474.1-474.2**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S9-181018-484 at 484.30ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.023	1.58	0.190	100.0	0.0
0.051	3.56	0.428	99.0	1.0
0.090	6.33	0.760	95.0	5.0
0.141	9.89	1.19	90.9	9.1
0.203	14.25	1.71	88.3	11.7
0.276	19.39	2.33	81.9	18.1
0.362	25.46	3.06	76.9	23.1
0.563	39.58	4.75	68.8	31.2
0.954	67.09	8.06	58.8	41.2
1.441	101.32	12.2	50.7	49.3
2.252	158.31	19.0	44.7	55.3
5.07	356.20	42.8	34.2	65.8
9.01	633.25	76.0	30.6	69.4

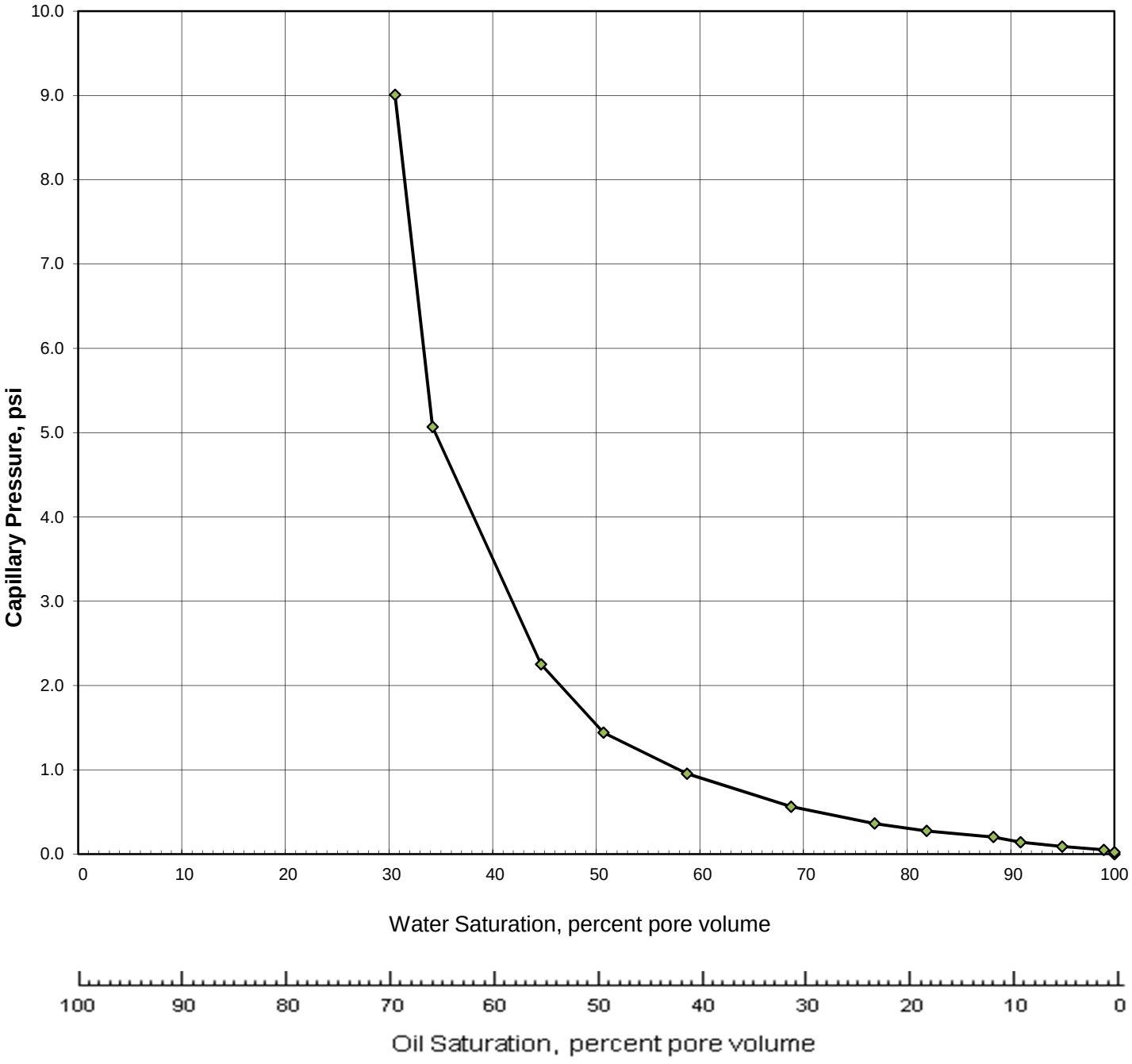
Effective Permaeability to Water, mD.: 217.287

Hydraulic Conductivity, cm/sec: 2.72E-04

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S9-181018-484**
Depth, ft:- **484.2-484.4**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S9-171018-473	474.1-474.2	H	14.4	1.45	2.60	44.4	12.4	72.1
GUV-S9-181018-484	484.2-484.4	H	12.9	1.61	2.65	39.4	10.4	73.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	25 PSI CONFINING STRESS: EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	25 PSI CONFINING STRESS: NAPL CONDUCTIVITY (3), cm/s
GUV-S9-171018-473	474.1-474.2	H	20190321	2984.70	2.71E-03
GUV-S9-181018-484	484.2-484.4	H	20190321	1057.7	9.63E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 72.0°F: Viscosity = 0.7504 cP; Density = 0.7235 g/cc.

PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S9-171018-473 at 474.15ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	43.6	56.4
-0.039	2.71	0.326	54.9	45.1
-0.086	6.06	0.728	59.1	40.9
-0.151	10.63	1.276	81.5	18.5
-0.236	16.6	1.99	82.5	17.5
-0.345	24.2	2.91	84.4	15.6
-0.466	32.7	3.93	84.8	15.2
-0.605	42.5	5.11	85.2	14.8
-0.949	66.7	8.01	85.4	14.6
-1.597	112	13.48	85.8	14.2
-2.419	170	20.4	86.4	13.6
-3.779	266	31.9	86.6	13.4
-8.50	598	71.8	87.0	13.0
-15.12	1063	127.6	87.4	12.6

Effective Permaeability to Water, mD.: 169.621

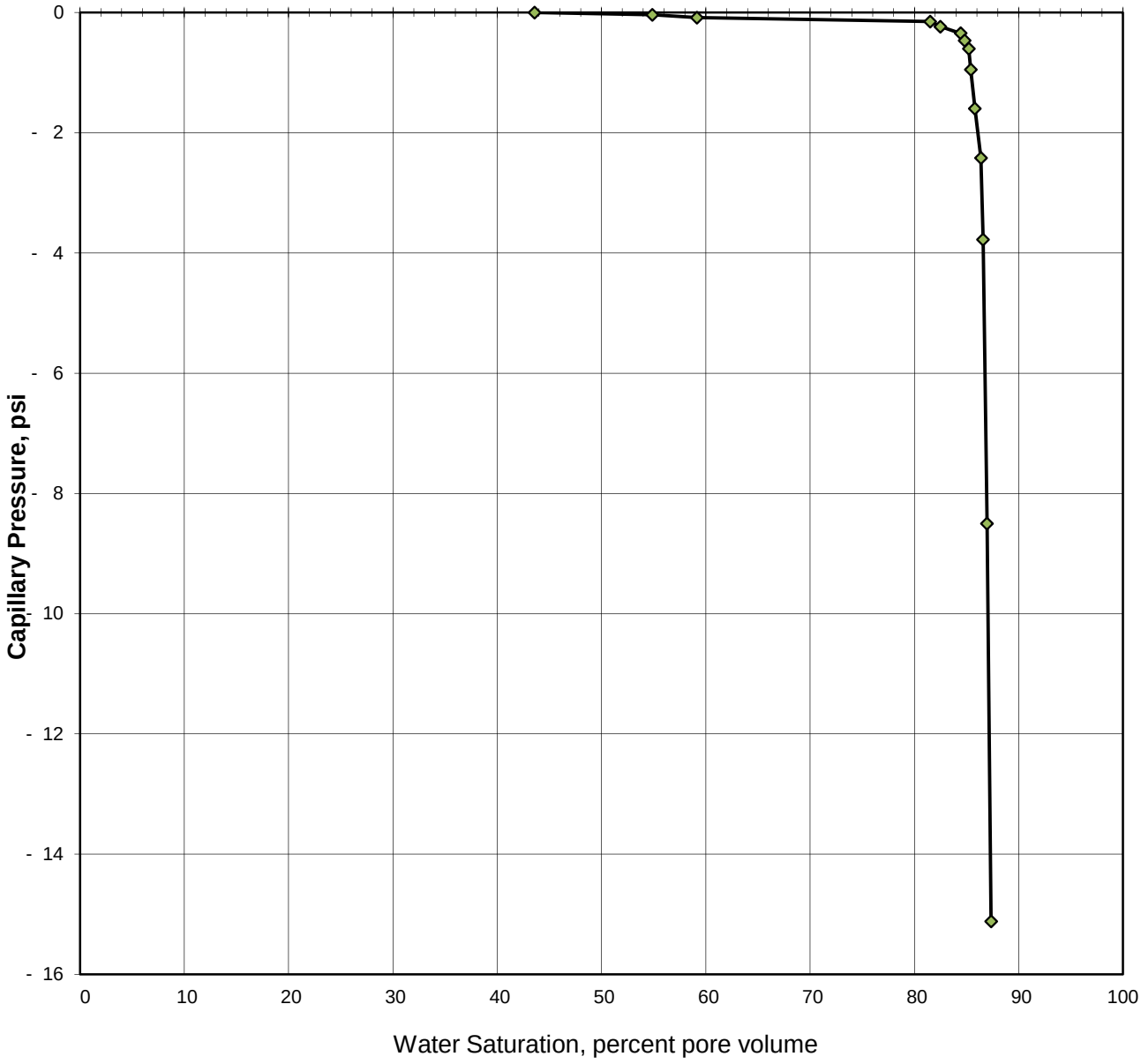
Hydraulic Conductivity, cm/sec: 1.62E-04

EA Engineering, Science & Technology.
PTS File No.: 48218

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S9-171018-473
Depth, ft.: 474.1-474.2



PTS File No: 48218
Client: EA Engineering, Science and Technology
Report Date: 03/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: **GUV-S9-181018-484 at 484.30ft** Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	30.6	69.4
-0.039	2.77	1.378	31.0	69.0
-0.088	6.19	3.079	84.9	15.1
-0.154	10.9	5.402	88.1	11.9
-0.241	17.0	8.44	88.5	11.5
-0.352	24.7	12.32	89.3	10.7
-0.475	33.4	16.64	89.7	10.3
-0.617	43.4	21.61	90.1	9.9
-0.968	68.1	33.90	90.7	9.3
-1.630	115	57.06	91.1	8.9
-2.469	174	86.4	91.5	8.5
-3.859	271	135.1	91.8	8.2
-8.68	610	303.9	92.0	8.0
-15.43	1085	540.2	92.4	7.6

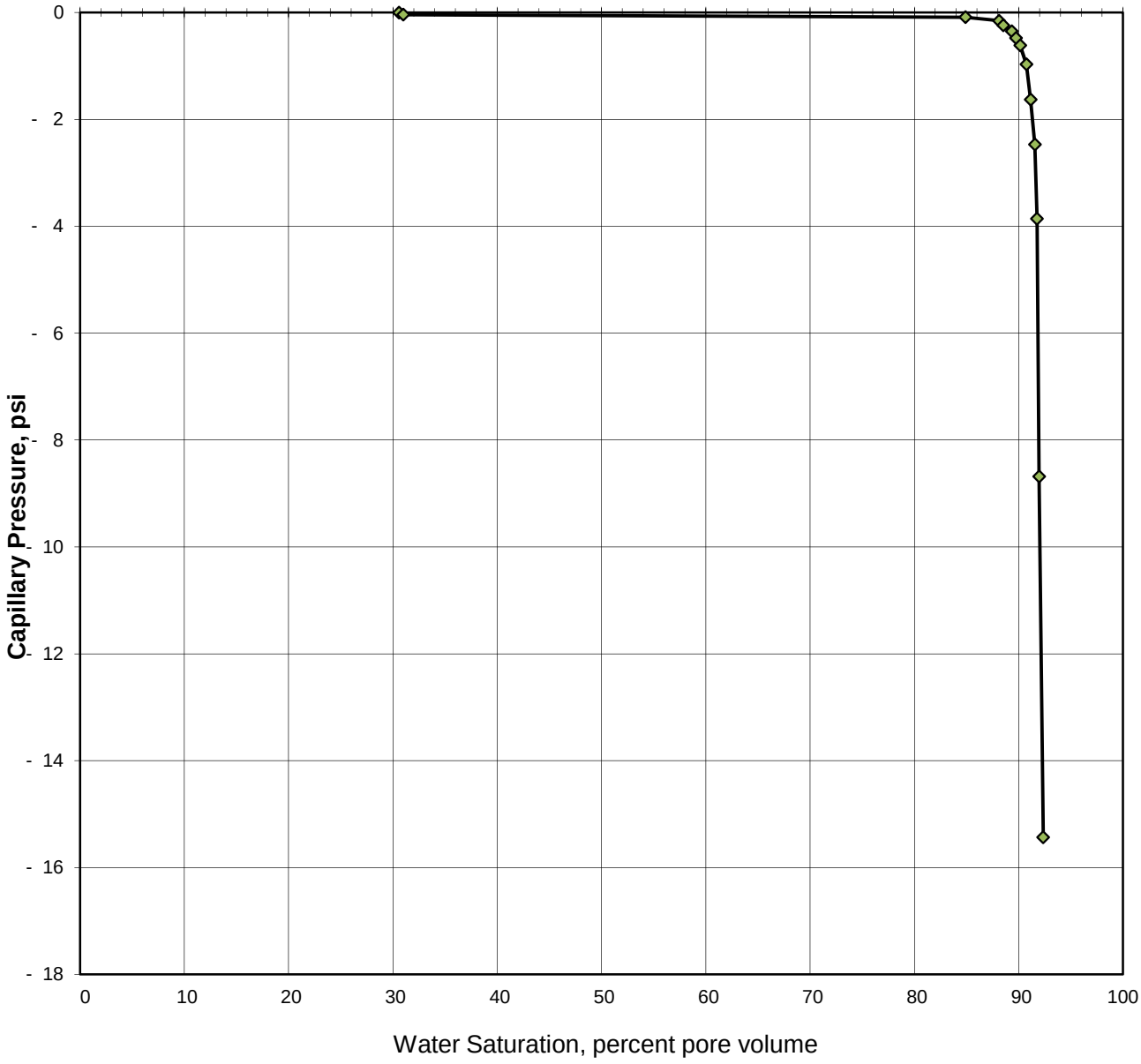
Effective Permaeability to Water, mD.: 217.287

Hydraulic Conductivity, cm/sec: 2.72E-04

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S9-181018-484
Depth, ft.: 484.2-484.4



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-S9-171018-473	474.1-474.2	Gravel	13.122	56.67	4.00	17.29	18.97	3.07
GUV-S9-181018-484	484.2-484.4	Medium Sand	0.598	22.98	4.20	37.62	29.19	6.00

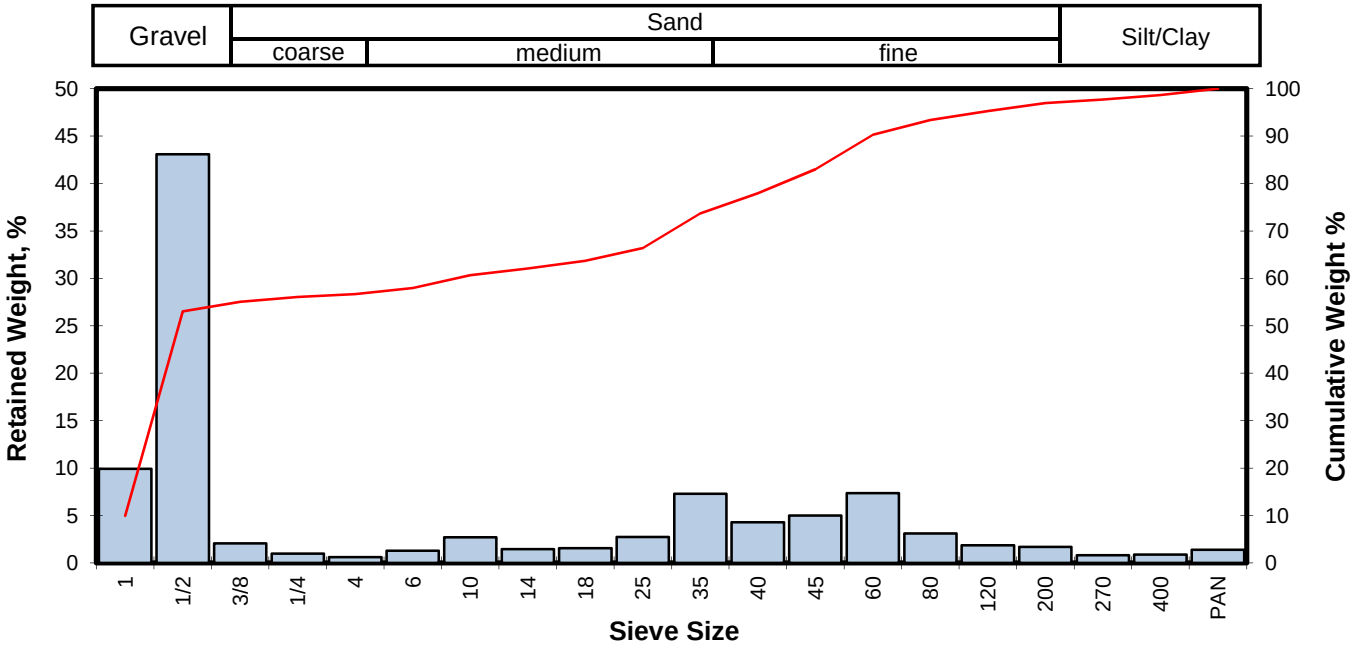
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48218
Sample ID: GUV-S9-171018-473
Depth, ft: 474.1-474.2



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	22.54	9.92	9.92
0.4922	12.501	-3.64	1/2	97.96	43.10	53.01
0.3740	9.500	-3.25	3/8	4.71	2.07	55.09
0.2500	6.351	-2.67	1/4	2.19	0.96	56.05
0.1873	4.757	-2.25	4	1.41	0.62	56.67
0.1324	3.364	-1.75	6	2.93	1.29	57.96
0.0787	2.000	-1.00	10	6.16	2.71	60.67
0.0557	1.414	-0.50	14	3.27	1.44	62.11
0.0394	1.000	0.00	18	3.55	1.56	63.67
0.0278	0.707	0.50	25	6.18	2.72	66.39
0.0197	0.500	1.00	35	16.56	7.29	73.67
0.0166	0.420	1.25	40	9.74	4.29	77.96
0.0139	0.354	1.50	45	11.38	5.01	82.97
0.0098	0.250	2.00	60	16.68	7.34	90.30
0.0070	0.177	2.50	80	7.06	3.11	93.41
0.0049	0.125	3.00	120	4.20	1.85	95.26
0.0029	0.074	3.75	200	3.81	1.68	96.93
0.0021	0.053	4.25	270	1.83	0.81	97.74
0.0015	0.037	4.75	400	2.01	0.88	98.62
			PAN	3.13	1.38	100.00
TOTALS				227.30	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10	-4.64	0.9830	24.969
16	-4.50	0.8926	22.672
25	-4.29	0.7723	19.617
40	-3.95	0.6068	15.412
50	-3.71	0.5166	13.122
60	-1.19	0.0895	2.274
75	1.08	0.0187	0.474
84	1.57	0.0133	0.337
90	1.98	0.0100	0.254
95	2.93	0.0052	0.131

Measure	Trask	Inman	Folk-Ward
Median, phi	-3.71	-3.71	-3.71
Median, in.	0.5166	0.5166	0.5166
Median, mm	13.122	13.122	13.122
Mean, phi	-3.33	-1.47	-2.22
Mean, in.	0.3955	0.1088	0.1828
Mean, mm	10.045	2.763	4.644
Sorting	6.434	3.037	
Skewness	0.232	0.740	
Kurtosis	0.387		

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	56.67
Coarse Sand	10	4.00
Medium Sand	40	17.29
Fine Sand	200	18.97
Silt/Clay	<200	3.07
	Total	100

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Phone: (713) 316-1800

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Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48218***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COCI-59-PTS-20181022**		

TEST PROGRAM - 20181024

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181023/20181024					
GUV-S9-171018 - 473	**473-475**	**2.0**	**2**		
GUV-S9-181018 - 484	**484-486**	**2.0**	**2**		
TOTALS:	**BAG**	**4.0**	**4.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48218

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48218



473.0

Each Interval Equals One Tenth of a Foot

474.0

474.0

Each Interval Equals One Tenth of a Foot

475.0

Boring ID.: GUV-S9-171018-473

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: GUV-S9-171018-473

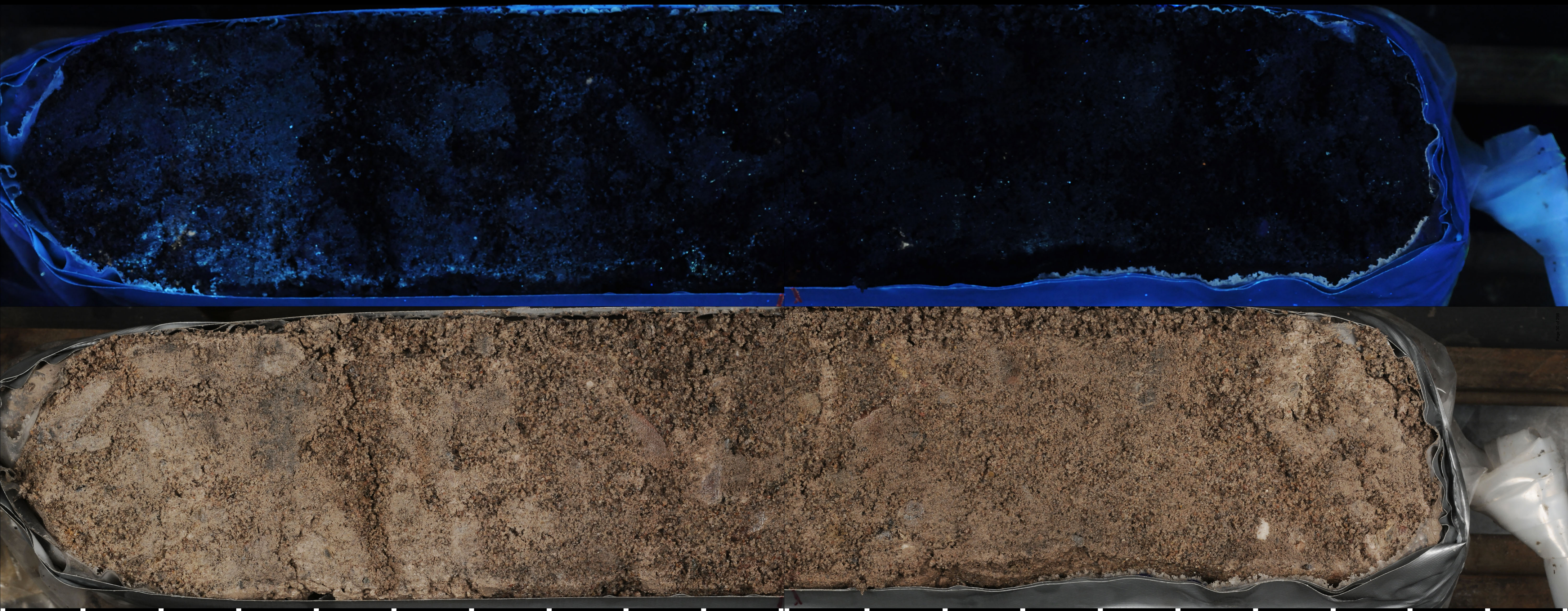
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48218

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48218



Boring ID.: GUV-S9-181018-484

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: GUV-S9-181018-484

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

COC1-59-PTS-20181022
~~17V40E41 22 1000 0586~~ 1cm

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, Albuquerque, NM, 87102 (CITY / ZIP CODE)

PROJECT MANAGER: Bernie Bockisch (email)

PROJECT NAME: Kirtland Vadose Zone Coring

PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017

FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT X TEMP(F) 30.9°F

PTS QUOTE NO.

PTS FILE: 48218

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE (UNAR Only)	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-59-181018-484	10/18/18	1739	484-486	1	X	X	X	X	X	X	X	X	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McGeorge			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 10/22/18 TIME: 1830	DATE: 10/24/18 TIME: 930	DATE TIME	DATE TIME

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COC2-59-PTS-20181022
~~1ZV40 E41 22 1000 0595~~ 1 lcm

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☒
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 29.3°

PTS QUOTE NO.

PTS FILE: 48218

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE (LNAPL only)	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓ GUV-59-171018-473	10/17/18	1710	473 to 475	1	X	X	X	X	X	X	X	X	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 10/22/18 TIME: 1830	DATE: 10/23/18 TIME: 1000	DATE TIME	DATE TIME

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Copy 783381434603

COC1->7-PTS-20181
~~17V40E41221000 0586~~ K.

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DA
72 HOURS ☐ NORI

OTHER:

SAMPLE INTEGRITY (CI
INTACT X TEMP(30.9°F

PTS QUOTE NO.

PTS FILE: 48218

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE (UNMIX Only)	PHOTOLOG; CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 448M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-59-181018-484	10/18/18	1739	484-486	1	X	X	X	X	X	X	X	X	

ANALYSIS REQUEST

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: DTS Laboratories Inc	COMPANY	COMPANY
DATE: 10/22/18 TIME: 1830	DATE: 10/24/18 TIME: 9:30	DATE TIME	DATE TIME

PTS Laboratories, Inc.

Copy 783781434599

COC-21-1113-2018 1022
~~12V40E41 22 1000 0595 KM~~

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☒
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 29.3°F

PTS QUOTE NO.

PTS FILE: 48218

COMMENTS

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE (LMH 2 only)	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 448M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE
GW-59-171018-473	10/17/18	1710	473 to 475	1	X	X	X	X	X	X	X	X

DO NOT RUN These
JMoss 10/23/18

PO # 18265

ONLY RUN Photo
JMoss 10/23/18

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevi McKee			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 10/22/18 TIME: 1830	DATE: 10/23/18 TIME: 10:00	DATE TIME	DATE TIME

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Telephone (713) 316-1800 • Fax (877) 225-9953

August 13, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48222
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC No: COC1 – S5-PTS-20181024

Subject: **Pore Fluid Saturation (Dean Stark Method)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A. Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

PTS File No: 48222
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20181025

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth ft.	PFS/Dean Stark Analysis		Comments
			1/4:3/4		1.5' DIA Plug		
Date Received: 20181025							
GUV-S5-231018-488	**488-490**	**2.0**	**2**	**488.80-489.0**	**X**		
		2.0	**1**		**1**		

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.

PTS Laboratories

PTS File No: 48222
Client: EA Engineering, Science and Technology
Report Date: 08/12/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
			SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		PORE FLUID	
SAMPLE	PTS	DEPTH,	ORIENTATION	CONTENT,	DRY BULK,	GRAIN,		AIR	SATURATIONS, % Pv (3)	
ID.	Plug ID	ft.	(1)	% weight	g/cc	g/cc	TOTAL	FILLED	WATER	NAPL
GUV-S5-231018-488 (488-490)	1	488.85	H	8.2	1.80	2.64	31.5	16.1	48.8	0.08

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99768 g/cc, NAPL = 0.75734 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48222***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COCI-59-PTS-20181024**		

TEST PROGRAM - 20181025

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181025					
GUV-S5-231018-488	**488-490**	**2.0**	**2**		
TOTALS:	**BAG**	**2.0**	**2.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

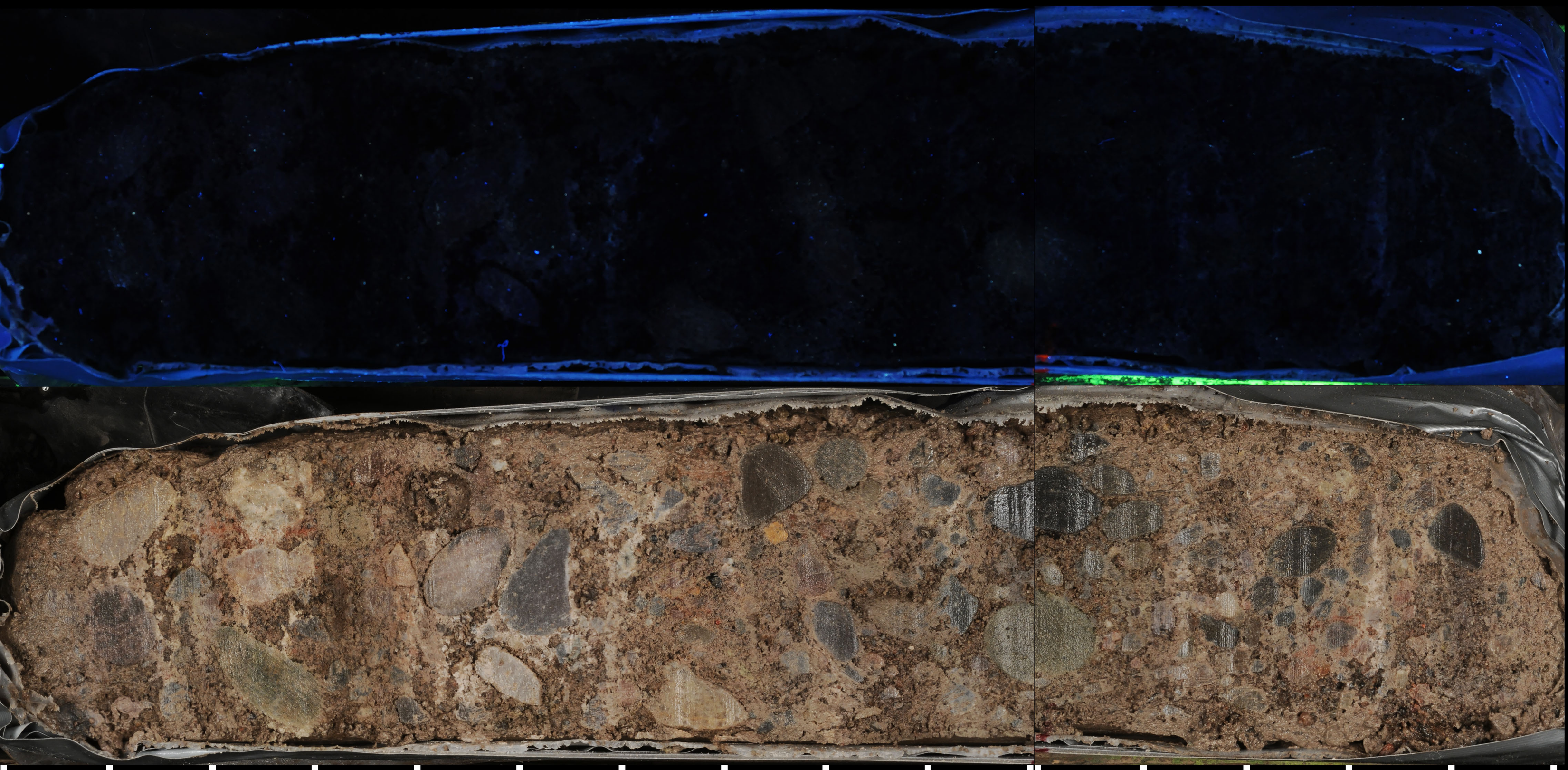
Core Photo: white light and ultraviolet, low and high resolution, strip format.

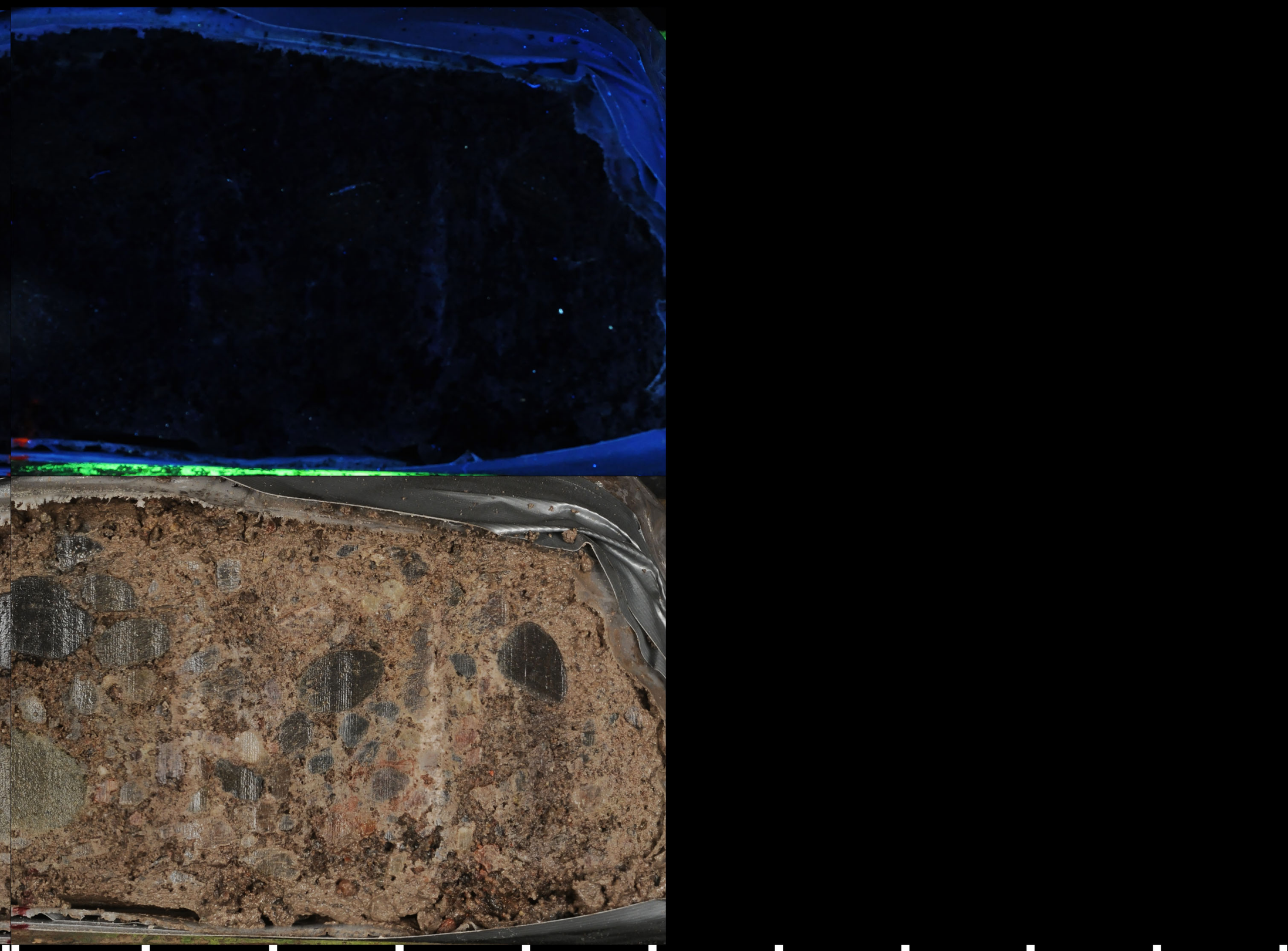
Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48222

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48222





Boring ID.: GUV-S5-231018-488

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: GUV-S5-231018-488

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

773542082851

COC 1 - PTS-20181024-0

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT X TEMP(F) 31.6 °F

PTS QUOTE NO.

PTS FILE: 48222

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SS-23018-488	10/23/18	1331	488 - 490	1	X	X	X	X	X	X	X	X	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE / TIME: 10/24/18 1700	DATE / TIME: 10/25/18 9:00	DATE / TIME	DATE / TIME

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March 28, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48236
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 & 2 – S9-PTS-20181031

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: Kirtland Vadose Zone Coring

Project Number: 62735DM02.1017

PTS File No: 48236

Client: EA Engineering, Science and Technology

TEST PROGRAM - 20181106

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Fluid Properties Pkg.	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	Bulk	
Date Received: 20181101														
UV-S9-301018-491	**491-493**	**2.0**	**2**	**491.70-491.90**								**X**		Recommended depths based on lithology
				492.10-492.35	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**		Recommended depths are areas of UV Flroescence
UV-S9-301018-493	**493-495**	**2.0**	**2**	**493.0-493.40**								**X**		Recommended depths based on lithology
TOTAL # OF SAMPLES		**4.0**	**4**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**3**		

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.

Sample locations to be selected by EA Engineering, Science, and Technology, Inc., PBC personnel from core photography.

Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

Pore Fluid Saturation Package: API RP40 Dean-Stark Method: Includes initial pore fluid saturations, total porosity, air-filled porosity, grain density, dry bulk density and moisture content.

Air/Water Drainage Capillarity Package: Air/Water Drainage Capillary Pressure Curve (air displacing water) with Air Permeability and Hydraulic Conductivity: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations.

Oil/Water Drainage or Imbibition Capillary Pressure Curve: Oil/Water Capillary Pressure Curve: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations. Does not include hydraulic conductivity or oil permeability tests. Requires 500 ml of LNAPL per sample.

Free Product Mobility Package: Applied centrifugal force demonstrates product mobility; includes residual saturations by Dean-Stark, total porosity, grain and dry bulk density.

Residual Saturation by Water Drive: Sample driven to residual saturation by water/NAPL displacement. Residual saturations by Dean-Stark extraction, total porosity, bulk and grain density.

If no groundwater received, use filtered Houston tap water for testing.

PTS Laboratories

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		PORE FLUID SATURATIONS, % Pv (3)	
					DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	WATER	NAPL
UV-S9-301018-491 (492.10-492.35)	1	492.2-492.35	H	18.3	1.43	2.66	46.2	20.0	54.6	2.1

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		**API RP 40**		**API RP 40**	**ASTM D425M, DEAN-STARK**			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
UV-S9-301018 (492.10-492.35)	492.2-492.35	H	20190307	61.9	59.86	1.48	2.62	43.6	64.2	2.26	9.8	2.26

NOTE: No Visible NAPL produced. Produced water clear with moderate gasoline odor. Sample Intact, produced fines.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	25 PSI CONFINING STRESS		
							EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20190323	*Filtered Tap Water	0.9507	73.0	540.153	5.35E-04	5.33E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3)Effective Water Permeability at residual oil saturation.

*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20190322	1.54	2.62	41.4	63.6	4.1	68.2	4.1

NOTE: No visible NAPL produced;9.92 pore volumes (250ml) of water injected. Produced water - clear yellow with strong hydrocarbon odor. Sample intact, small spotted fluorescense on sample teflon tape but none on the screens.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20190323	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7547	71.4	648.045	8.08E-04	6.40E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.

*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS Laboratories

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20.8	1.64	2.66	38.2	3.9	89.8

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	1972.88	2638.674	2.54E-03

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

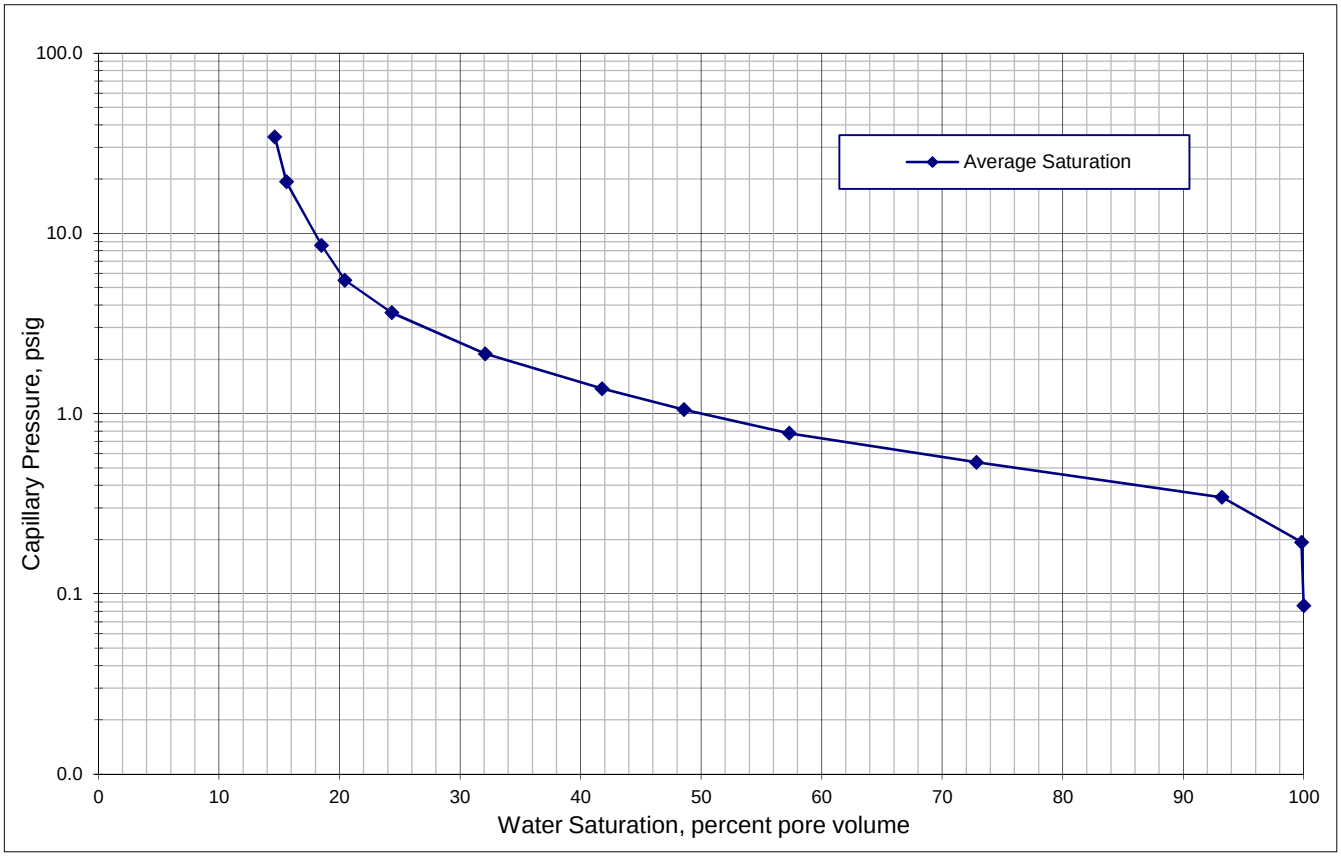
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AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: UV-S9-301018-491 (492.10-492.35) at 492.2-492.35 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	20.8
0.086	6.04	0.199	100.0	20.8
0.193	13.6	0.447	99.8	20.8
0.343	24.1	0.795	93.2	19.4
0.537	37.7	1.24	72.8	15.2
0.778	54.7	1.80	57.3	11.9
1.052	73.9	2.43	48.6	10.1
1.37	96.6	3.18	41.8	8.7
2.15	151	4.97	32.1	6.7
3.63	255	8.39	24.3	5.1
5.49	386	12.7	20.5	4.3
8.58	604	19.9	18.5	3.9
19.3	1358	44.7	15.6	3.3
34.3	2414	79.5	14.6	3.1



PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	18.4	1.49	2.65	43.6	10.6	75.6

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20190321	2023.94	1.83E-03

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.

NAPL properties used to calculate permeability to product at 71.9°F: Viscosity = 0.7511 cP; Density = 0.7235 g/cc.

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: UV-S9-301018-491 at 492.2-492.35ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.023	1.61	0.193	99.6	0.4
0.051	3.62	0.434	97.8	2.2
0.091	6.43	0.772	91.9	8.1
0.143	10.04	1.21	87.7	12.3
0.206	14.46	1.74	80.4	19.6
0.280	19.68	2.36	69.4	30.6
0.367	25.84	3.10	55.6	44.4
0.571	40.17	4.82	43.7	56.3
0.968	68.09	8.18	30.8	69.2
1.462	102.83	12.3	23.5	76.5
2.285	160.67	19.3	19.8	80.2
5.14	361.50	43.4	15.2	84.8
9.14	642.67	77.2	13.4	86.6

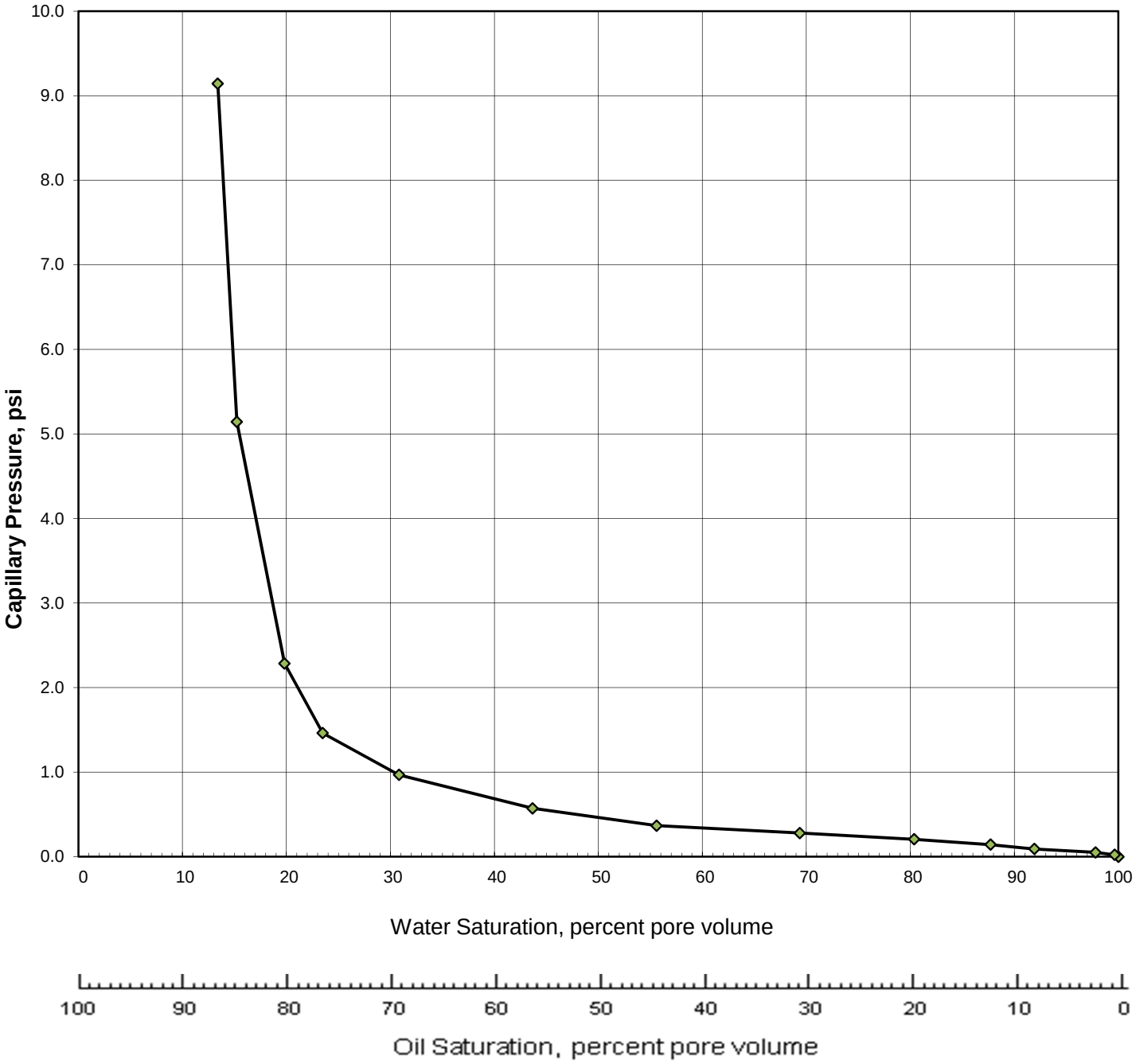
Effective Permaeability to Water, mD.: 1963.786

Hydraulic Conductivity, cm/sec: 1.93E-03

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **UV-S9-301018-491**
Depth, ft:- **492.25**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	18.4	1.49	2.65	43.6	10.6	75.6

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	H	20190321	2023.94	1.83E-03

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Effective (Native) = With as-received pore fluids in place.

(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.

NAPL properties used to calculate permeability to product at 71.9°F: Viscosity = 0.7511 cP; Density = 0.7235 g/cc.

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: **UV-S9-301018-491 at 492.2-492.35ft** Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	13.4	86.6
-0.040	2.79	0.336	16.1	83.9
-0.089	6.24	0.750	16.7	83.3
-0.156	10.96	1.316	61.1	38.9
-0.243	17.1	2.06	88.1	11.9
-0.355	25.0	3.00	89.5	10.5
-0.480	33.7	4.05	90.1	9.9
-0.623	43.8	5.26	90.8	9.2
-0.978	68.7	8.26	91.4	8.6
-1.646	116	13.90	91.9	8.1
-2.493	175	21.0	92.3	7.7
-3.895	274	32.9	92.8	7.2
-8.76	616	74.0	93.2	6.8
-15.58	1096	131.6	93.4	6.6

Effective Permaeability to Water, mD.: 1963.786

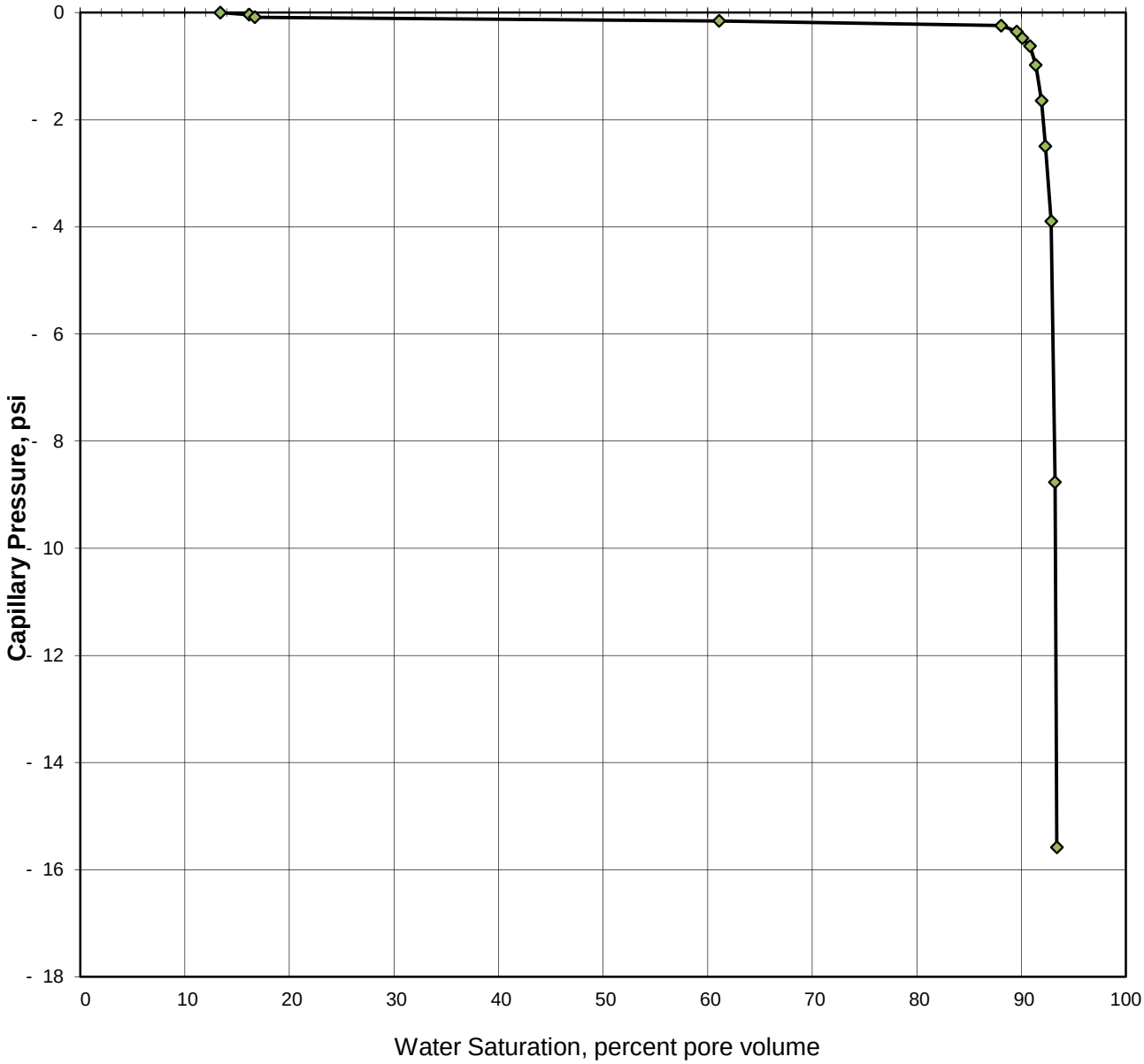
Hydraulic Conductivity, cm/sec: 1.93E-03

EA Engineering, Science & Technology.
PTS File No.: 48236

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: UV-S9-301018-491
Depth, ft.: 492.2-492.35



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

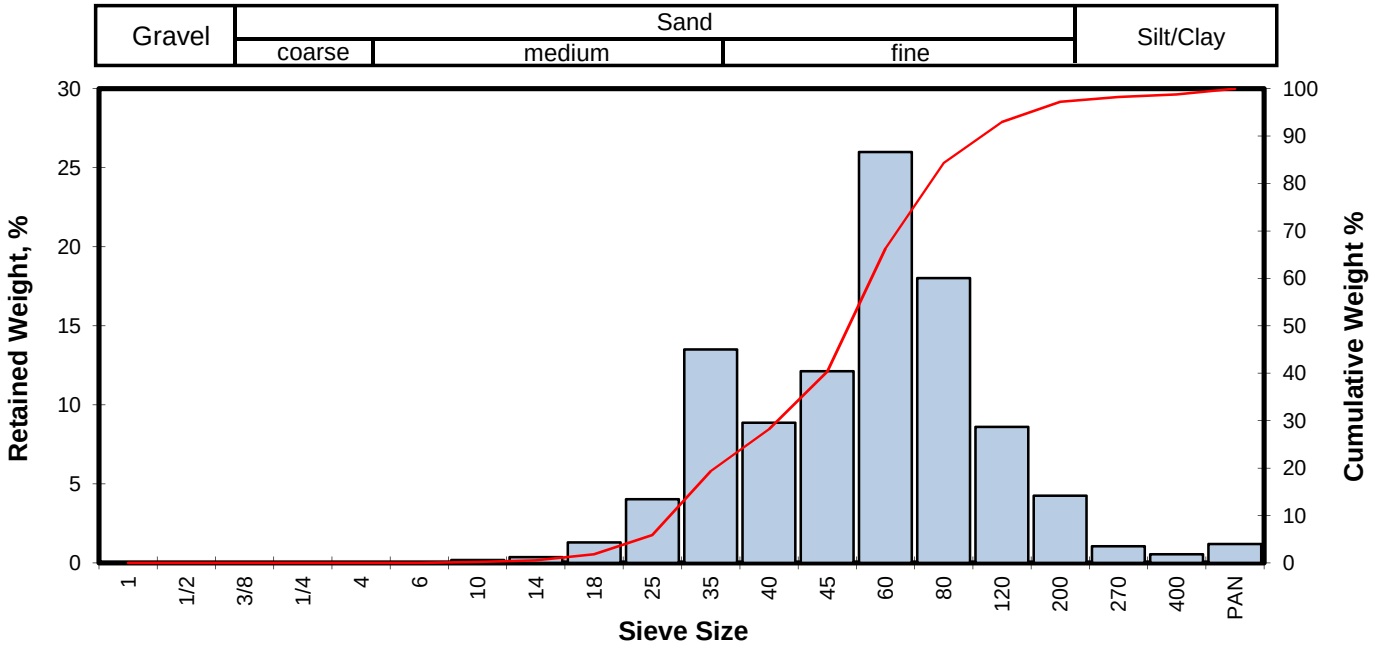
Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
UV-S9-301018-491 (492.10-492.35)	491.80	Fine Sand	0.311	0.00	0.18	28.03	68.98	2.80
UV-S9-301018-491 (492.10-492.35)	492.2-492.35	Fine Sand	0.382	0.23	0.29	41.40	56.10	1.98
UV-S9-301018-493 (493.0-493.40)	493.20	Medium Sand	0.583	0.65	6.47	62.81	28.07	2.00

(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client:	EA Engineering, Science and Technology	**PTS File No:**	48236
Project:	Kirtland Vadose Zone Coring	**Sample ID:**	UV-S9-301018-491 (491.70-491.90)
Project No:	62735DM02.1017 PTS ID:- 1	**Depth, ft:**	491.80



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.16	0.18	0.18
0.0557	1.414	-0.50	14	0.31	0.36	0.54
0.0394	1.000	0.00	18	1.13	1.30	1.84
0.0278	0.707	0.50	25	3.51	4.03	5.86
0.0197	0.500	1.00	35	11.76	13.49	19.36
0.0166	0.420	1.25	40	7.72	8.86	28.22
0.0139	0.354	1.50	45	10.57	12.13	40.34
0.0098	0.250	2.00	60	22.66	26.00	66.35
0.0070	0.177	2.50	80	15.70	18.01	84.36
0.0049	0.125	3.00	120	7.49	8.59	92.95
0.0029	0.074	3.75	200	3.70	4.25	97.20
0.0021	0.053	4.25	270	0.92	1.06	98.26
0.0015	0.037	4.75	400	0.48	0.55	98.81
			PAN	1.04	1.19	100.00
TOTALS				87.15	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	0.39	0.0300	0.762
10	0.65	0.0250	0.636
16	0.88	0.0215	0.545
25	1.16	0.0176	0.448
40	1.49	0.0140	0.355
50	1.69	0.0122	0.311
60	1.88	0.0107	0.272
75	2.24	0.0083	0.212
84	2.49	0.0070	0.178
90	2.83	0.0055	0.141
95	3.36	0.0038	0.097

Measure	Trask	Inman	Folk-Ward
Median, phi	1.69	1.69	1.69
Median, in.	0.0122	0.0122	0.0122
Median, mm	0.311	0.311	0.311
Mean, phi	1.60	1.68	1.68
Mean, in.	0.0130	0.0123	0.0123
Mean, mm	0.330	0.311	0.311
Sorting	1.454	0.807	0.853
Skewness	0.990	-0.004	0.063
Kurtosis	0.238	0.839	1.125
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.18
Medium Sand	40	28.03
Fine Sand	200	68.98
Silt/Clay	<200	2.80
	Total	100

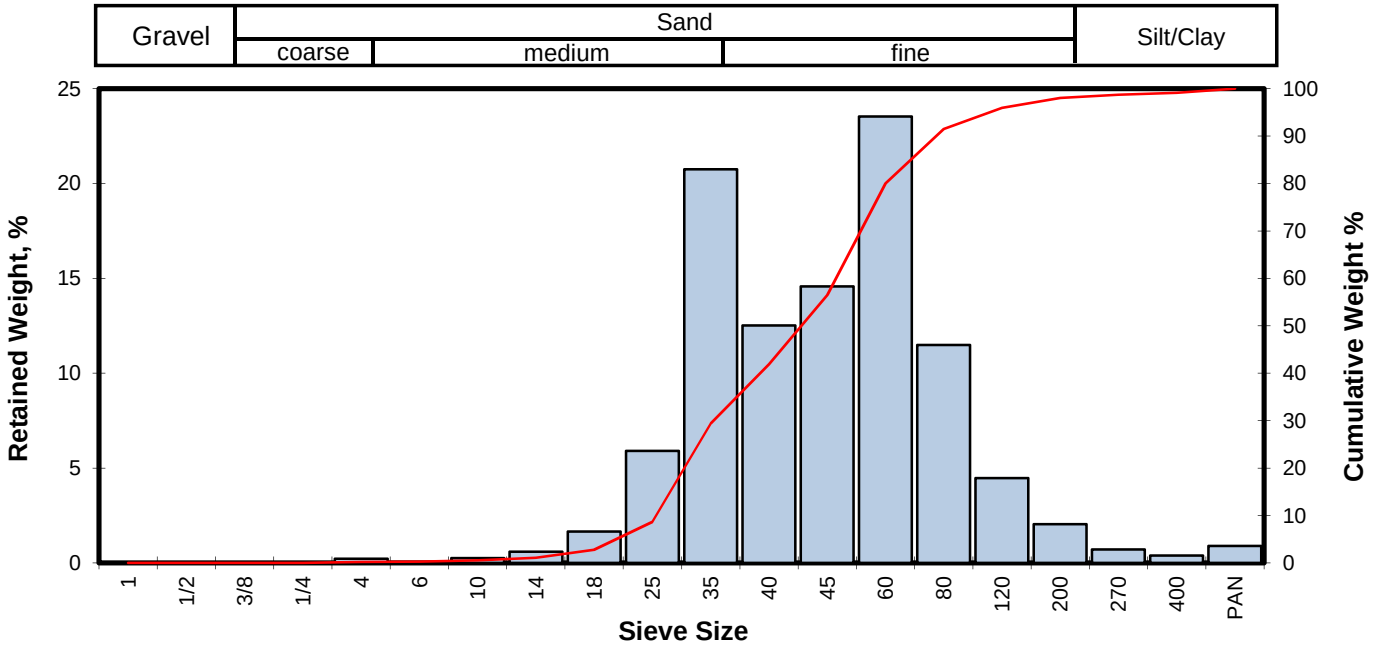
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Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 2

PTS File No: 48236
Sample ID: UV-S9-301018-491 (492.10-492.35)
Depth, ft: 492.2-492.35



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.22	0.23	0.23
0.1324	3.364	-1.75	6	0.04	0.04	0.27
0.0787	2.000	-1.00	10	0.24	0.25	0.51
0.0557	1.414	-0.50	14	0.57	0.59	1.10
0.0394	1.000	0.00	18	1.61	1.65	2.75
0.0278	0.707	0.50	25	5.75	5.90	8.66
0.0197	0.500	1.00	35	20.20	20.74	29.40
0.0166	0.420	1.25	40	12.19	12.52	41.91
0.0139	0.354	1.50	45	14.19	14.57	56.48
0.0098	0.250	2.00	60	22.92	23.53	80.02
0.0070	0.177	2.50	80	11.18	11.48	91.50
0.0049	0.125	3.00	120	4.36	4.48	95.97
0.0029	0.074	3.75	200	1.99	2.04	98.02
0.0021	0.053	4.25	270	0.69	0.71	98.73
0.0015	0.037	4.75	400	0.37	0.38	99.11
			PAN	0.87	0.89	100.00
TOTALS				97.39	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	0.19	0.0345	0.876
10	0.53	0.0272	0.691
16	0.68	0.0246	0.625
25	0.89	0.0212	0.538
40	1.21	0.0170	0.432
50	1.39	0.0150	0.382
60	1.57	0.0132	0.336
75	1.89	0.0106	0.269
84	2.17	0.0087	0.222
90	2.43	0.0073	0.185
95	2.89	0.0053	0.135

Measure	Trask	Inman	Folk-Ward
Median, phi	1.39	1.39	1.39
Median, in.	0.0150	0.0150	0.0150
Median, mm	0.382	0.382	0.382
Mean, phi	1.31	1.43	1.41
Mean, in.	0.0159	0.0147	0.0148
Mean, mm	0.404	0.372	0.376
Sorting	1.414	0.748	0.783
Skewness	0.997	0.049	0.081
Kurtosis	0.266	0.805	1.108
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.23
Coarse Sand	10	0.29
Medium Sand	40	41.40
Fine Sand	200	56.10
Silt/Clay	<200	1.98
	Total	100

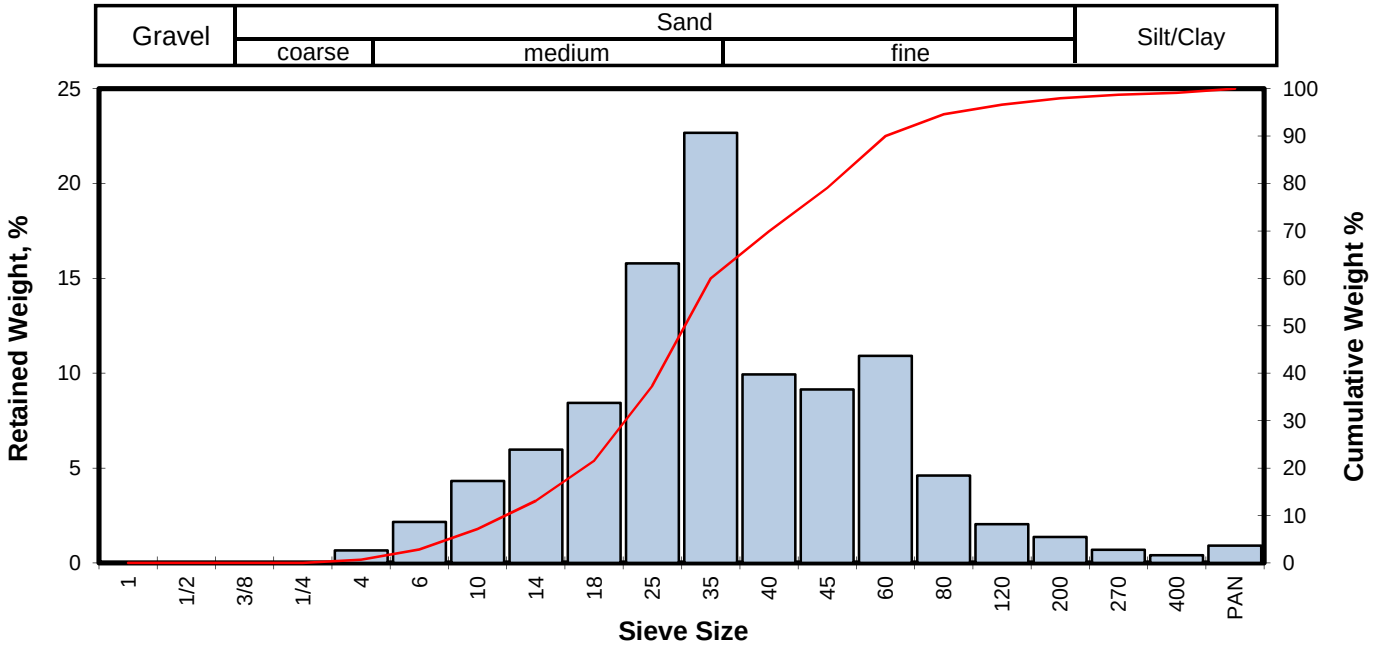
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Phone: (713) 316-1800

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 3

PTS File No: 48236
Sample ID: UV-S9-301018-493 (493.0-493.40)
Depth, ft: 493.20



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.78	0.65	0.65
0.1324	3.364	-1.75	6	2.57	2.16	2.81
0.0787	2.000	-1.00	10	5.15	4.32	7.13
0.0557	1.414	-0.50	14	7.13	5.98	13.11
0.0394	1.000	0.00	18	10.05	8.43	21.54
0.0278	0.707	0.50	25	18.83	15.79	37.33
0.0197	0.500	1.00	35	27.03	22.67	60.00
0.0166	0.420	1.25	40	11.85	9.94	69.93
0.0139	0.354	1.50	45	10.90	9.14	79.08
0.0098	0.250	2.00	60	13.01	10.91	89.99
0.0070	0.177	2.50	80	5.49	4.60	94.59
0.0049	0.125	3.00	120	2.44	2.05	96.64
0.0029	0.074	3.75	200	1.63	1.37	98.00
0.0021	0.053	4.25	270	0.82	0.69	98.69
0.0015	0.037	4.75	400	0.48	0.40	99.09
			PAN	1.08	0.91	100.00
TOTALS				119.24	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-1.37	0.1017	2.584
10	-0.76	0.0667	1.693
16	-0.33	0.0494	1.256
25	0.11	0.0365	0.927
40	0.56	0.0267	0.679
50	0.78	0.0229	0.583
60	1.00	0.0197	0.500
75	1.39	0.0150	0.382
84	1.73	0.0119	0.302
90	2.00	0.0098	0.250
95	2.60	0.0065	0.165

Measure	Trask	Inman	Folk-Ward
Median, phi	0.78	0.78	0.78
Median, in.	0.0229	0.0229	0.0229
Median, mm	0.583	0.583	0.583
Mean, phi	0.61	0.70	0.73
Mean, in.	0.0258	0.0243	0.0238
Mean, mm	0.654	0.616	0.605
Sorting	1.558	1.027	1.115
Skewness	1.021	-0.079	-0.081
Kurtosis	0.189	0.933	1.272
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.65
Coarse Sand	10	6.47
Medium Sand	40	62.81
Fine Sand	200	28.07
Silt/Clay	<200	2.00
	Total	100

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Phone: (713) 316-1800

PTS Laboratories

Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48236***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COC 1 & 2 -S9-PTS-20181031**		

TEST PROGRAM - 20181101

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181101					
UV-S9-301018-491	**491-493**	**2.0**	**2.0**		
UV-S9-301018-493	**493-495**	**2.0**	**2.0**		
TOTALS:	**BAG**	**2.0**	**2.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

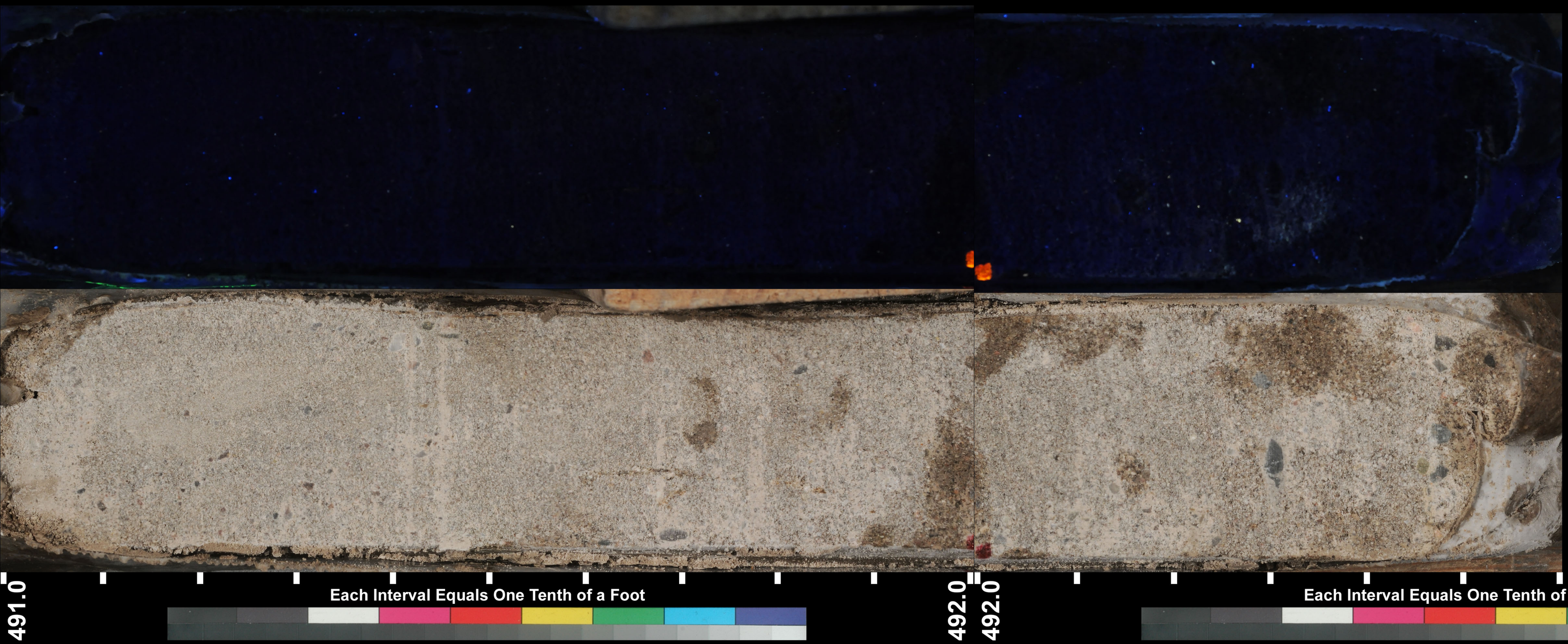
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48236

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48236



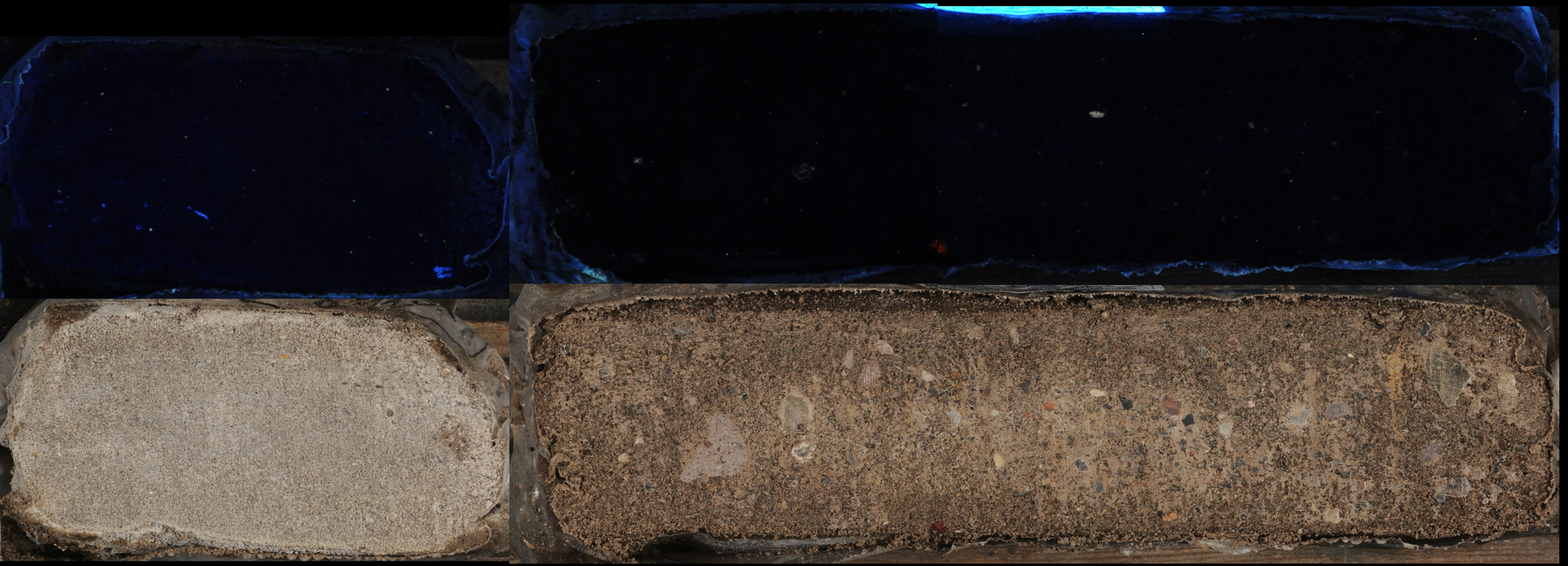
Boring ID.: UV-S9-301018-491

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: UV-S9-301018-491

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology
PTS Laboratories
PTS File No.: 48236
Client Name: EA Engineering, Science and Technology
PTS Laboratories
PTS File No.: 48236



493.0 494.0 494.0 495.0 495.0 496.0

Each Interval Equals One Tenth of a Foot

Boring ID.: UV-S9-301018-493

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Each Interval Equals One Tenth of a Foot
Boring ID.: UV-S9-301018-493
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017
Each Interval Equals One Tenth of a Foot
Boring ID.: UV-S9-301018-493
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

PTS Laboratories, Inc.

7735 4208 2656

COC 1-59-PTS-20181031

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 31.2°

PTS QUOTE NO.

PTS FILE: 48236

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & iMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
UV-59-301018-491	10/30/18	1510	491-993	1	—	—	—	X	—	—	—	—	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 10/31/18 TIME: 1700	DATE: 11/1/18 TIME: 1552	DATE TIME	DATE TIME

PTS Laboratories, Inc. 77 35 4208 2792 COC2-59-PTS-20181031

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 31.2°F

PTS QUOTE NO.

PTS FILE: 48236

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓ UV-59-30198-493	10/30/18	1510	493-495	1	—	—		X	—				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY:	COMPANY:
DATE: 10/31/18 TIME: 1700	DATE: 11/1/18 TIME: 1552	DATE: TIME:	DATE: TIME:

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PTS Laboratories

Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48242***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COC 1 -S4-PTS-20181105**		

TEST PROGRAM - 20181106

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181106					
GUV-S4-091118-476	**476-478**	**2.0**	**2.0**		
TOTALS:	**BAG**	**2.0**	**2.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48242

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48242



Boring ID.: GUV-S4-091118-476

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Each Interval Equals One Tenth of a Foot
478.0

Boring ID.: GUV-S4-091118-476

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

7735 4208 1362

COC 1-54-PTS-20181105

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☒
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 29.8

PTS QUOTE NO.

PTS FILE: 48242

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-S4-091118-476	11/4/18	1420	476-478	1				X					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKay			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 11/5/18 TIME: 1800	DATE: 11/6/18 TIME: 1210	DATE TIME	DATE TIME

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6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

March 28, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: **48244**
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: **COC1 & 2 – S4-PTS-20181106**

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

PTS File No: 48244
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20181108

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Fluid Properties Pkg.	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	Bulk	
Date Received: 20181107														
GUV-S4-041118-486	486-488	2.0	2	486.25-486.45	X	X	X	X	X	X	X	X		Recommended depths are areas of UV Flroescence
GUV-S4-041118-486	486-488			486.55-486.85										Recommended depths are areas of UV Flroescence
GUV-S4-041118-492	492-493	1.0	1	492.0-492.20										Recommended depths based on lithology
GUV-S4-041118-492	492-493			492.6-492.8										Recommended depths based on lithology
TOTAL # OF SAMPLES		3.0	3		1	1	1	1	1	1	1	1		

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc., PBC personnel from core photography.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.
Pore Fluid Saturation Package: API RP40 Dean-Stark Method: Includes initial pore fluid saturations, total porosity, air-filled porosity, grain density, dry bulk density and moisture content.
Air/Water Drainage Capillarity Package: Air/Water Drainage Capillary Pressure Curve (air displacing water) with Air Permeability and Hydraulic Conductivity: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations.
Oil/Water Drainage or Imbibition Capillary Pressure Curve: Oil/Water Capillary Pressure Curve: includes fluid production vs. capillary pressure, total and air-filled porosity, grain density, dry bulk density, moisture content and total (water only) pore fluid saturations. Does not include hydraulic conductivity or oil permeability tests. Requires 500 ml of LNAPL per sample.
Free Product Mobility Package: Applied centrifugal force demonstrates product mobility; includes residual saturations by Dean-Stark, total porosity, grain and dry bulk density.
Residual Saturation by Water Drive: Sample driven to residual saturation by water/NAPL displacement. Residual saturations by Dean-Stark extraction, total porosity, bulk and grain density.
If no groundwater received, use filtered SFS tap water for testing.

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date:

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
					DENSITY		POROSITY, %Vb (2)		PORE FLUID SATURATIONS, % Pv (3)	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	WATER	NAPL
GUV-S4-041118-486 (486.25-486.45)	1	486.35	H	11.4	1.54	2.65	41.8	24.1	39.5	2.7

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date:

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
		SAMPLE		TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190307	64.8	59.83	1.54	2.62	41.3	40.7	0.18	14.2	0.18

NOTE: No Visible NAPL produced. Produced water clear with strong gasoline odor. Sample Intact, produced fines.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190325	*Filtered Tap Water	0.9775	71.0	576.768	5.57E-04	5.69E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190325	1.55	2.62	41.1	39.2	0.8	52.6	0.8

NOTE: No visible NAPL produced; 9.75 pore volumes (250ml) of water injected. Produced water - clear with strong hydrocarbon odor. Sample intact, small spotted fluorescense on sample teflon tape but none on the screens.Has moderate HC odor.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.

Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.

Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.

Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S4-041118-486	486.35	H	20190323	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7497	72.1	1201.567	1.49E-03	1.19E-08

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date:

PTS Laboratories

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

METHODS:		API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
			DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S4-041118-486 (486.25-486.45)	486.35	H	14.5	1.87	2.64	29.2	2.1	92.7

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date:

PTS Laboratories

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-S4-041118-486 (486.25-486.45)	486.35	H	1896	64.106	6.25E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

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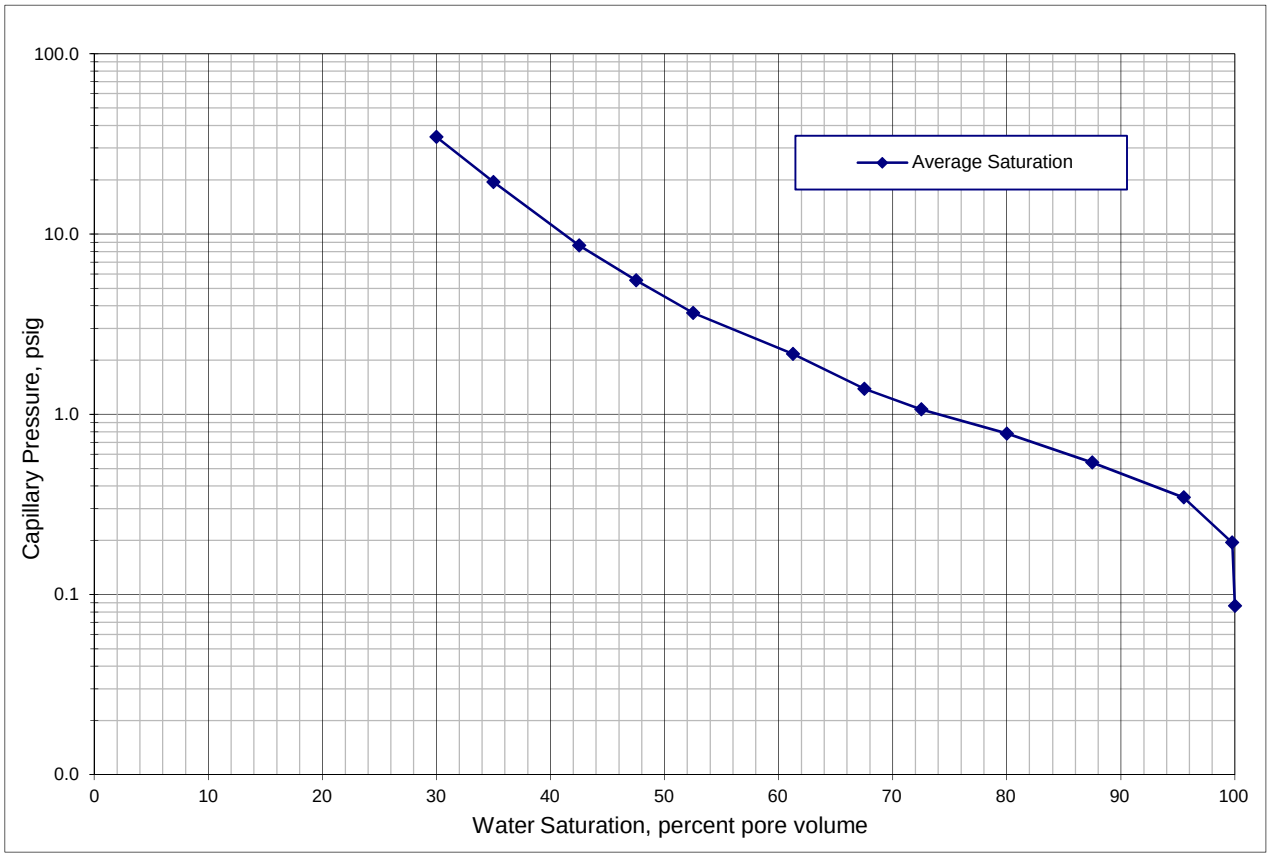
PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date:

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S4-041118-486 (486.25-486.45) at 486.35 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	14.5
0.086	6.07	0.200	100.0	14.5
0.194	13.7	0.450	99.8	14.4
0.346	24.3	0.800	95.5	13.8
0.540	38.0	1.25	87.5	12.7
0.783	55.0	1.81	80.0	11.6
1.064	74.8	2.46	72.5	10.5
1.38	97.2	3.20	67.5	9.8
2.16	152	5.00	61.3	8.9
3.65	257	8.45	52.5	7.6
5.53	389	12.8	47.5	6.9
8.64	607	20.0	42.5	6.2
19.4	1367	45.0	35.0	5.1
34.6	2430	80.0	30.0	4.3



PTS Laboratories

PTS File No: 48236
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S4-041118-486 (486.25-486.45)	486.35	H	11.3	1.54	2.62	41.3	15.8	61.7

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190321	956.95	8.67E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 72.0°F: Viscosity = 0.7504 cP; Density = 0.7235 g/cc.

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S4-041118-486 at 486.35ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.023	1.59	0.190	100.0	0.0
0.051	3.57	0.429	97.6	2.4
0.090	6.35	0.762	90.8	9.2
0.141	9.91	1.19	86.5	13.5
0.203	14.28	1.71	83.6	16.4
0.276	19.43	2.33	81.2	18.8
0.363	25.51	3.06	78.3	21.7
0.564	39.66	4.76	73.4	26.6
0.956	67.23	8.07	63.8	36.2
1.444	101.53	12.2	54.1	45.9
2.256	158.64	19.0	46.9	53.1
5.08	356.94	42.9	37.2	62.8
9.03	634.55	76.2	32.4	67.6

Effective Permaeability to Water, mD.: 140.113

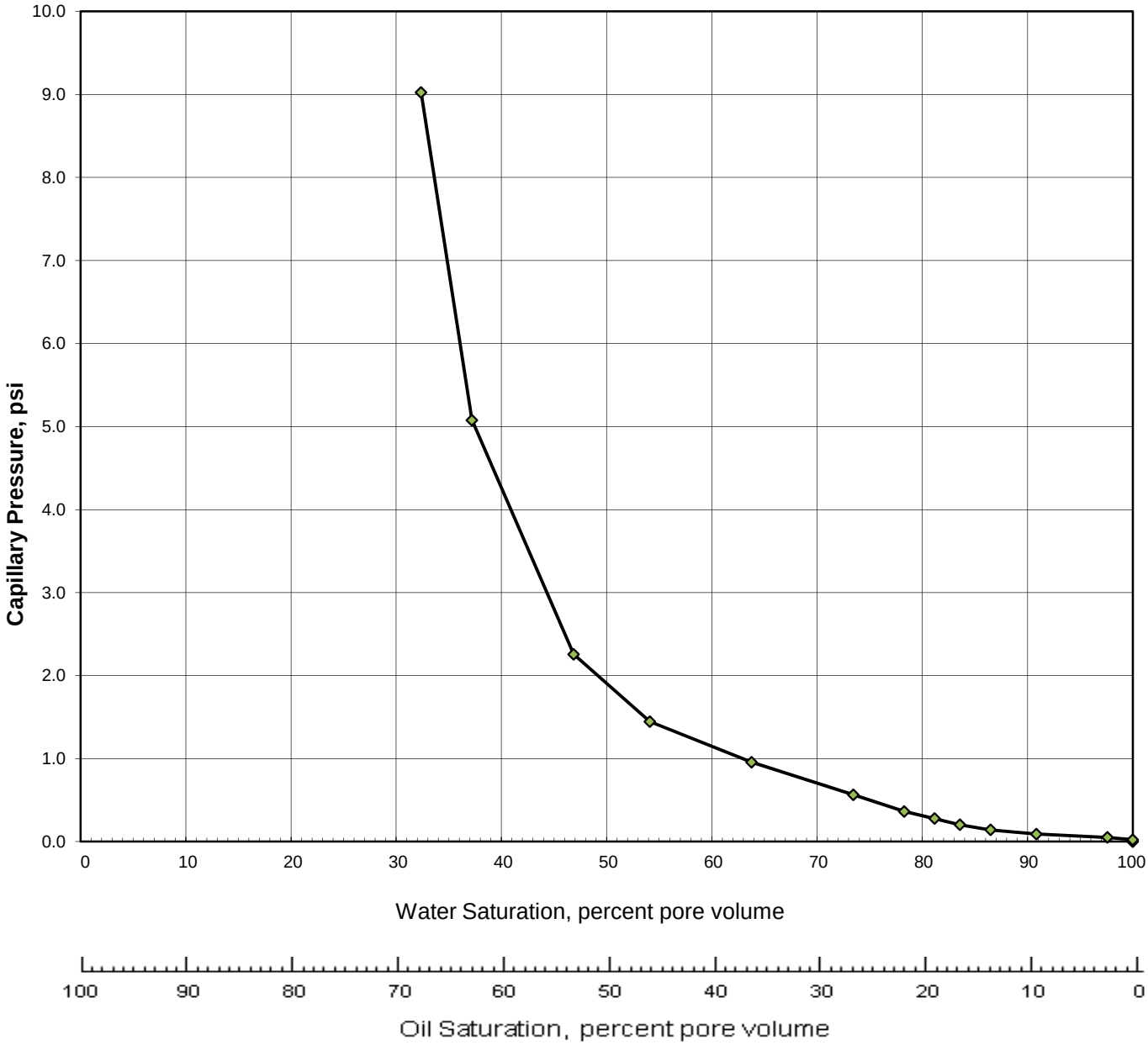
Hydraulic Conductivity, cm/sec: 1.40E-04

EA Engineering, Science and Technology.
PTS File No.: 48244

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S4-041118-486**
Depth, ft:- **486.35**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



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PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO WATER (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO WATER (3), cm^2
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190312	140.113	1.40E-04	1.38E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to water and hydraulic conductivity measured at saturated conditions.
Water = filtered Laboratory Fresh (tap) or Site water.

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PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S4-041118-486 (486.25-486.45)	486.35	H	20190321	956.95	8.67E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 72.0°F: Viscosity = 0.7504 cP; Density = 0.7235 g/cc.

PTS Laboratories

PTS File No: 48244
Client: EA Engineering, Science and Technology
Report Date: 03/28/19

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S4-041118 at 486.35ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	32.4	67.6
-0.039	2.76	0.332	33.6	66.4
-0.088	6.18	0.742	84.3	15.7
-0.154	10.84	1.301	86.0	14.0
-0.241	16.9	2.03	87.4	12.6
-0.351	24.7	2.97	89.1	10.9
-0.475	33.4	4.01	89.9	10.1
-0.617	43.3	5.21	90.3	9.7
-0.967	68.0	8.17	90.8	9.2
-1.628	114	13.75	91.5	8.5
-2.466	173	20.8	92.0	8.0
-3.853	271	32.5	92.3	7.7
-8.67	610	73.2	92.8	7.2
-15.41	1084	130.1	94.0	6.0

Effective Permaeability to Water, mD.: 140.113

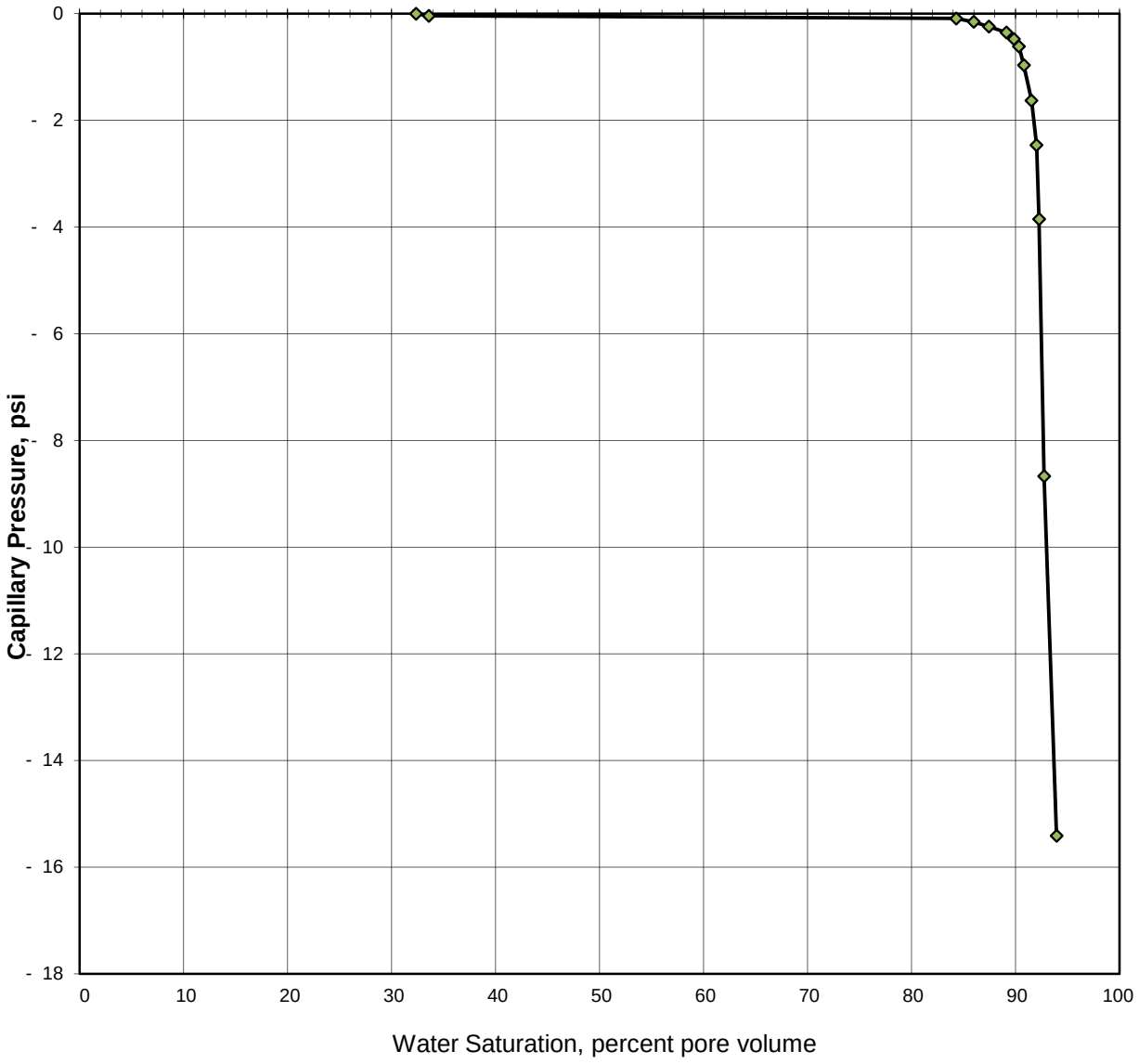
Hydraulic Conductivity, cm/sec: 1.40E-04

EA Engineering, Science & Technology.
PTS File No.: 48244

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S4-041118-486
Depth, ft.: 486.35



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-S4-041118-486 (486.25-486.45)	486.35	Fine Sand	0.664	11.50	11.91	45.40	25.31	5.89

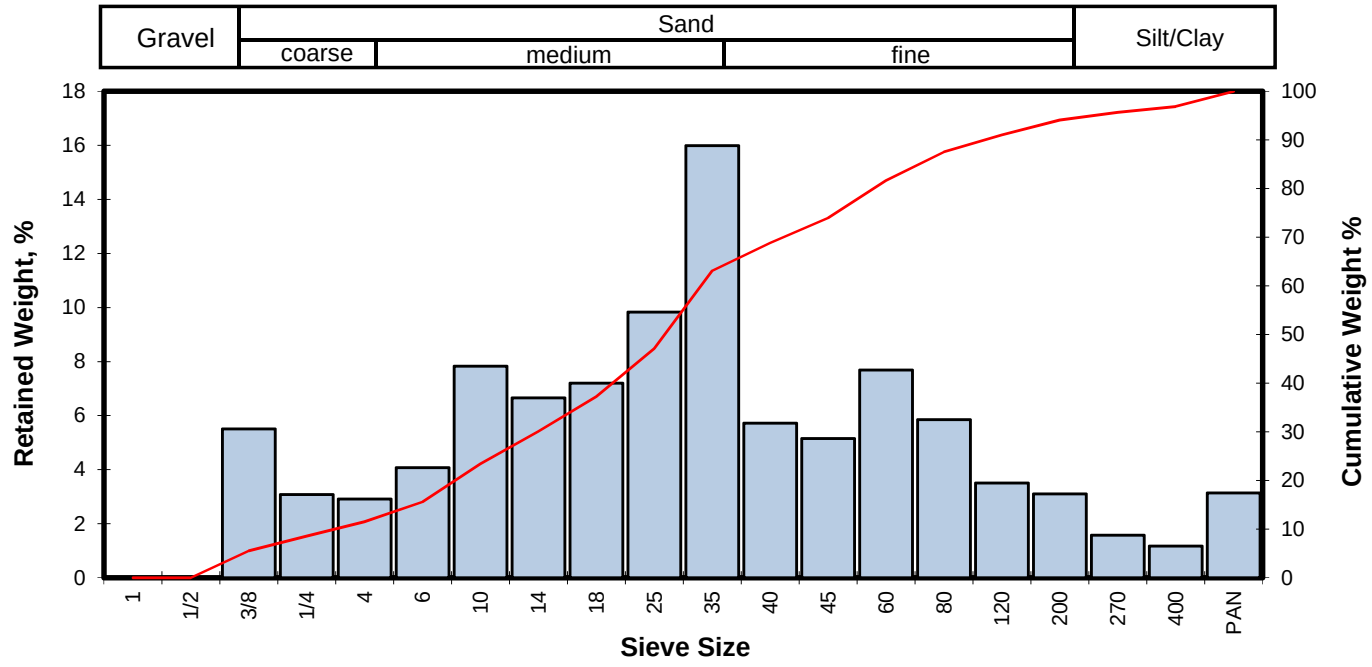
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48244
Sample ID: GUV-S4-041118-486 (486.25-486.45)
Depth, ft: 486.35



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	8.18	5.50	5.50
0.2500	6.351	-2.67	1/4	4.58	3.08	8.58
0.1873	4.757	-2.25	4	4.33	2.91	11.50
0.1324	3.364	-1.75	6	6.06	4.08	15.57
0.0787	2.000	-1.00	10	11.64	7.83	23.40
0.0557	1.414	-0.50	14	9.89	6.65	30.05
0.0394	1.000	0.00	18	10.70	7.20	37.25
0.0278	0.707	0.50	25	14.62	9.83	47.08
0.0197	0.500	1.00	35	23.77	15.99	63.07
0.0166	0.420	1.25	40	8.51	5.72	68.80
0.0139	0.354	1.50	45	7.66	5.15	73.95
0.0098	0.250	2.00	60	11.43	7.69	81.64
0.0070	0.177	2.50	80	8.70	5.85	87.49
0.0049	0.125	3.00	120	5.22	3.51	91.00
0.0029	0.074	3.75	200	4.62	3.11	94.11
0.0021	0.053	4.25	270	2.35	1.58	95.69
0.0015	0.037	4.75	400	1.75	1.18	96.87
			PAN	4.66	3.13	100.00
TOTALS				148.67	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-3.28	0.3835	9.741
10	-2.46	0.2172	5.518
16	-1.71	0.1287	3.269
25	-0.88	0.0724	1.840
40	0.14	0.0357	0.908
50	0.59	0.0261	0.664
60	0.90	0.0210	0.534
75	1.57	0.0133	0.337
84	2.20	0.0086	0.217
90	2.86	0.0054	0.138
95	4.03	0.0024	0.061

Measure	Trask	Inman	Folk-Ward
Median, phi	0.59	0.59	0.59
Median, in.	0.0261	0.0261	0.0261
Median, mm	0.664	0.664	0.664
Mean, phi	-0.12	0.25	0.36
Mean, in.	0.0429	0.0332	0.0306
Mean, mm	1.089	0.843	0.778
Sorting	2.336	1.955	2.086
Skewness	1.187	-0.176	-0.118
Kurtosis	0.140	0.871	1.225
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	11.50
Coarse Sand	10	11.91
Medium Sand	40	45.40
Fine Sand	200	25.31
Silt/Clay	<200	5.89
	Total	100

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Phone: (713) 316-1800

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Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48244***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COC 1 & 2 -S4-PTS-20181106**		

TEST PROGRAM - 20181107

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181107					
GUV-S4-041118-486	**486-488**	**2.0**	**2.0**		
GUV-S4-041118-492	**492-493**	**1.0**	**1.0**		
TOTALS:	**BAG**	**3.0**	**3.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

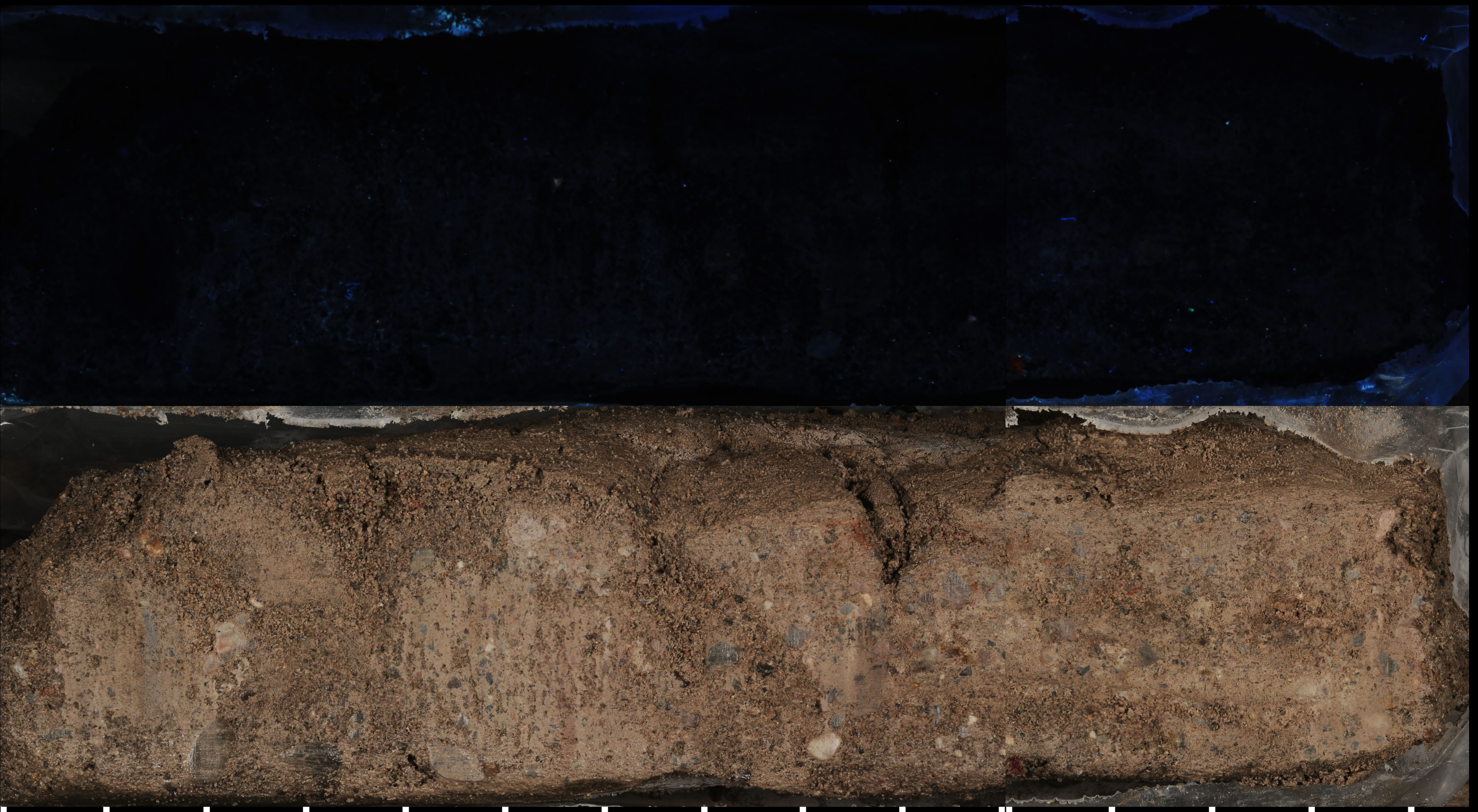
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48244

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48244



486.0 487.0

Each Interval Equals One Tenth of a Foot

Boring ID.: GUV-S4-041118-486

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

487.0 488.0

Each Interval Equals One Tenth of a Foot

Boring ID.: GUV-S4-041118-486

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48244



Boring ID.: GUV-S4-041118-492

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

7735420812125

COC1-54-PTS-06NOV18 20181106

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CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, Albuquerque, NM, 87102 (CITY / ZIP CODE)

PROJECT MANAGER: Bernie Bockisch (email)

PROJECT NAME: Kirtland Vadose Zone Coring (PHONE NUMBER: 505-234-1105)

PROJECT NUMBER: 62735DM02.1017 (FAX NUMBER)

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒ OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT X TEMP(F) 28.1°

PTS QUOTE NO.:

PTS FILE: 48244

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-54-041118-486	11/4/18	1630	486-488	1				X					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKeone			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 06Nov18 TIME: 1800	DATE: 11/7/18 TIME: 0900	DATE TIME	DATE TIME

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7735 4208 1395 COC2-SH-PTS-20181106

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, Albuquerque, NM, 87102 (CITY / ZIP CODE)

PROJECT MANAGER: Bernie Bockisch (email)

PROJECT NAME: Kirtland Vadose Zone Coring

PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017

FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ✓ TEMP(F) 28.1

PTS QUOTE NO.

PTS FILE: 48244

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓ GW-54-041118-492	11/4/18	1630	492-493	1	—	—	—	X	—				

1. RELINQUISHED BY: Kevin McKenzie — COMPANY: EA — DATE: 06NOV18 — TIME: 1800

2. RECEIVED BY: — COMPANY: PTS Laboratories, Inc — DATE: 11/7/18 — TIME: 0900

3. RELINQUISHED BY — COMPANY — DATE — TIME

4. RECEIVED BY — COMPANY — DATE — TIME

PTS Laboratories, Inc. • 5730 Centralcrest St. • Houston, TX 77092 • Phone (713) 316-1800 • Fax (877) 225-9953

5730 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

February 15, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48255
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 & 2 - S2-PTS-20181119

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48255
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20181127

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181120													
GUV-S2-161118-489				**490.70-490.90**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
TOTAL # OF SAMPLES		**0.0**			**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PTS Laboratories

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
			SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		PORE FLUID	
SAMPLE	PTS	DEPTH,	ORIENTATION	CONTENT,	DRY BULK,	GRAIN,		AIR	SATURATIONS, % Pv (3)	
ID.	Plug ID	ft.	(1)	% weight	g/cc	g/cc	TOTAL	FILLED	WATER	NAPL
GUV-S2-161118-489 (490.70-490.90)	1	490.75	H	13.9	1.55	2.62	41.1	19.3	50.6	2.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S2-161118-489 (490.70-490.90)	490.75	H	20181220	62.6	58.86	1.54	2.63	41.6	68.5	0.02	16.9	0.02

NOTE: No Visible NAPL produced. Produced water clear with strong gasoline odor and florescences under UV light. Sample Intact.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S2-161118-489 (490.70-490.90)	490.80	H	20181221	*Filtered Tap Water	0.9920	68.0	879.110	8.11E-04	8.68E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S2-161118-489 (490.70-490.90)	490.80	H	20181221	1.36	2.63	48.4	51.4	2.8	54.1	2.8

NOTE: No visible NAPL produced; 8.5 pore volumes (250ml) of water injected. Produced water - clear yellow with strong hydrocarbon odor. Sample intact, small spotted fluorescense on sample teflon tape but none on the screens.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S2-161118-489 (490.70-490.90)	490.80	H	20181224	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7697	69.4	206.772	2.53E-04	2.04E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

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PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-S2-161118-489	490.75	H	11.1	1.98	2.65	25.1	3.1	87.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PTS Laboratories

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-S2-161118-489	490.75	H	216	13.862	1.31E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Groundwater (GW150-031218).

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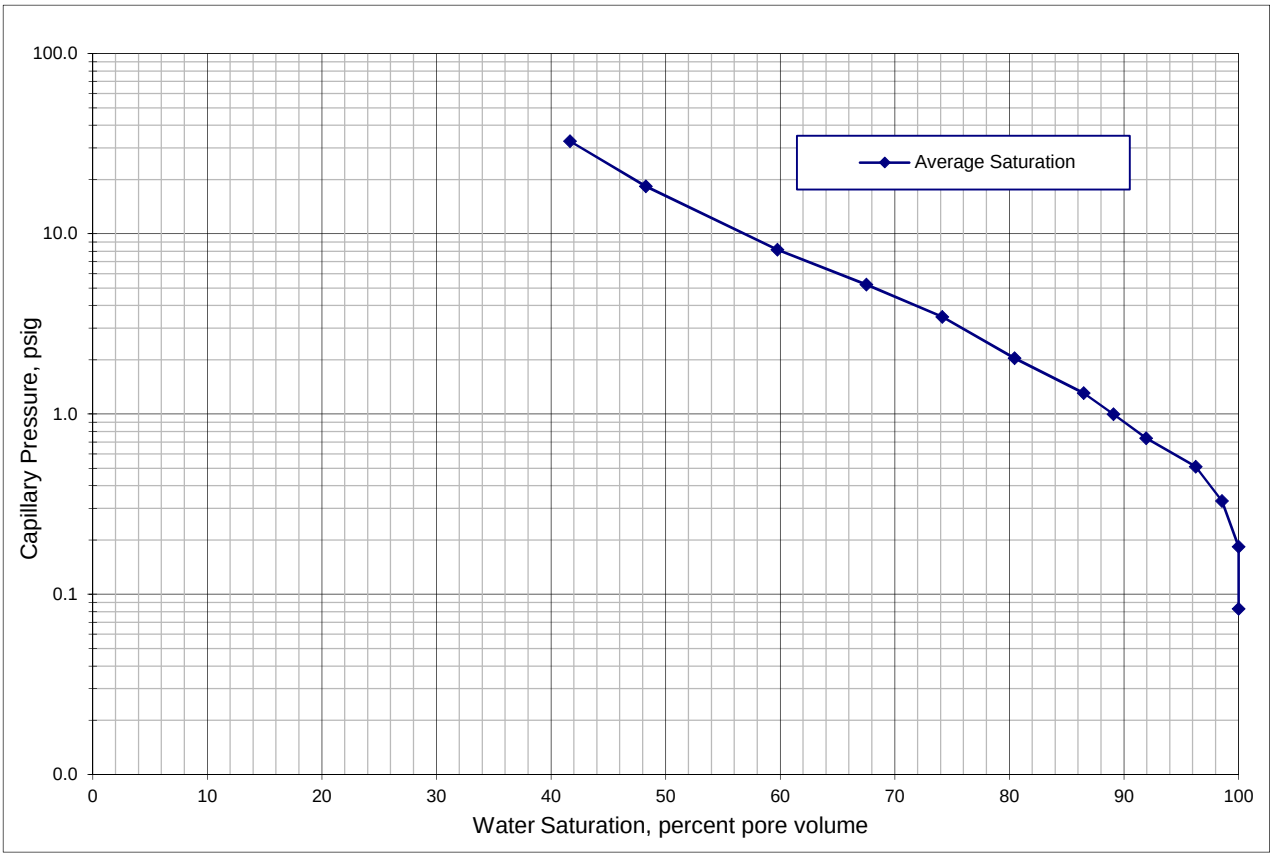
PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S2-161118-489 (490.70-490.90) at 490.75 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	11.0
0.083	5.85	0.192	100.0	11.0
0.183	12.9	0.424	100.0	11.0
0.329	23.2	0.762	98.6	10.9
0.509	35.8	1.18	96.3	10.6
0.734	51.6	1.70	92.0	10.2
0.999	70.2	2.31	89.1	9.8
1.30	91.7	3.02	86.5	9.6
2.04	143	4.72	80.5	8.9
3.45	243	7.99	74.1	8.2
5.22	367	12.1	67.5	7.5
8.17	574	18.9	59.8	6.6
18.3	1289	42.4	48.3	5.3
32.6	2292	75.5	41.7	4.6



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PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S2-161118-489	490.85	H	16.9	1.59	2.66	40.2	11.3	71.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S2-161118-489	490.85	H	20190128	140	1.20E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 67.1°F: Viscosity = 0.7878 cP; Density = 0.7265 g/cc.

PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

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PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S2-161118-489 at 490.85ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.023	1.63	0.196	100.0	0.0
0.051	3.57	0.429	100.0	0.0
0.089	6.27	0.753	99.8	0.2
0.139	9.80	1.18	99.3	0.7
0.201	14.11	1.69	98.3	1.7
0.273	19.20	2.31	97.4	2.6
0.357	25.08	3.01	96.3	3.7
0.559	39.34	4.72	91.3	8.7
0.942	66.22	7.95	82.0	18.0
1.427	100.30	12.0	73.9	26.1
2.229	156.72	18.8	65.2	34.8
5.02	353.10	42.4	47.9	52.1
8.92	626.90	75.3	39.2	60.8

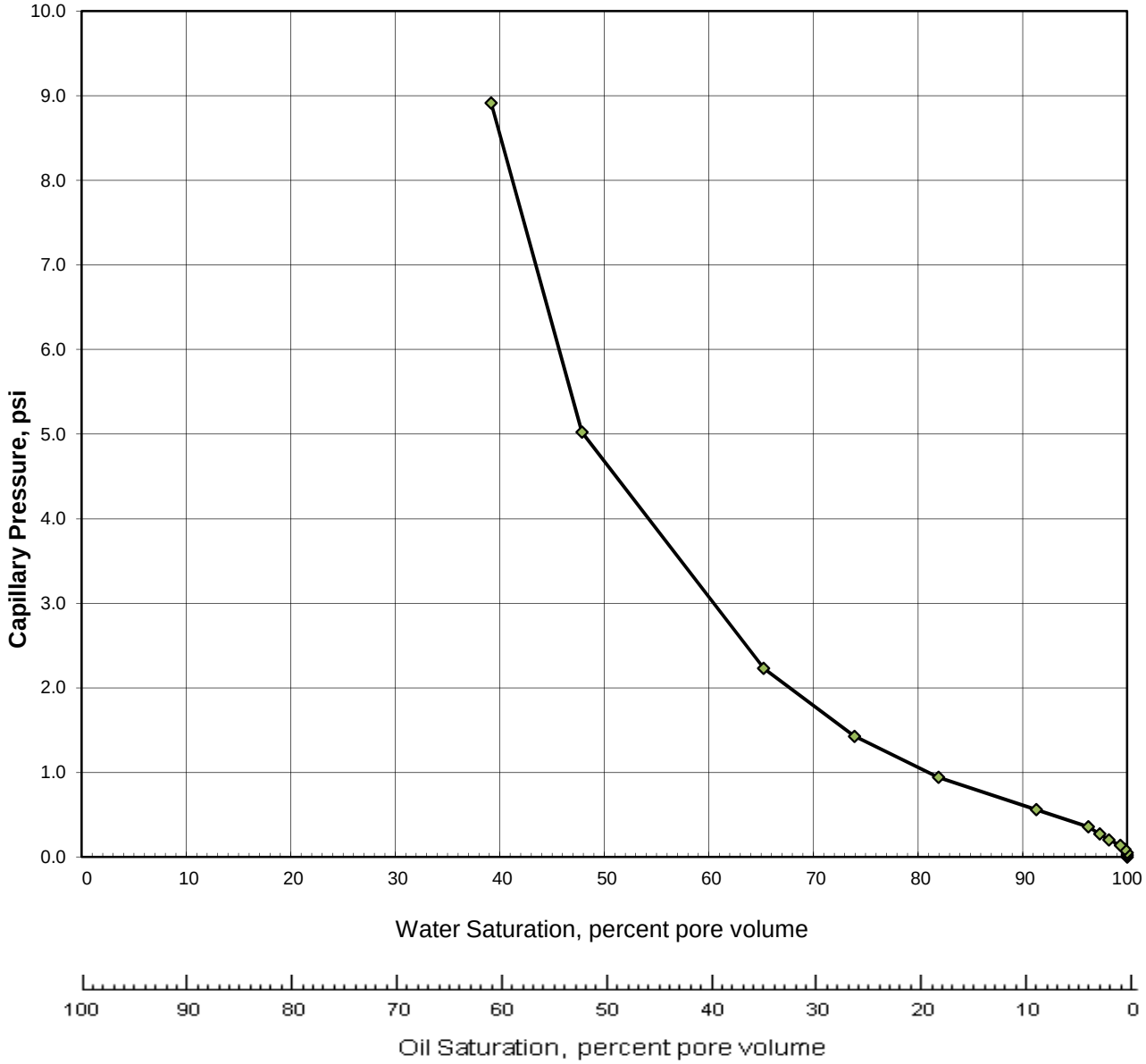
Effective Permaeability to Water, mD.: 100.890

Hydraulic Conductivity, cm/sec: 9.95E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S2-161118-489**
Depth, ft:- **490.85**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



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PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
GUV-S2-161118-489	490.85	V	16.9	1.59	2.66	40.2	11.3	71.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

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PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S2-161118-489	490.85	V	20190128	140	1.20E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 67.1°F: Viscosity = 0.7878 cP; Density = 0.7265 g/cc.

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PTS File No: 48255
Client: EA Engineering, Science and Technology
Report Date: 02/12/19

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: **GUV-S2-161118-489 at 490.85ft** Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	39.2	60.8
-0.040	2.80	0.337	39.2	60.8
-0.086	6.06	0.728	39.8	60.2
-0.153	10.78	1.295	44.6	55.4
-0.240	16.8	2.02	64.2	35.8
-0.345	24.3	2.91	65.9	34.1
-0.470	33.0	3.96	66.8	33.2
-0.613	43.1	5.18	67.4	32.6
-0.958	67.4	8.09	68.1	31.9
-1.620	114	13.67	68.5	31.5
-2.453	172	20.7	68.9	31.1
-3.833	270	32.4	69.2	30.8
-8.62	606	72.8	69.6	30.4
-15.33	1078	129.5	70.2	29.8

Effective Permaeability to Water, mD.: 100.89

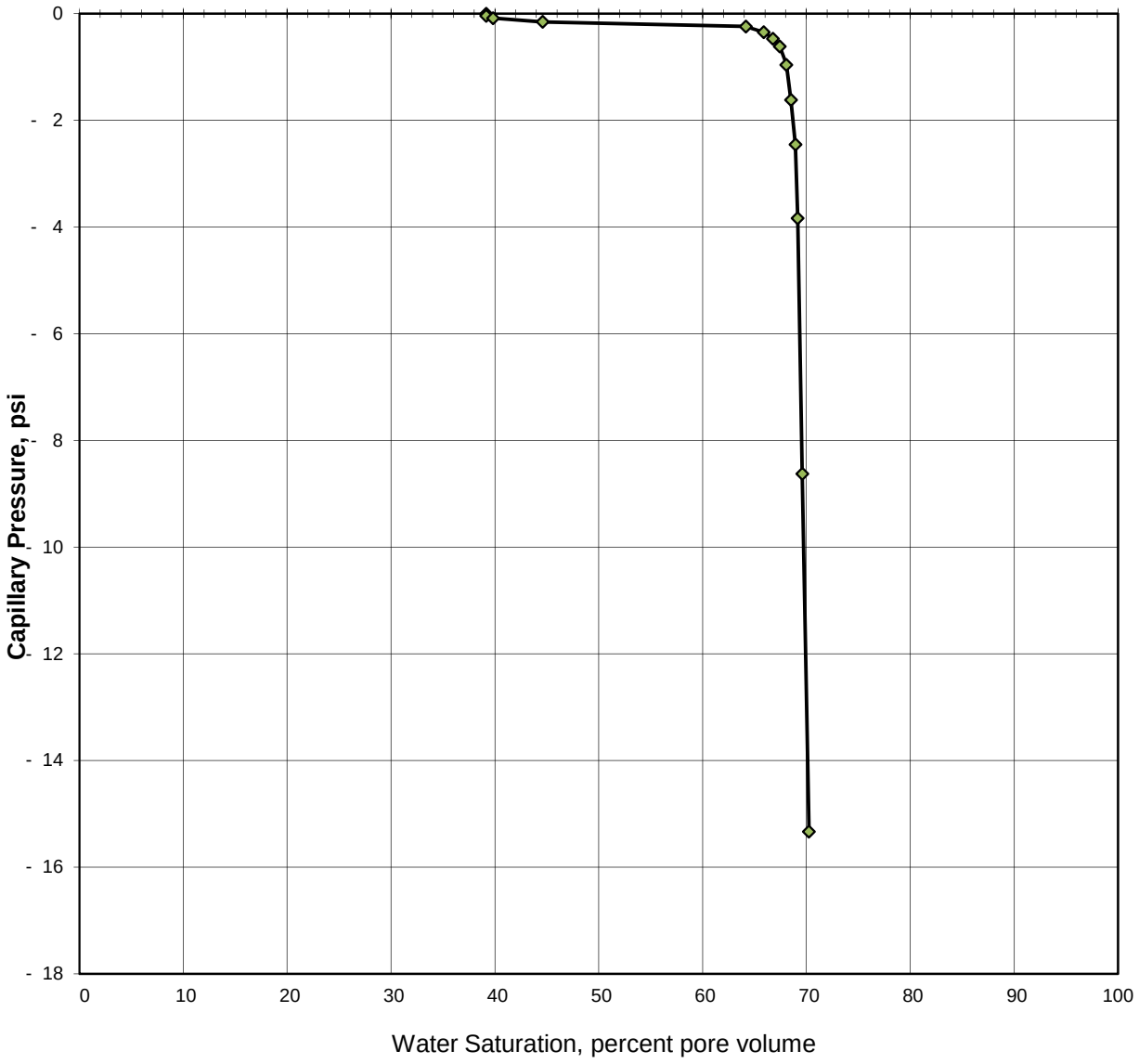
Hydraulic Conductivity, cm/sec: 9.95E-05

EA Engineering, Science
and Technology.
PTS File No.: 48255

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S2-161118-489
Depth, ft.: 490.85



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-S2-161118-489	490.7-490.9	Fine Sand	0.307	6.35	2.66	19.67	63.69	7.63

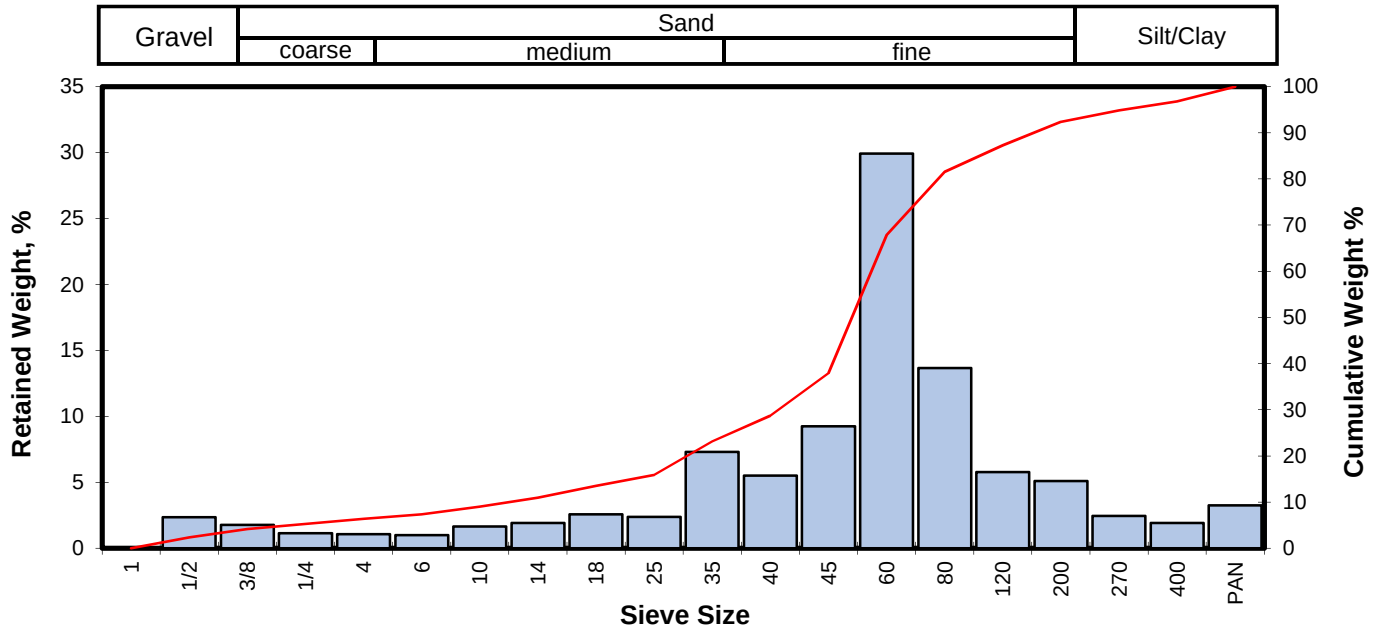
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48255
Sample ID: GUV-S2-161118-489
Depth, ft: 490.7-490.9



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	5.00	2.35	2.35
0.3740	9.500	-3.25	3/8	3.78	1.78	4.13
0.2500	6.351	-2.67	1/4	2.43	1.14	5.27
0.1873	4.757	-2.25	4	2.29	1.08	6.35
0.1324	3.364	-1.75	6	2.14	1.01	7.36
0.0787	2.000	-1.00	10	3.52	1.66	9.01
0.0557	1.414	-0.50	14	4.09	1.92	10.94
0.0394	1.000	0.00	18	5.46	2.57	13.51
0.0278	0.707	0.50	25	5.04	2.37	15.88
0.0197	0.500	1.00	35	15.51	7.30	23.18
0.0166	0.420	1.25	40	11.70	5.50	28.68
0.0139	0.354	1.50	45	19.66	9.25	37.93
0.0098	0.250	2.00	60	63.59	29.92	67.85
0.0070	0.177	2.50	80	29.03	13.66	81.51
0.0049	0.125	3.00	120	12.27	5.77	87.28
0.0029	0.074	3.75	200	10.81	5.09	92.37
0.0021	0.053	4.25	270	5.22	2.46	94.82
0.0015	0.037	4.75	400	4.10	1.93	96.75
			PAN	6.90	3.25	100.00
TOTALS				212.54	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-2.81	0.2754	6.995
10	-0.74	0.0659	1.675
16	0.51	0.0277	0.703
25	1.08	0.0186	0.472
40	1.53	0.0136	0.345
50	1.70	0.0121	0.307
60	1.87	0.0108	0.274
75	2.26	0.0082	0.209
84	2.72	0.0060	0.152
90	3.40	0.0037	0.095
95	4.30	0.0020	0.051

Measure	Trask	Inman	Folk-Ward
Median, phi	1.70	1.70	1.70
Median, in.	0.0121	0.0121	0.0121
Median, mm	0.307	0.307	0.307
Mean, phi	1.56	1.61	1.64
Mean, in.	0.0134	0.0129	0.0126
Mean, mm	0.340	0.327	0.320
Sorting	1.505	1.104	1.628
Skewness	1.021	-0.081	-0.175
Kurtosis	0.083	2.217	2.469
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	6.35
Coarse Sand	10	2.66
Medium Sand	40	19.67
Fine Sand	200	63.69
Silt/Clay	<200	7.63
	Total	100

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Phone: (713) 316-1800

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Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48255***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COC 1 -S2-PTS-20181119 & COC 2 -S2-PTS-20181119**		

TEST PROGRAM - 20181120

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181120					
GUV-S2-161118-489	**489-491**	**2.0**	**2.0**		
GUV-S2-161118-491	**491-493**	**2.0**	**2.0**		
TOTALS:	**2 Bags**	**4.0**	**4.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

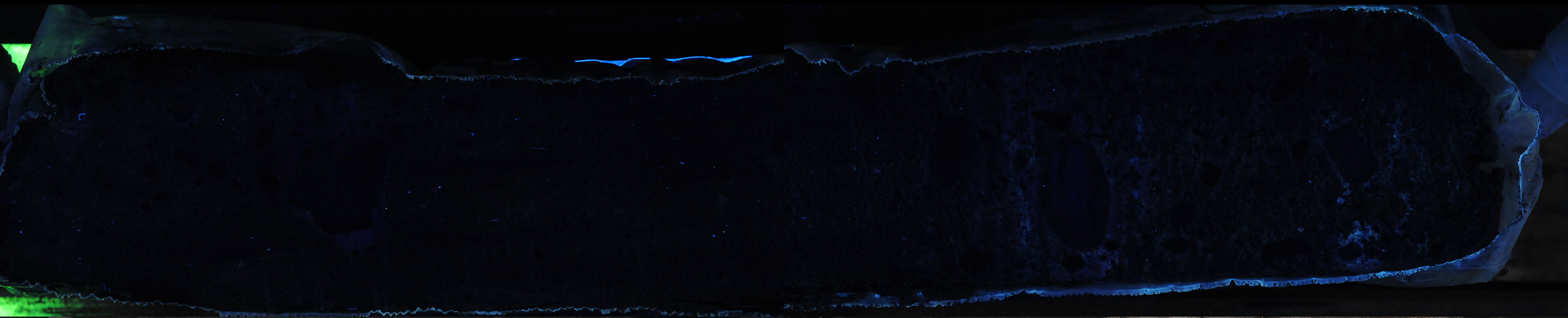
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48255

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48255





489.0 490.0

Each Interval Equals One Tenth of a Foot

490.0 491.0

Each Interval Equals One Tenth of a Foot

Boring ID.: GUV-S2-161118-489

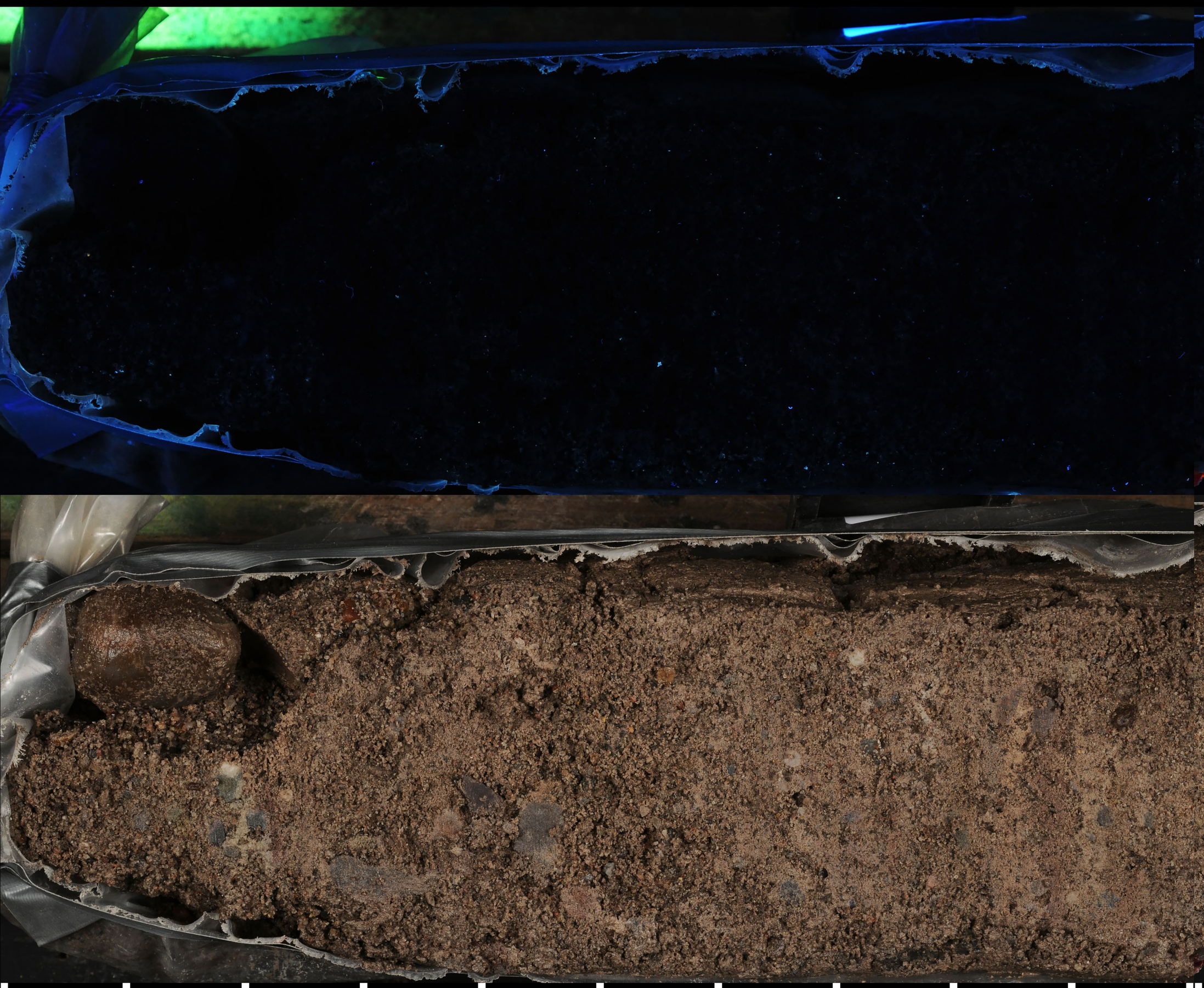
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: GUV-S2-161118-489

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48255



491.0

492.0

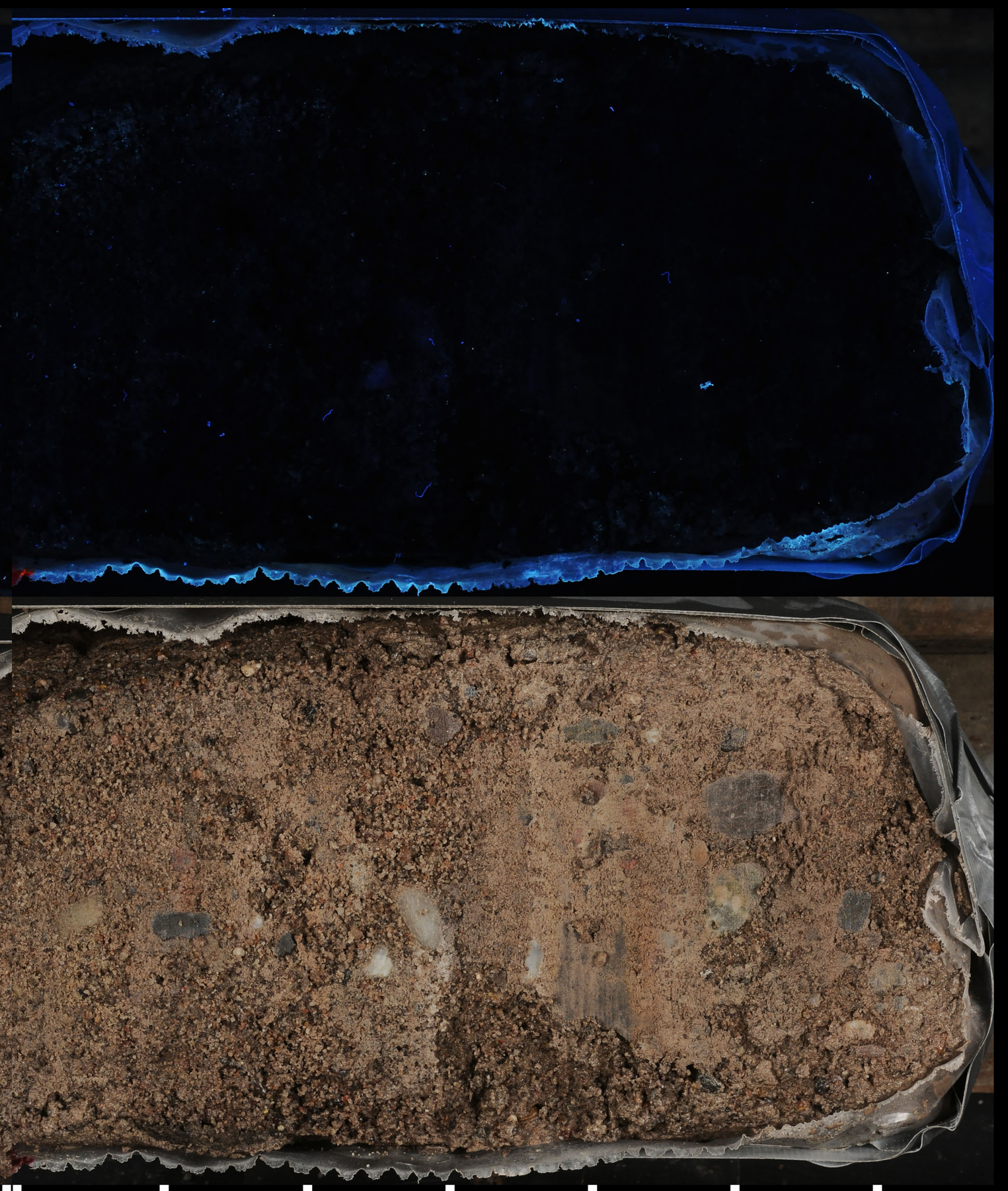
Each Interval Equals One Tenth of a Foot

Boring ID.: GUV-S2-161118-491

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48255



492.0

493.0

Each Interval Equals One Tenth of a Foot

Boring ID.: GUV-S2-161118-491

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

PTS Laboratories, Inc. 7735 4208 1020

CHAIN OF CUSTODY RECORD

COC1-52-PTS-20181119

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: Per PO

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 29.5

PTS QUOTE NO.

PTS FILE: 48255

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GW-52-161118-489	11/16/18	~~1630~~ 1740	489-491	1				X					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKaye			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE / TIME: 11/19/18 1800	DATE / TIME: 11-20-18 1000	DATE / TIME	DATE / TIME

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PTS Laboratories, Inc. 77354208 1042

CoC2-52-PTS-2018 1119

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ✓ TEMP(F) 29.5

PTS QUOTE NO.

PTS FILE: 48255

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GW-52-161118-491	11/16/18	1440	491-493	1	—	—	—	X	—				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 11/19/18 TIME: 1800	DATE: 11-20-18 TIME: 1000	DATE TIME	DATE TIME

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February 15, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48262
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 & 2 – S3-PTS-20181121

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48262
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20181129

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181127													
GUV-S3-211118-492	**492-494**	**2.0**	**2**	**493.0-493.5**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-S3-211118-494	**492-494**	**2.0**	**2**	**495.6-495.9**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
TOTAL # OF SAMPLES		**4.0**			**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
					DENSITY		POROSITY, %Vb (2)		PORE FLUID SATURATIONS, % Pv (3)	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	WATER	NAPL
GUV-S3-211118-492	1	493.20	H	9.5	1.77	2.65	33.0	16.0	49.6	1.9
GUV-S3-211118-494	2	495.7	H	11.1	1.80	2.62	31.3	14.1	52.6	2.4

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S3-211118-492	493.25	H	20181218	62.5	59.70	1.82	2.63	30.7	56.7	0.7	30.2	0.7

NOTE: No Visible NAPL produced. Produced water clear with strong gasoline odor and florescences slightly under UV light. Sample Intact with some fines produced.

GUV-S3-211118-494	495.70	H	20181218	59.1	56.41	1.80	2.63	31.6	57.6	1.2	34.3	1.2

NOTE: No Visible NAPL produced. Produced water clear with strong gasoline odor and florescences slightly under UV light. Sample Intact with some fines produced.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S3-211118-492	493.25	H	20181218	*Filtered Tap Water	0.9507	73.0	123.048	1.22E-04	1.21E-09
GUV-S3-211118-494	495.8	H	20181218	*Filtered Tap Water	0.9507	73.0	18.298	1.82E-05	1.81E-10

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S3-211118-492	493.25	H	20181218	1.78	2.63	32.4	48.4	6.0	58.9	6.0

NOTE: No Visible NAPL produced; 12.48 pore volumes (250ml) of water injected. Produced water - light yellow with strong hydrocarbon odor. Sample intact, spotted fluorescense on tape only.

GUV-S3-211118-494	495.80	H	20181218	1.93	2.62	26.5	74.5	9.4	79.5	9.4

NOTE: No Visible NAPL produced; 16.81 pore volumes (250ml) of water injected. Produced water - light yellow with strong hydrocarbon odor. Sample intact, spotted faint fluorescense on tape only with faint ordor.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial DNAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual DNAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S3-211118-492	493.20	H	20180614	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7674	69.7	306.105	3.76E-04	3.02E-09
GUV-S3-211118-494	495.80	H	20180614	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7592	70.8	46.16	5.74E-05	4.56E-10

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

METHODS:			API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
GUV-S3-211118-492	493.10	H	10.7	1.70	2.64	35.8	17.5	51.1
GUV-S3-211118-494	495.65	H	13.4	1.77	2.63	32.7	9.0	72.4

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-S3-211118-492	493.10	H	1395	10.9	1.04E-05
GUV-S3-211118-494	495.65	H	571	2.01	1.94E-06

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Ground water (GW150-031218).

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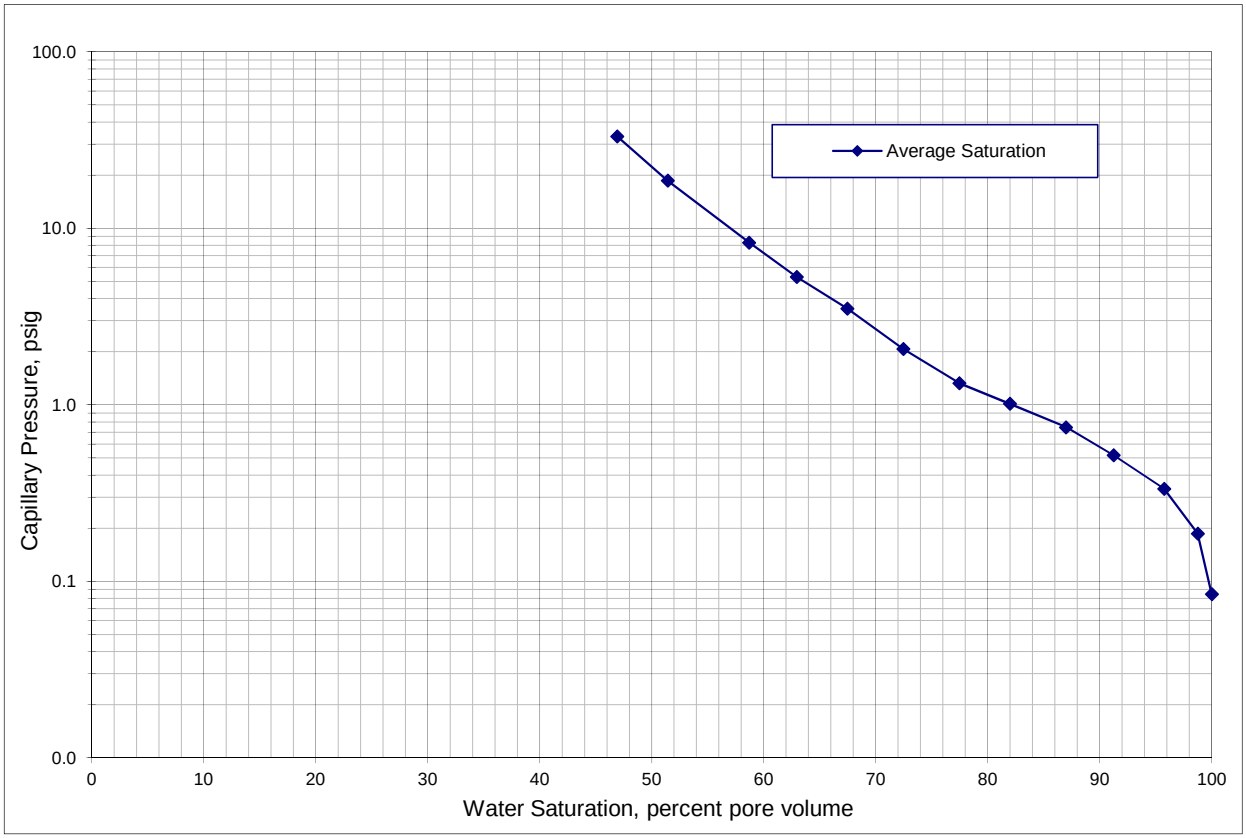
PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S3-211118-492 (493.00-493.50) at 493.10 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	13.0
0.085	5.95	0.196	100.0	13.0
0.187	13.1	0.432	98.7	12.9
0.335	23.6	0.775	95.7	12.5
0.518	36.4	1.20	91.2	11.9
0.746	52.5	1.73	87.0	11.3
1.016	71.4	2.35	82.0	10.7
1.33	93.3	3.07	77.5	10.1
2.07	146	4.80	72.5	9.4
3.51	247	8.13	67.5	8.8
5.31	373	12.3	62.9	8.2
8.31	584	19.2	58.7	7.6
18.7	1312	43.2	51.4	6.7
33.2	2332	76.8	46.9	6.1



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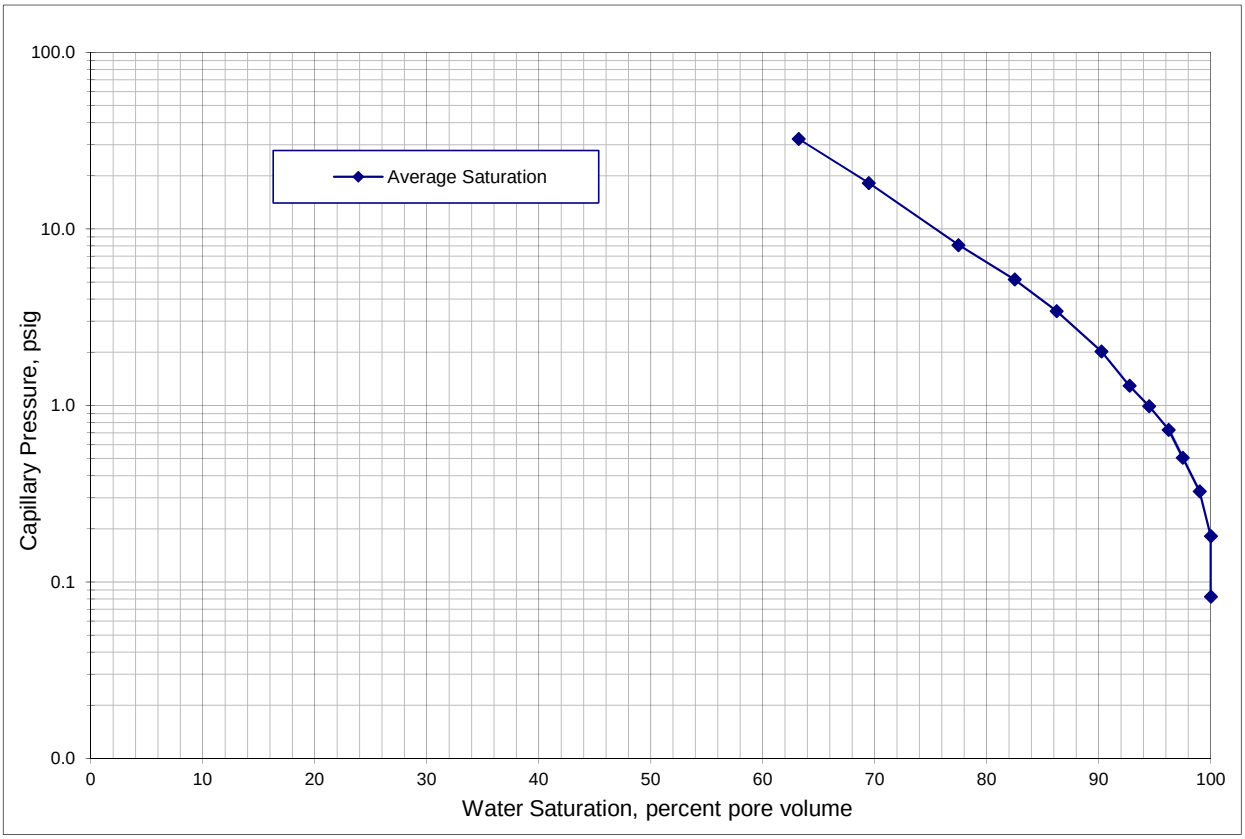
PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S3-211118-494 (495.60-495.90) at 495.65 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	13.5
0.083	5.80	0.191	100.0	13.5
0.182	12.8	0.421	100.0	13.5
0.327	23.0	0.756	99.0	13.4
0.506	35.5	1.17	97.5	13.2
0.728	51.2	1.68	96.2	13.0
0.991	69.7	2.29	94.5	12.8
1.29	91.0	3.00	92.7	12.5
2.02	142	4.68	90.2	12.2
3.43	241	7.93	86.2	11.6
5.18	364	12.0	82.5	11.1
8.11	570	18.8	77.5	10.5
18.2	1280	42.1	69.5	9.4
32.4	2275	74.9	63.2	8.5



PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-S3-211118-492	493.1	H	11.3	1.82	2.62	30.6	3.5	88.6
GUV-S3-211118-494	495.65	H	11.9	1.88	2.63	28.5	2.0	93.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S3-211118-492	493.10	H	20190129	709.67	6.13E-04
GUV-S3-211118-494	495.65	H	20190129	91.25	7.98E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 67.8°F: Viscosity = 0.7822 cP; Density = 0.7261 g/cc.

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S3-211118-492 at 493.10ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.024	1.67	0.201	100.0	0.0
0.052	3.67	0.441	100.0	0.0
0.092	6.44	0.773	97.6	2.4
0.143	10.06	1.21	94.0	6.0
0.206	14.48	1.74	90.4	9.6
0.280	19.71	2.37	85.5	14.5
0.366	25.75	3.09	81.9	18.1
0.574	40.39	4.85	77.1	22.9
0.967	67.98	8.16	71.1	28.9
1.465	102.98	12.4	66.3	33.7
2.289	160.91	19.3	62.7	37.3
5.16	362.53	43.5	55.4	44.6
9.15	643.64	77.3	51.8	48.2

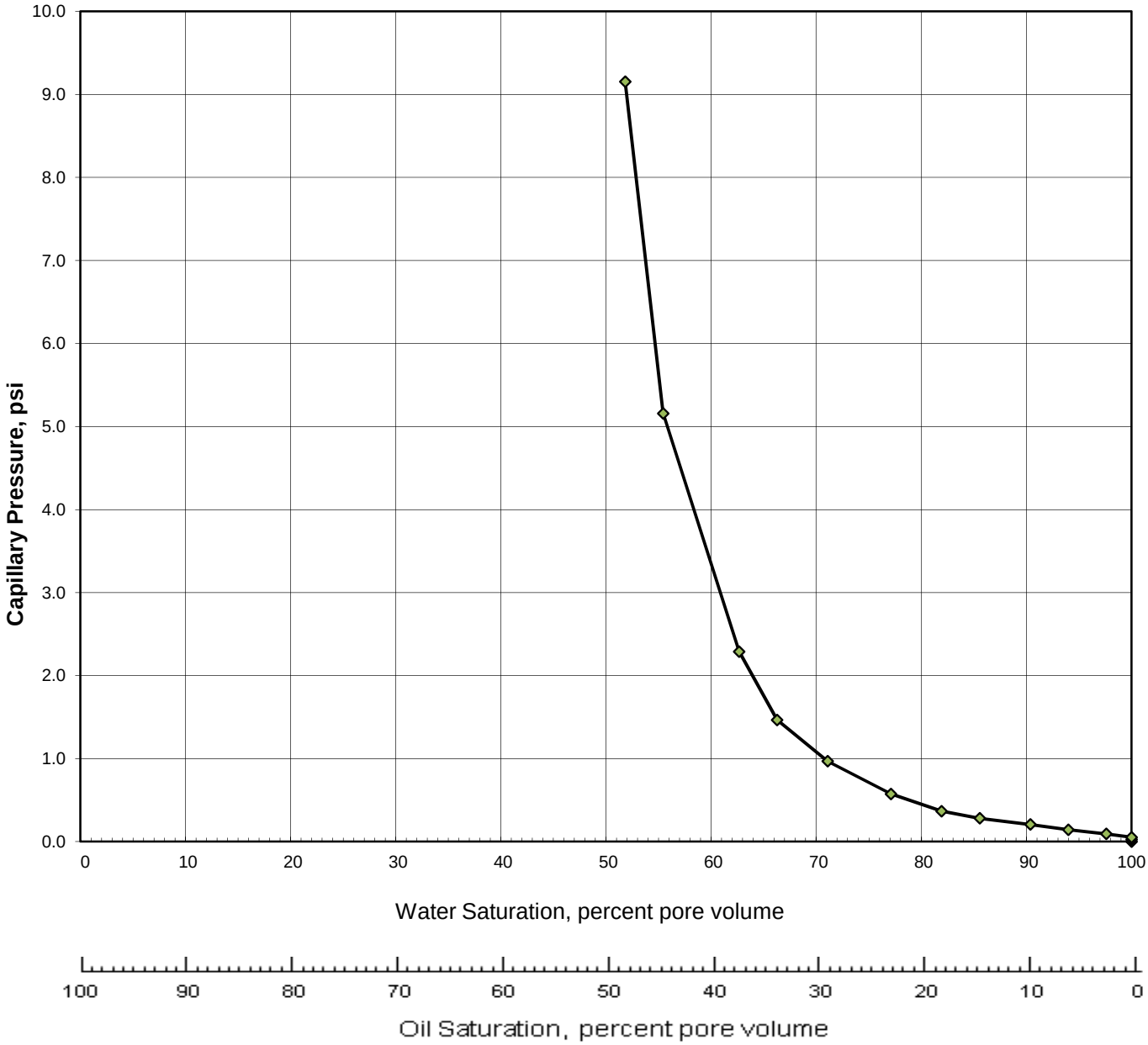
Effective Permaeability to Water, mD.: 18.380

Hydraulic Conductivity, cm/sec: 1.79E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S3-211118-492**
Depth, ft:- **493.10**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S3-211118-494 at 495.65ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.024	1.66	0.200	100.0	0.0
0.052	3.64	0.437	97.5	2.5
0.091	6.39	0.767	95.0	5.0
0.142	9.99	1.20	93.8	6.2
0.205	14.38	1.73	91.3	8.7
0.278	19.57	2.35	90.1	9.9
0.364	25.56	3.07	88.1	11.9
0.570	40.10	4.82	85.8	14.2
0.960	67.51	8.11	82.6	17.4
1.454	102.26	12.3	80.1	19.9
2.272	159.78	19.2	77.7	22.3
5.12	359.98	43.2	70.2	29.8
9.09	639.10	76.7	65.2	34.8

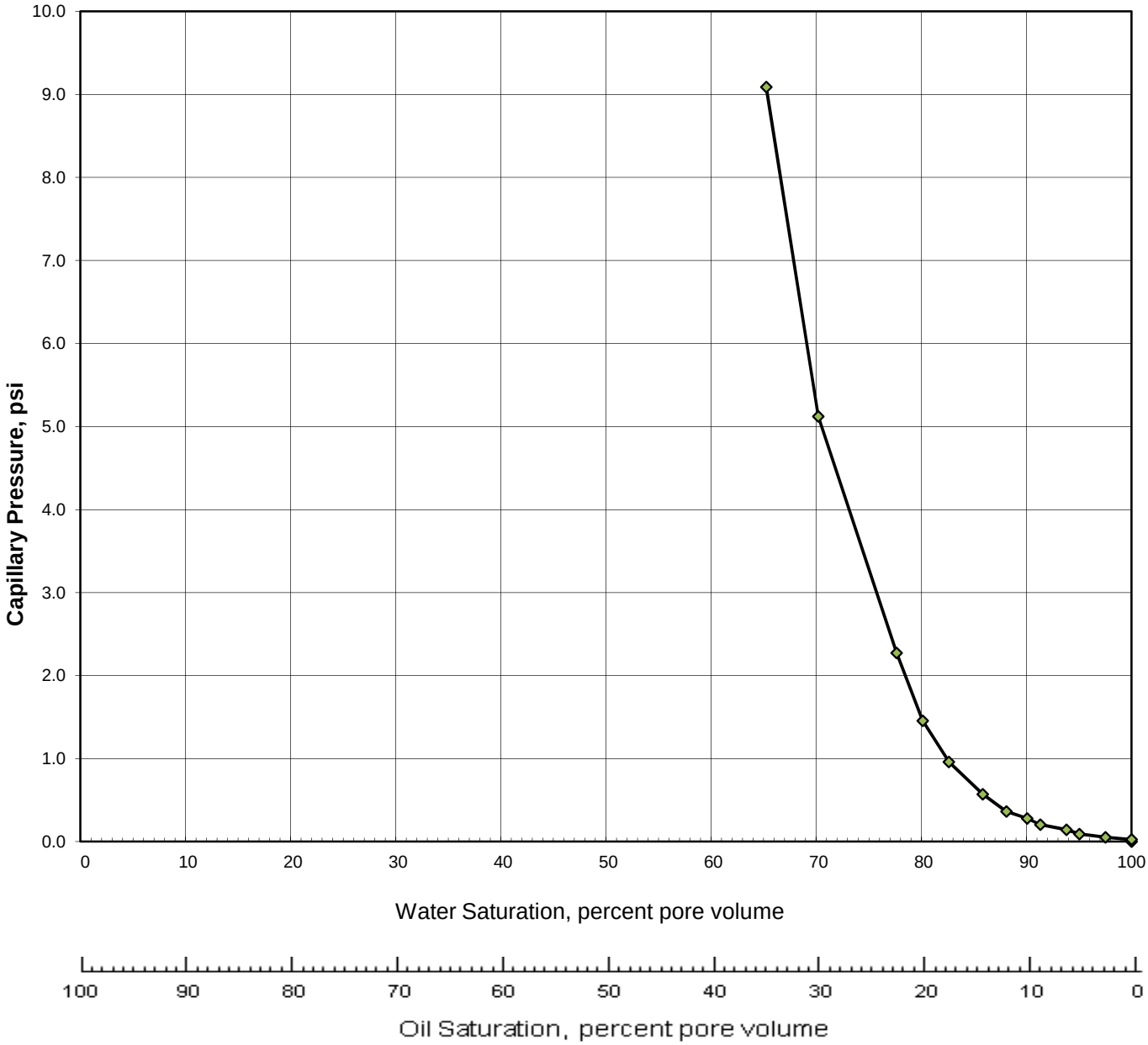
Effective Permaeability to Water, mD.: 6.908

Hydraulic Conductivity, cm/sec: 6.02E-06

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S3-211118-494**
Depth, ft:- **495.65**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S3-211118-492	493.1	H	11.3	1.82	2.62	30.6	3.5	88.6
GUV-S3-211118-494	495.65	H	11.9	1.88	2.63	28.5	2.0	93.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S3-211118-492	493.10	H	20190129	709.67	6.13E-04
GUV-S3-211118-494	495.65	H	20190129	91.25	7.98E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 67.8°F: Viscosity = 0.7822 cP; Density = 0.7261 g/cc.

PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S3-211118-492 at 493.10ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	51.8	48.2
-0.041	2.87	0.344	51.8	48.2
-0.088	6.20	0.744	52.6	47.4
-0.157	11.02	1.323	57.9	42.1
-0.245	17.2	2.07	79.5	20.5
-0.353	24.8	2.98	81.5	18.5
-0.480	33.8	4.05	82.4	17.6
-0.627	44.1	5.29	83.1	16.9
-0.980	68.9	8.27	83.9	16.1
-1.656	116	13.98	84.3	15.7
-2.508	176	21.2	84.8	15.2
-3.919	276	33.1	85.1	14.9
-8.82	620	74.4	85.5	14.5
-15.67	1102	132.3	86.3	13.7

Effective Permaeability to Water, mD.: 18.38

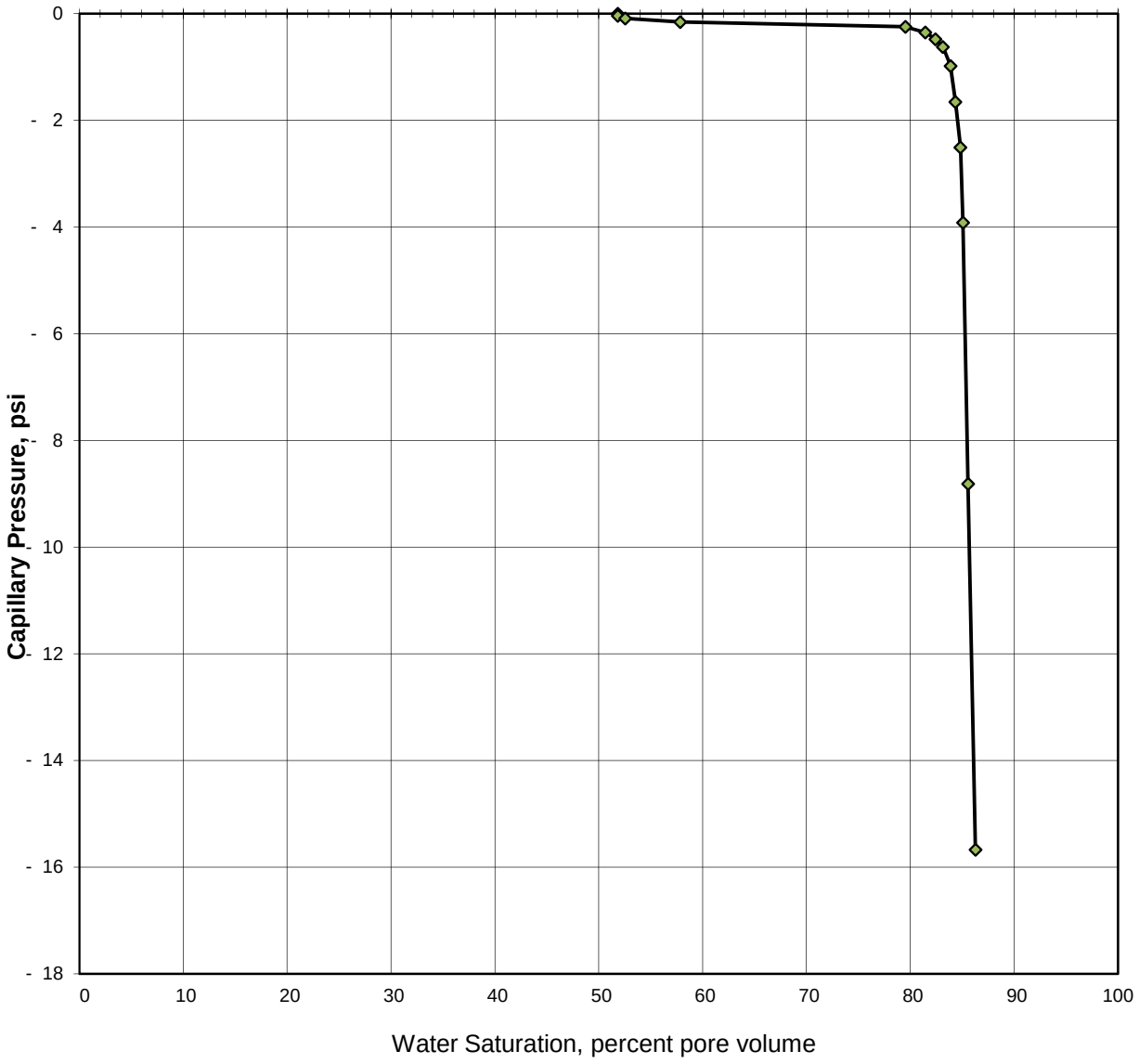
Hydraulic Conductivity, cm/sec: 1.79E-05

EA Engineering, Science
and Technology.
PTS File No.: 48262

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S3-211118-492
Depth, ft.: 493.10



PTS File No: 48262
Client: EA Engineering, Science and Technology
Report Date: 02/14/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S3-211118-494 at 495.65ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	65.7	34.3
-0.040	2.84	1.415	65.7	34.3
-0.087	6.15	3.060	68.0	32.0
-0.155	10.9	5.439	70.7	29.3
-0.243	17.1	8.50	73.4	26.6
-0.350	24.6	12.24	74.4	25.6
-0.476	33.5	16.66	75.2	24.8
-0.622	43.7	21.76	76.4	23.6
-0.971	68.3	33.99	77.2	22.8
-1.641	115	57.45	77.7	22.3
-2.486	175	87.0	78.2	21.8
-3.885	273	136.0	78.4	21.6
-8.74	615	306.0	78.9	21.1
-15.54	1093	543.9	79.4	20.6

Effective Permaeability to Water, mD.: 6.91

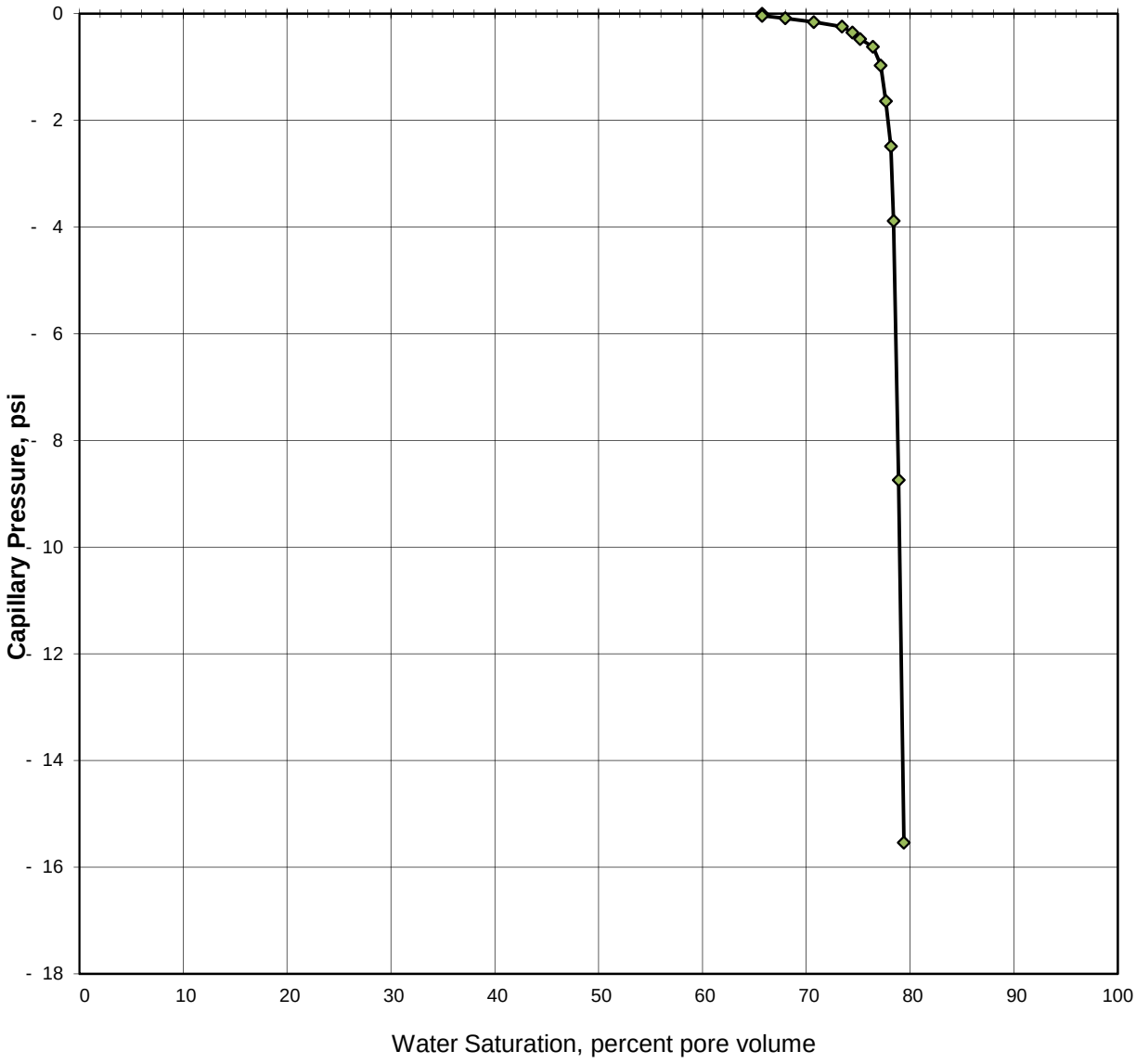
Hydraulic Conductivity, cm/sec: 6.02E-06

EA Engineering, Science and Technology.
PTS File No.: 48262

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S3-211118-494
Depth, ft.: 495.65



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-S3-211118-492	493.0-493.5	Gravel	13.466	68.46	6.75	15.59	7.36	1.84
GUV-S3-211118-494	495.6-495.9	Gravel	7.540	56.32	12.86	19.57	9.21	2.05

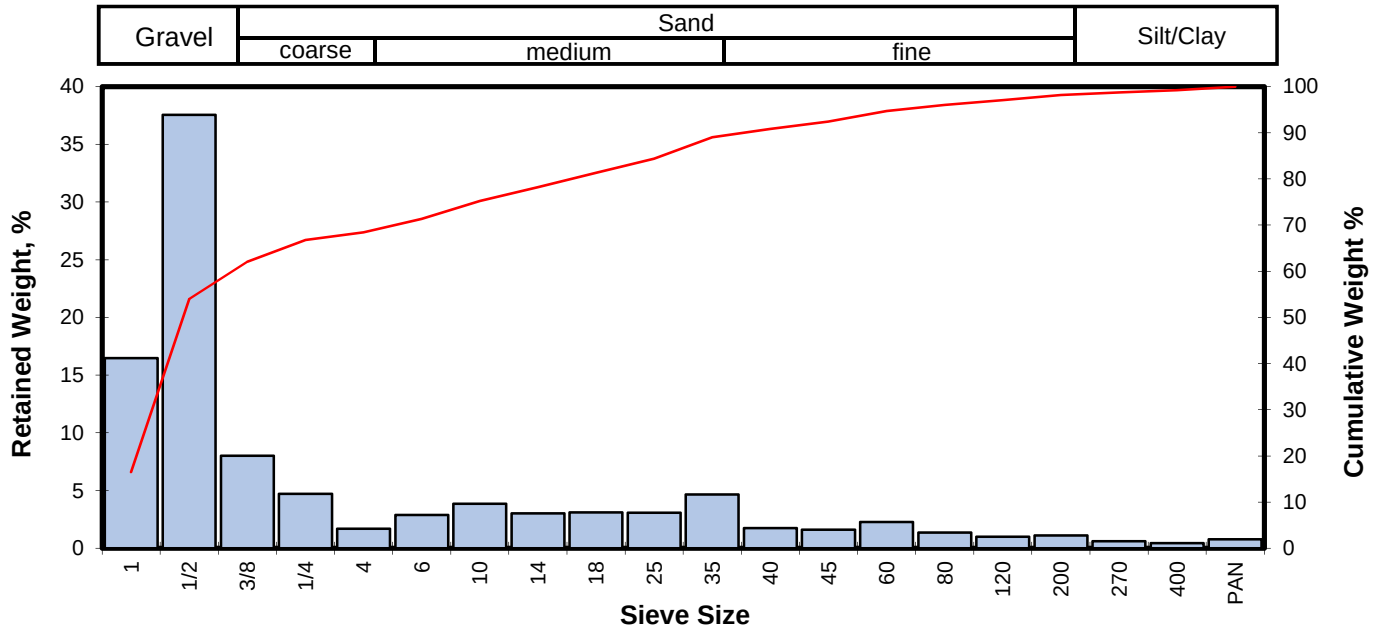
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48262
Sample ID: GUV-S3-211118-492
Depth, ft: 493.0-493.5



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	73.49	16.49	16.49
0.4922	12.501	-3.64	1/2	167.31	37.54	54.02
0.3740	9.500	-3.25	3/8	35.77	8.03	62.05
0.2500	6.351	-2.67	1/4	21.02	4.72	66.76
0.1873	4.757	-2.25	4	7.56	1.70	68.46
0.1324	3.364	-1.75	6	12.83	2.88	71.34
0.0787	2.000	-1.00	10	17.24	3.87	75.21
0.0557	1.414	-0.50	14	13.42	3.01	78.22
0.0394	1.000	0.00	18	13.85	3.11	81.33
0.0278	0.707	0.50	25	13.70	3.07	84.40
0.0197	0.500	1.00	35	20.72	4.65	89.05
0.0166	0.420	1.25	40	7.80	1.75	90.80
0.0139	0.354	1.50	45	7.17	1.61	92.41
0.0098	0.250	2.00	60	10.17	2.28	94.69
0.0070	0.177	2.50	80	6.03	1.35	96.04
0.0049	0.125	3.00	120	4.45	1.00	97.04
0.0029	0.074	3.75	200	4.98	1.12	98.16
0.0021	0.053	4.25	270	2.68	0.60	98.76
0.0015	0.037	4.75	400	2.01	0.45	99.21
			PAN	3.53	0.79	100.00
TOTALS				445.73	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5			
10			
16			
25	-4.42	0.8412	21.366
40	-4.02	0.6377	16.196
50	-3.75	0.5301	13.466
60	-3.35	0.4012	10.190
75	-1.04	0.0810	2.056
84	0.44	0.0291	0.740
90	1.14	0.0179	0.455
95	2.12	0.0091	0.231

Measure	Trask	Inman	Folk-Ward
Median, phi	-3.75	-3.75	-3.75
Median, in.	0.5301	0.5301	0.5301
Median, mm	13.466	13.466	13.466
Mean, phi	-3.55		
Mean, in.	0.4611		
Mean, mm	11.711		
Sorting	3.223		
Skewness	0.492		
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	68.46
Coarse Sand	10	6.75
Medium Sand	40	15.59
Fine Sand	200	7.36
Silt/Clay	<200	1.84
	Total	100

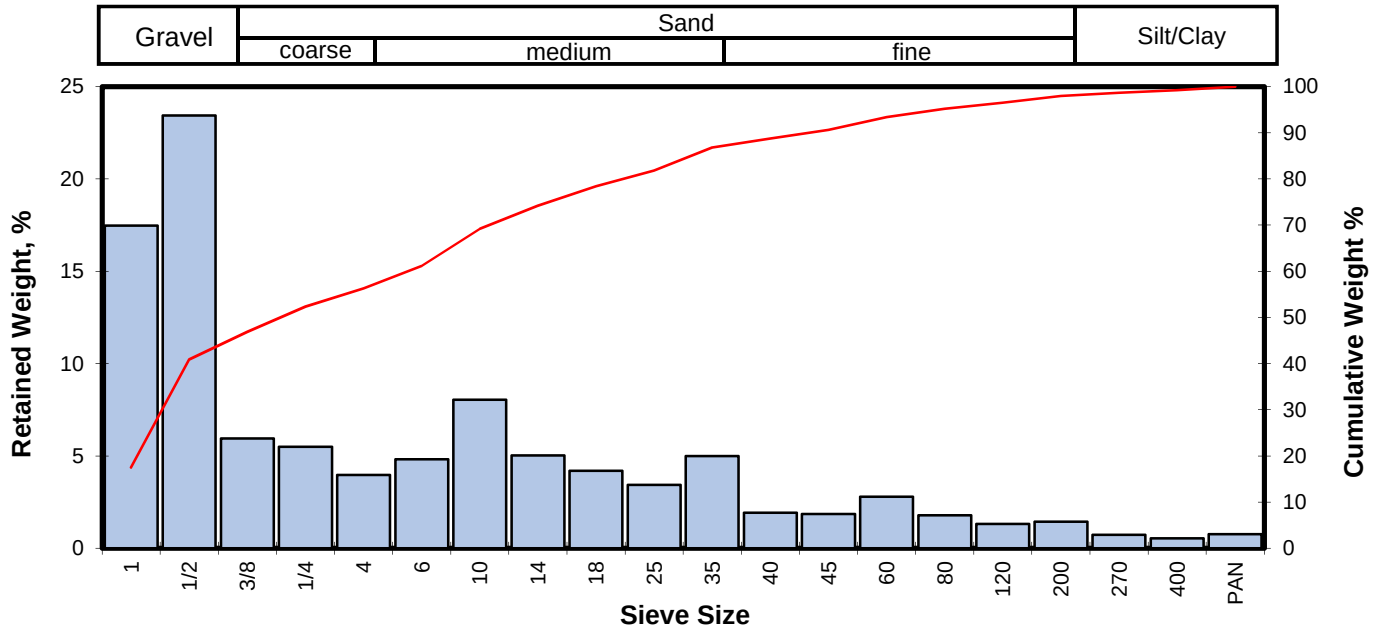
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Phone: (713) 316-1800

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48262
Sample ID: GUV-S3-211118-494
Depth, ft: 495.6-495.9



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	72.89	17.47	17.47
0.4922	12.501	-3.64	1/2	97.72	23.43	40.90
0.3740	9.500	-3.25	3/8	24.81	5.95	46.85
0.2500	6.351	-2.67	1/4	22.93	5.50	52.34
0.1873	4.757	-2.25	4	16.59	3.98	56.32
0.1324	3.364	-1.75	6	20.10	4.82	61.14
0.0787	2.000	-1.00	10	33.54	8.04	69.18
0.0557	1.414	-0.50	14	20.98	5.03	74.21
0.0394	1.000	0.00	18	17.47	4.19	78.39
0.0278	0.707	0.50	25	14.29	3.43	81.82
0.0197	0.500	1.00	35	20.84	5.00	86.82
0.0166	0.420	1.25	40	8.05	1.93	88.75
0.0139	0.354	1.50	45	7.75	1.86	90.60
0.0098	0.250	2.00	60	11.67	2.80	93.40
0.0070	0.177	2.50	80	7.46	1.79	95.19
0.0049	0.125	3.00	120	5.49	1.32	96.50
0.0029	0.074	3.75	200	6.03	1.45	97.95
0.0021	0.053	4.25	270	3.07	0.74	98.69
0.0015	0.037	4.75	400	2.26	0.54	99.23
			PAN	3.22	0.77	100.00
TOTALS				417.16	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5			
10			
16			
25	-4.32	0.7878	20.010
40	-3.68	0.5054	12.838
50	-2.91	0.2968	7.540
60	-1.87	0.1437	3.650
75	-0.41	0.0521	1.324
84	0.72	0.0239	0.608
90	1.42	0.0147	0.374
95	2.45	0.0072	0.183

Measure	Trask	Inman	Folk-Ward
Median, phi	-2.91	-2.91	-2.91
Median, in.	0.2968	0.2968	0.2968
Median, mm	7.540	7.540	7.540
Mean, phi	-3.42		
Mean, in.	0.4200		
Mean, mm	10.667		
Sorting	3.887		
Skewness	0.683		
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	56.32
Coarse Sand	10	12.86
Medium Sand	40	19.57
Fine Sand	200	9.21
Silt/Clay	<200	2.05
	Total	100

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PTS Laboratories

Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48262***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***
COC No:	**COC 1 -S3-PTS-20181121 & COC 2 -S3-PTS-20181121**		

TEST PROGRAM - 20181127

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181127					
GUV-S3-211118-492	**492-494**	**2.0**	**2.0**		LF-1 Freezer
GUV-S3-211118-494	**494-496**	**2.0**	**2.0**		LF-1 Freezer
TOTALS:	**2 Bags**	**4.0**	**4.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

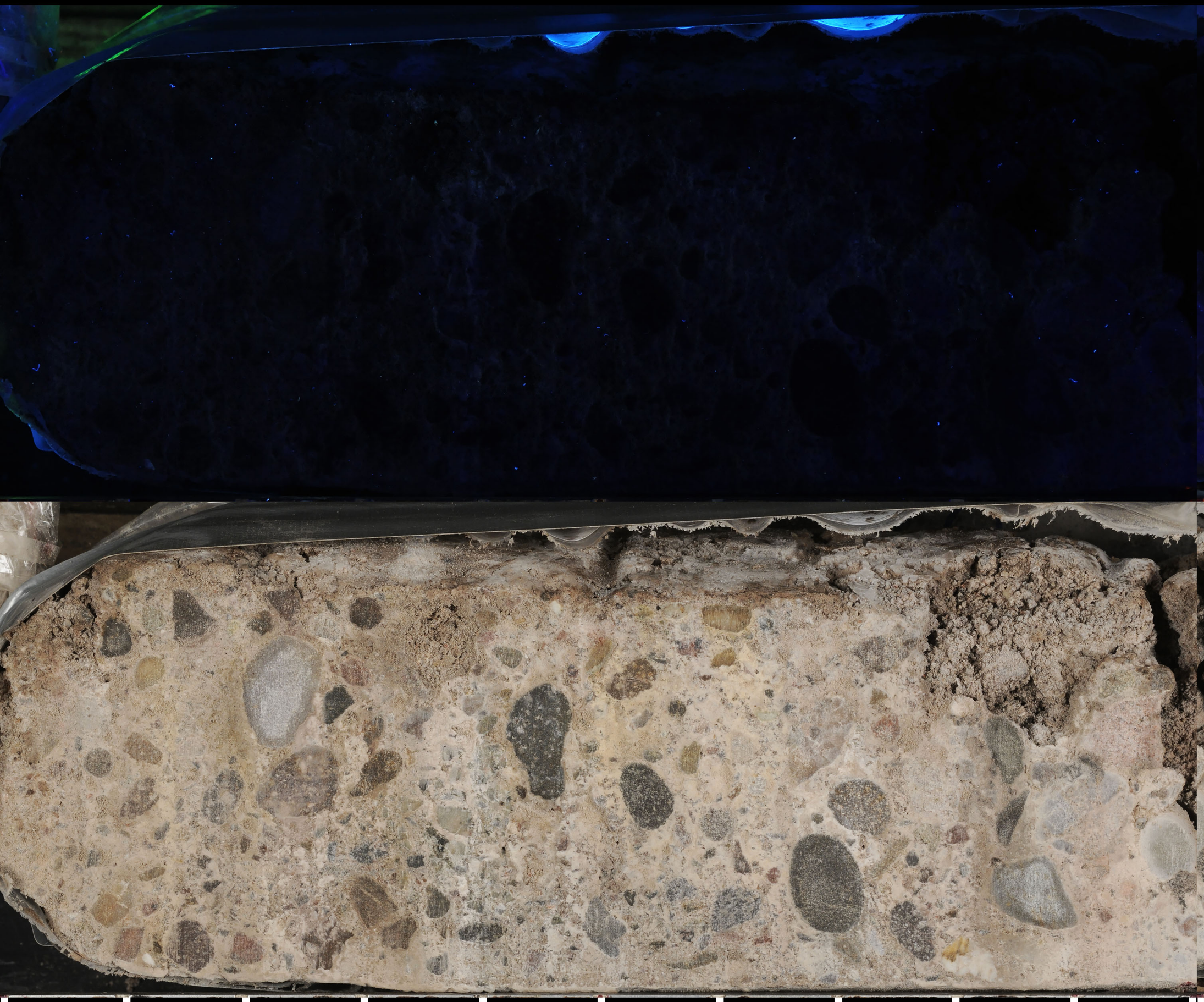
Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48262



492.0

Each Interval Equals One Tenth of a Foot

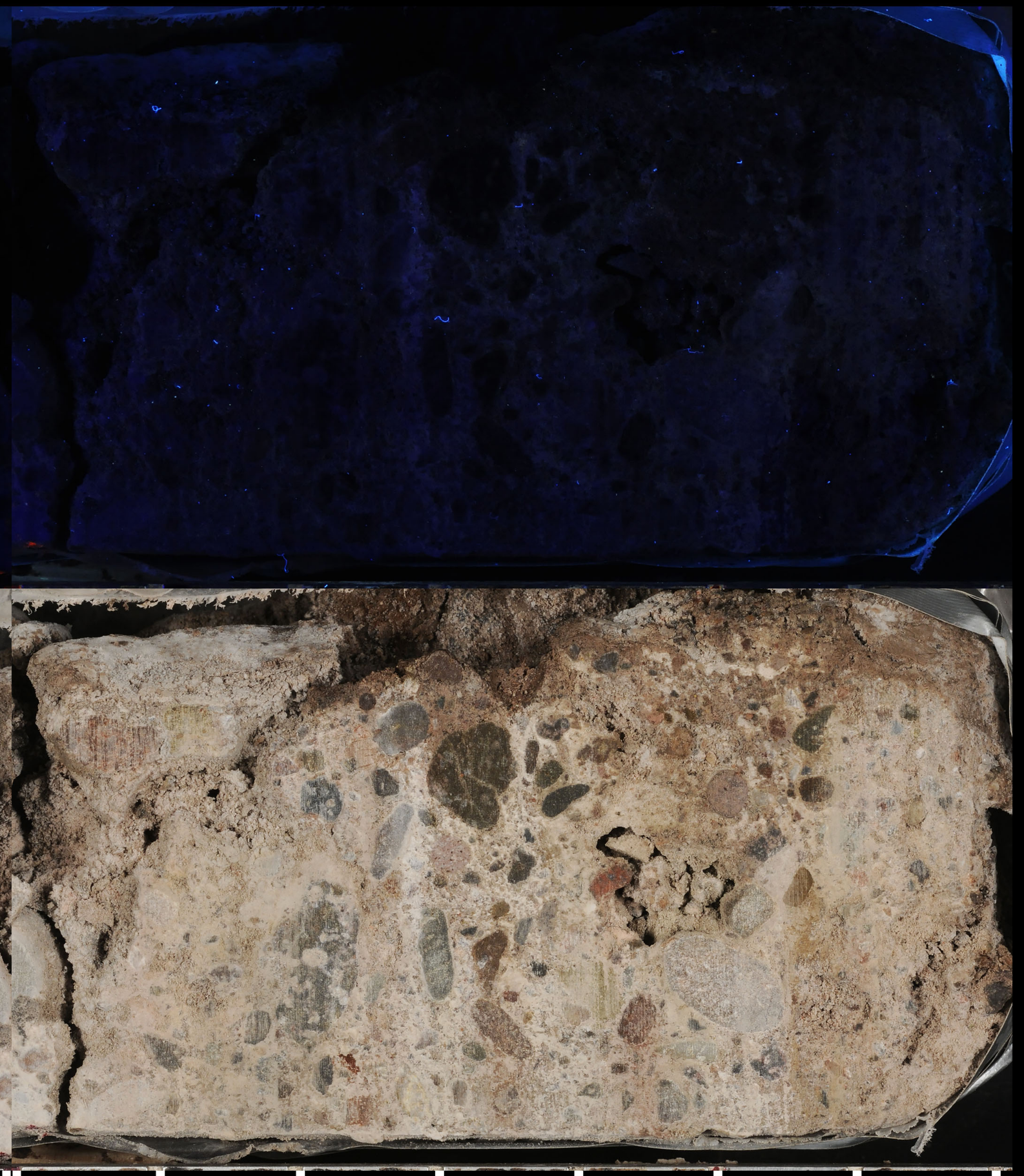
493.0

Boring ID.: GUV-S3-211118-492

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48262



493.0

Each Interval Equals One Tenth of a Foot

494.0

Boring ID.: GUV-S3-211118-492

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48262

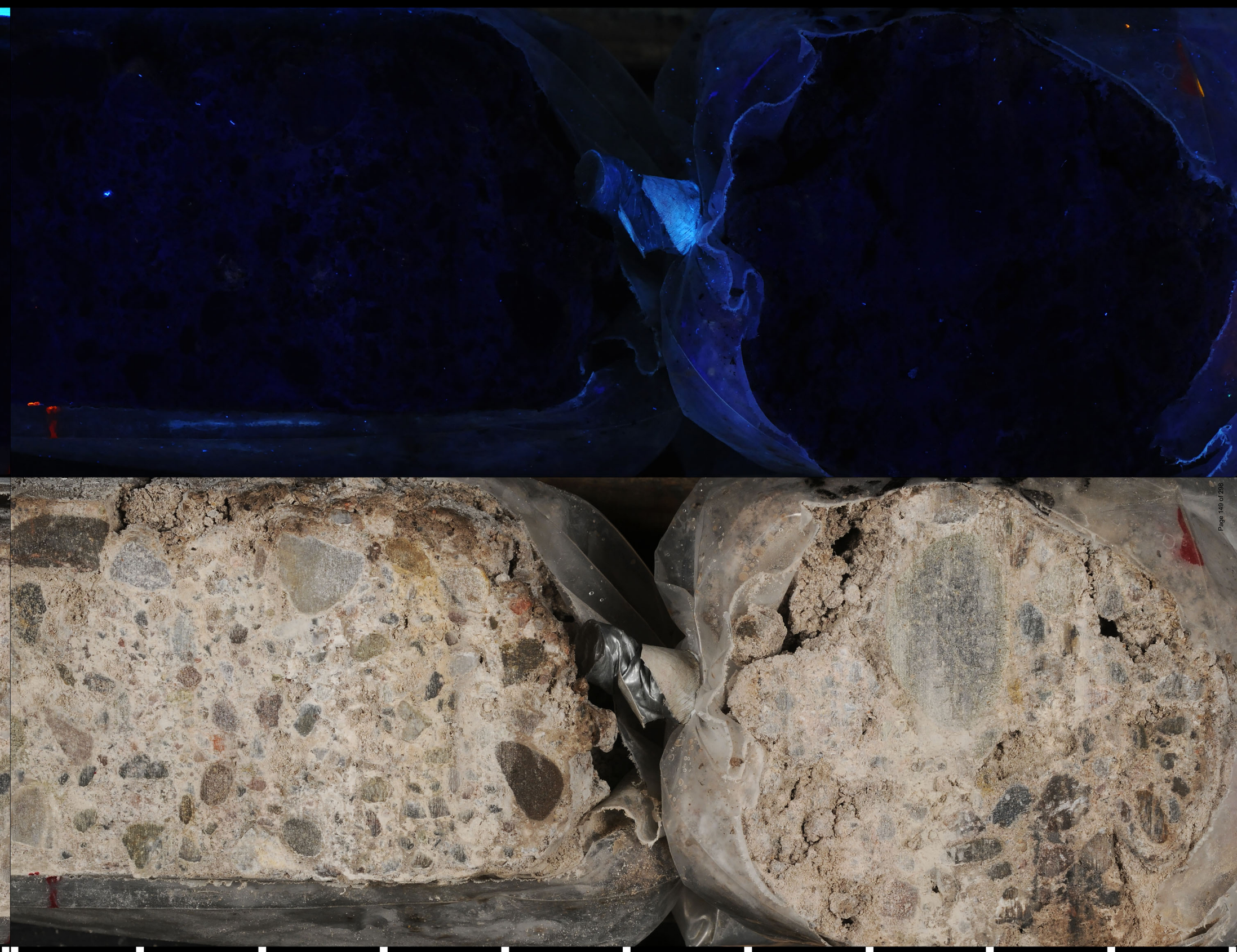


Boring ID.: GUV-S3-211118-494

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48262



Boring ID.: GUV-S3-211118-494

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

7735 4208 2071

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD COC1-53-PTS-20181121

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

PO# 18265

TURNAROUND TIME

24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐

OTHER: _____

SAMPLE INTEGRITY (CHECK):

INTACT ____ TEMP(F) 33-6

PTS QUOTE NO.

PTS FILE: 48262

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG; CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GVV-53-211118-492	11/21/18	0744	492-494	1	—	—	—	X	—				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKenzie			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 11/26/18 TIME: 1800	DATE: 11/27/18 TIME: 1400	DATE TIME	DATE TIME

7735 4208 1980

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COC2-S3-PTS-20181121

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: _____

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 33.1

PTS QUOTE NO.

PTS FILE: 48262

✓	SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓	GMW-S3-211118-494	11/21/18	0744	494-496	1				X					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Kevin McKoy			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 11/26/18 TIME: 1800	DATE: 11/27/18 TIME: 1400	DATE TIME	DATE TIME

PTS Laboratories, Inc. • 5730 Centralcrest St. • Houston, TX 77092 • Phone (713) 216-1800 • Fax (877) 925-9952

5730 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

December 13, 2018

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48275
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC No: COC1-079-PTS-20181204

Subject: **Fluid Properties Package – (Density; Specific Gravity; Viscosity & Interfacial Tension (IFT)**

Dear Bernie / Pamela,

Please find enclosed report for **Fluid Properties Package – (Density; Specific Gravity; Viscosity & Interfacial Tension (IFT)** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
COC Number: COC1-079-PTS-20181204

PTS File No: 48275
Client: EA Engineering, Sc. & Tech.

TEST PROGRAM - 20181212

FLUID ID	Date	Time	Fluid Type	Fluid Properties Pkg.	Fluid Cleaning	Comment 1	Comment 2
			Method:	ASTM D1481, 445, 971	Proprietary		
Date Received: 20181207							
GW150-031218	12/03/18	1900	GW	x			
N-079-261118-01	11/26/18	1200	NAPL				
TOTALS:			1 Bottle	1	1		

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. completion of analyses.
Fluid Properties Package - LNAPL & Water: Includes dynamic viscosity and fluid density at three temperatures (70, 100 and 130°F), surface tension for each fluid, and interfacial tensions (three phase pairs; oil/water, oil/air, and water/air (at ambient laboratory temperature)).
If no groundwater received, use filtered SFS tap water for interfacial tension testing.

PTS Laboratories

PTS File No: 48275
Client: EA Engineering, Sc. & Tech.
Report Date: 12/13/18

VISCOSITY, DENSITY, and SPECIFIC GRAVITY DATA

(METHODOLOGY: ASTM D445, ASTM D1481, API RP40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017
COC Number: COC1-079-PTS-20181204

SAMPLE ID	MATRIX	TEMPERATURE, °F	SPECIFIC GRAVITY	DENSITY, g/cc	VISCOSITY	
					centistokes	centipoise
N-079-261118-01	NAPL	70	0.7593	0.7592	1.02	0.78
		100	0.7507	0.7455	0.83	0.62
		130	0.7421	0.7317	0.70	0.52
GW150-031218	Ground water	70	0.9983	0.9981	1.00	1.00
		100	1.0001	0.9931	0.70	0.69
		130	0.9982	0.9842	0.52	0.51

QUALITY CONTROL DATA

Date: 12/12/18

FLUID TYPE:	Cannon® CVS S3
TEMPERATURE, °F:	70
DENSITY, MEASURED:	0.8614
DENSITY, PUBLISHED:	0.8615
RPD:	-0.01
VISCOSITY, MEASURED:	4.49
VISCOSITY, PUBLISHED:	4.47
RPD:	0.50
CVS Lot #: 17301	CVS = Certified Viscosity Standard

PTS Laboratories

PTS File No: 48275
Client: EA Engineering, Sc. & Tech.
Report Date: 12/13/18

INTERFACIAL / SURFACE TENSION DATA
(METHODOLOGY: DuNuoy Method - ASTM D971)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017
COC Number: COC1-079-PTS-20181204

PHASE PAIR		TEMPERATURE,	INTERFACIAL TENSION,
SAMPLE ID / PHASE	SAMPLE ID / PHASE	°F	Dynes/centimeter
GW150-031218	Air	72.4	57.2
N-079-261118-01 _ NAPL	Air	74.0	23.6
GW150-031218	N-079-261118-01 _ NAPL	73.4	18.4

GW = Ground Water

QUALITY CONTROL DATA

Date: 12/12/18
PHASE PAIR: DIWATER / AIR
TEMPERATURE, °F: 72.6
IFT, MEASURED: 72.9
IFT, PUBLISHED: 72.4
RPD: 0.77

7738 0085 7979 ~~7735 4208 2108~~ JRL

COC1-~~S~~ 079 JRL-PTS-20181204

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE: [signature]

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ___ TEMP(F) 41.1°F

PTS QUOTE NO.:

PTS FILE: 48275

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG; CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GW150-031218	12/03/18	1400	—	1									GROUNDWATER for KAFB
~~LNAPL-106079-~~		1200											JRL
N-079-261118-01	11/26/18	1200	—	1									LNAPL for KAFB

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston 12/6/18	[signature]		
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY:	COMPANY:
DATE: 12-6-18 TIME: 1800	DATE: 12/7/18 TIME: 1500	DATE: TIME:	DATE: TIME:

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

July 8, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48276
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 to 6 – S1-PTS-20181205

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48276
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20190427

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181207													
GUV-S1-051218-476	**476-478**	**2.0**	**2**	**477.00-477.20**									Not Selected for Analysis by EA
GUV-S1-051218-478	**478-480**	**2.0**	**2**	**479.10-479.20**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-S1-051218-480	**480-482**	**2.0**	**2**	**480.30-480.50**									Not Selected for Analysis by EA
GUV-S1-051218-482	**482-484**	**2.0**	**2**	**482.00-482.30**									Not Selected for Analysis by EA
GUV-S1-051218-484	**484-486**	**2.0**	**2**	**484.20-484.50**									Not Selected for Analysis by EA
GUV-S1-051218-486	**486-488**	**2.0**	**2**	**487.00-487.50**									Not Selected for Analysis by EA
TOTAL # OF SAMPLES		**8.0**	**8.0**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

						METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	Temps °F	OIL, gm/cc:	WATER, gm/cc:	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY DRY BULK, g/cc	DENSITY GRAIN, g/cc	POROSITY, %Vb (2) TOTAL	POROSITY, %Vb (2) AIR FILLED	PORE FLUID SATURATIONS, % Pv (3) WATER	PORE FLUID SATURATIONS, % Pv (3) NAPL
GUV-S1-051218-478 (479.10-479.20)	1	479.10	62	0.76284	0.99877	H	9.8	1.80	2.61	31.0	13.0	55.4	2.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations AT 62°F: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S1-051218-478 (479.10-479.20)	479.1	H	20190627	62.03	60.95	1.83	2.62	30.2	57.5	1.52	22.3	1.52

NOTE: No Visible NAPL produced. Produced water clear with strong gasoline odor and florescences under UV light. Sample Intact.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S1-051218-478 (479.10-479.20)	479.10	H	20190702	*Filtered Tap Water	0.9844	70.5	359.157	3.45E-04	3.54E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY			Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-S1-051218-478 (479.10-479.20)	479.10	H	20190702	1.69	2.61	35.3	54.7	2.6	54.8	2.6

NOTE: No visible NAPL produced; 16.89 pore volumes (370ml) of water injected. Produced water - clear dull yellow with strong hydrocarbon odor. Sample intact, strong spotted fluorescense on sample teflon tape but none on the screens.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-S1-051218-478 (479.10-479.20)	479.10	H	20190702	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7689	69.5	261.489	3.21E-04	2.58E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
GUV-S1-051218-478 (479.10-479.20)	479.1	H	8.6	1.87	2.61	28.4	8.3	70.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-S1-051218-478 (479.10-479.20)	479.1	H	690	120.471	1.14E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

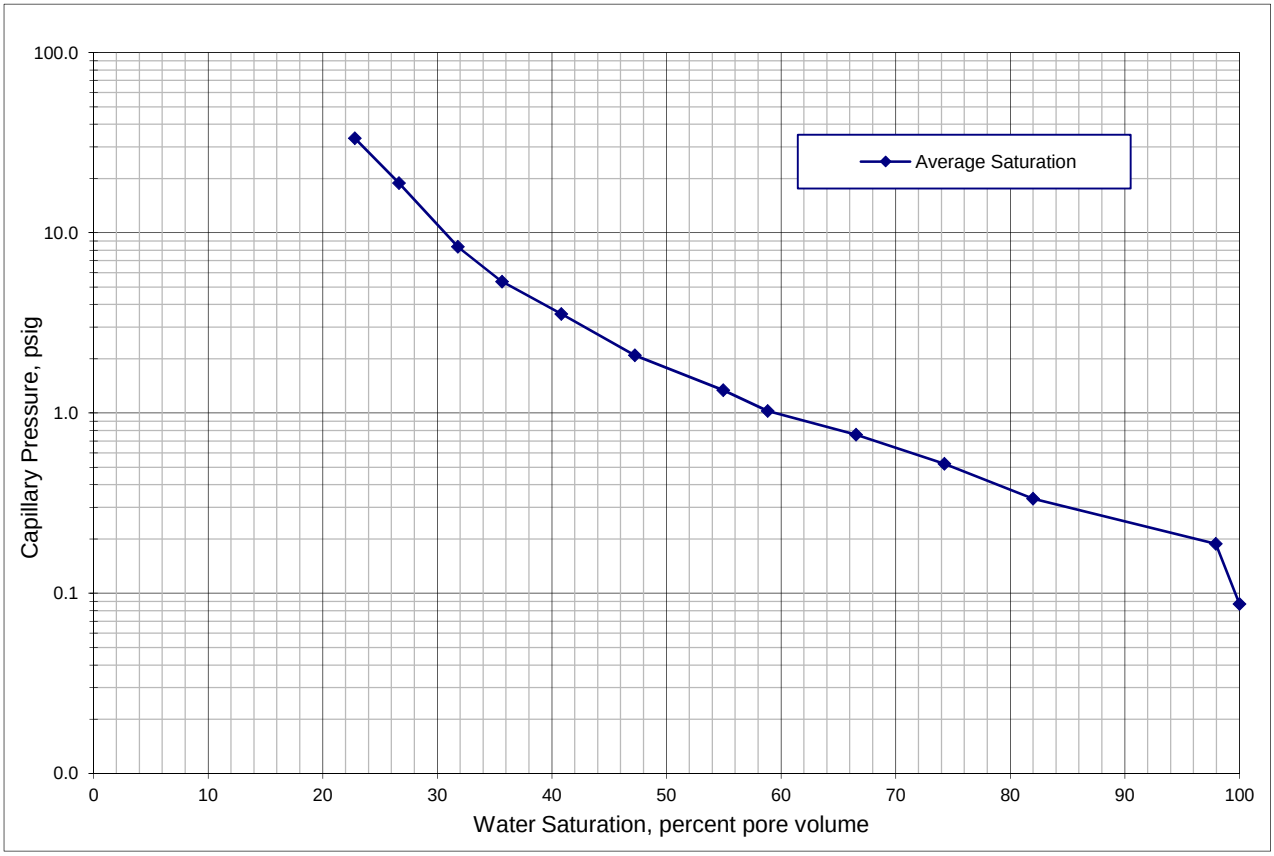
PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-S1-051218-478 (479.10-479.20) at 479.10 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	12.2
0.087	6.12	0.202	100.0	12.2
0.188	13.2	0.436	97.9	11.9
0.335	23.5	0.775	82.0	10.0
0.523	36.8	1.21	74.3	9.1
0.759	53.3	1.76	66.5	8.1
1.026	72.1	2.37	58.8	7.2
1.34	94.2	3.10	55.0	6.7
2.09	147	4.84	47.2	5.8
3.54	249	8.19	40.8	5.0
5.36	377	12.4	35.7	4.4
8.37	589	19.4	31.8	3.9
18.8	1325	43.6	26.7	3.3
33.5	2355	77.5	22.8	2.8



PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S1-051218-478 (479.10-479.20)	479.10	H	11.3	1.87	2.62	28.7	0.1	99.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S1-051218-478 (479.10-479.20)	479.10	H	20190703	400.9	3.56E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 70.2°F: Viscosity = 0.7636 cP; Density = 0.7246 g/cc.

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S1-051218-478 at 479.10ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.019	1.34	0.161	98.8	1.2
0.041	2.90	0.348	97.5	2.5
0.073	5.15	0.619	94.4	5.6
0.115	8.05	0.97	88.5	11.5
0.165	11.59	1.39	82.8	17.2
0.224	15.78	1.89	77.9	22.1
0.293	20.61	2.48	73.0	27.0
0.458	32.20	3.87	65.7	34.3
0.774	54.43	6.54	60.8	39.2
1.173	82.44	9.9	55.8	44.2
1.832	128.82	15.5	52.2	47.8
4.12	289.84	34.8	46.0	54.0
7.33	515.27	61.9	38.7	61.3

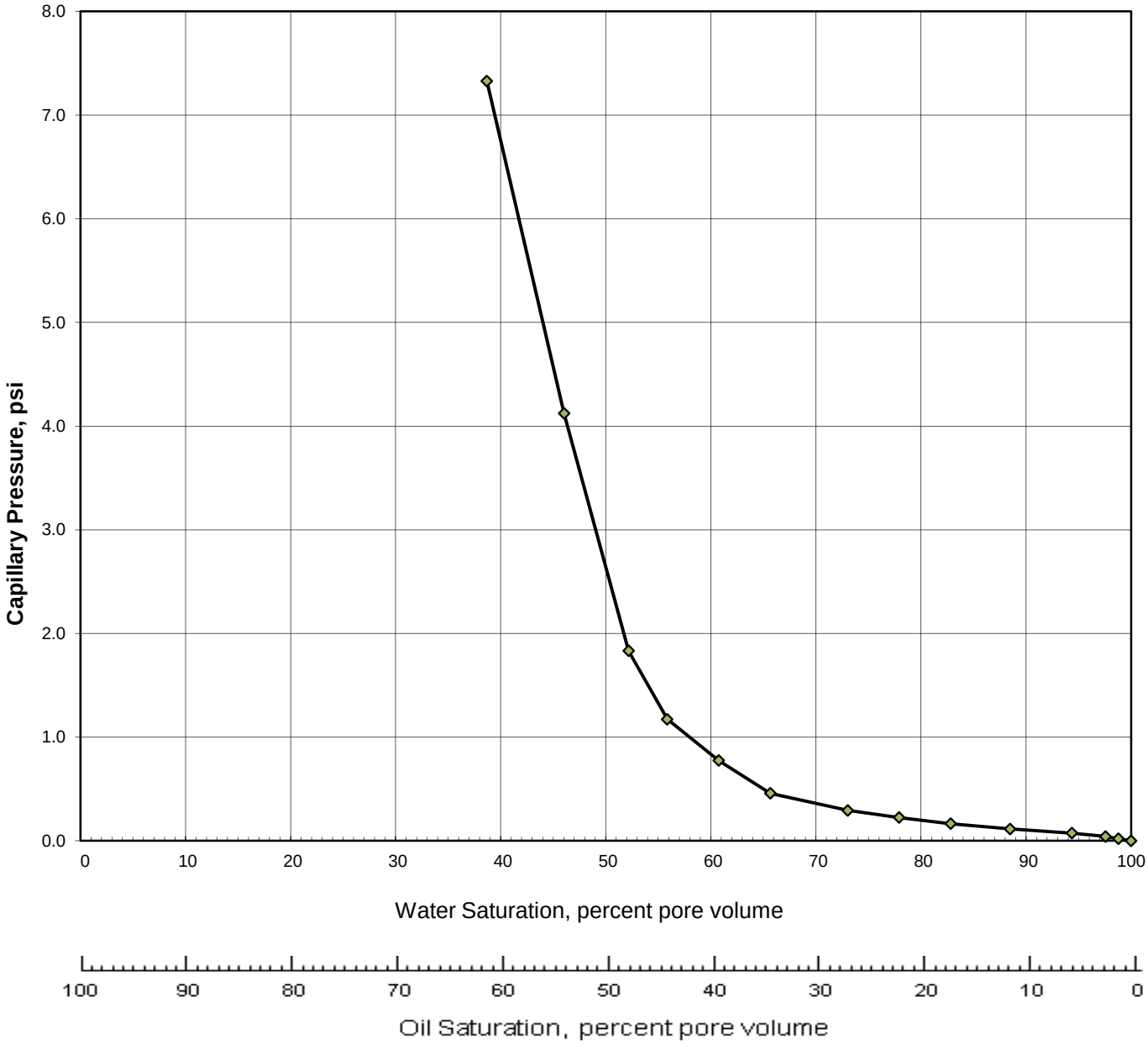
Effective Permaeability to Water, mD.: 47.386

Hydraulic Conductivity, cm/sec: 4.46E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-S1-051218-478**
Depth, ft:- **479.10**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-S1-051218-478 (479.10-479.20)	479.10	H	11.3	1.87	2.62	28.7	0.1	99.5

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-S1-051218-478 (479.10-479.20)	479.10	H	20190703	400.9	3.56E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 70.2°F: Viscosity = 0.7636 cP; Density = 0.7246 g/cc.

PTS File No: 48276
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-S1-051218-478 at 479.10ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	38.7	61.3
-0.041	2.89	0.347	49.0	51.0
-0.090	6.34	0.761	52.2	47.8
-0.161	11.34	1.362	77.9	22.1
-0.247	17.4	2.09	80.6	19.4
-0.356	25.0	3.00	82.8	17.2
-0.487	34.2	4.11	83.6	16.4
-0.632	44.5	5.34	84.3	15.7
-0.996	70.0	8.41	85.3	14.7
-1.670	117	14.10	86.0	14.0
-2.529	178	21.4	86.5	13.5
-3.952	278	33.4	87.5	12.5
-8.89	625	75.1	88.5	11.5
-15.81	1111	133.5	90.2	9.8

Effective Permaeability to Water, mD.: 47.39

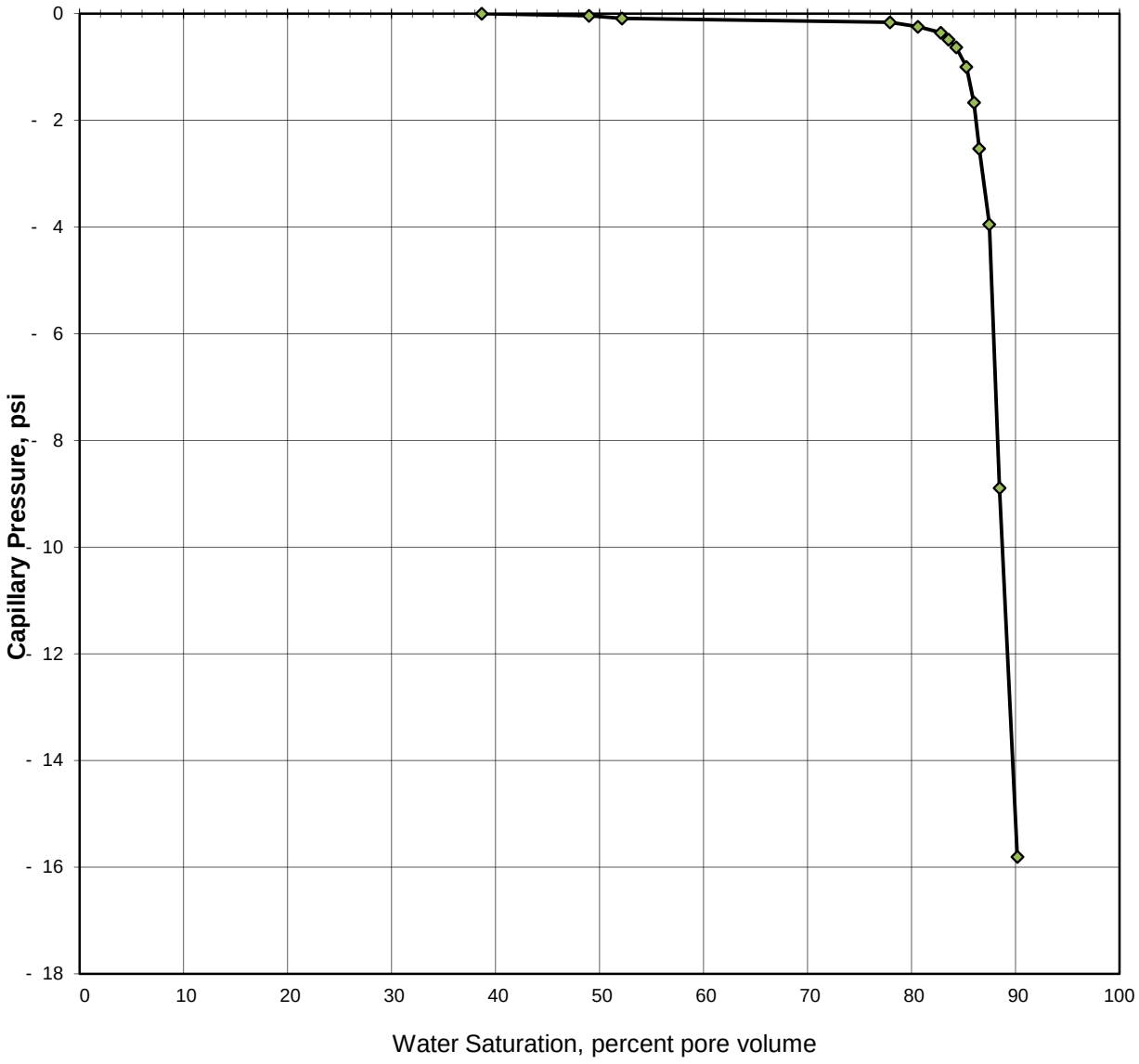
Hydraulic Conductivity, cm/sec: 4.46E-05

EA Engineering, Science
and Technology.
PTS File No.: 48276

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-S1-051218-478
Depth, ft.: 479.10



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-S1-051218-478	479.10-479.20	Gravel	3.807	47.15	10.00	20.73	17.24	4.87

(1) Based on Mean from Trask

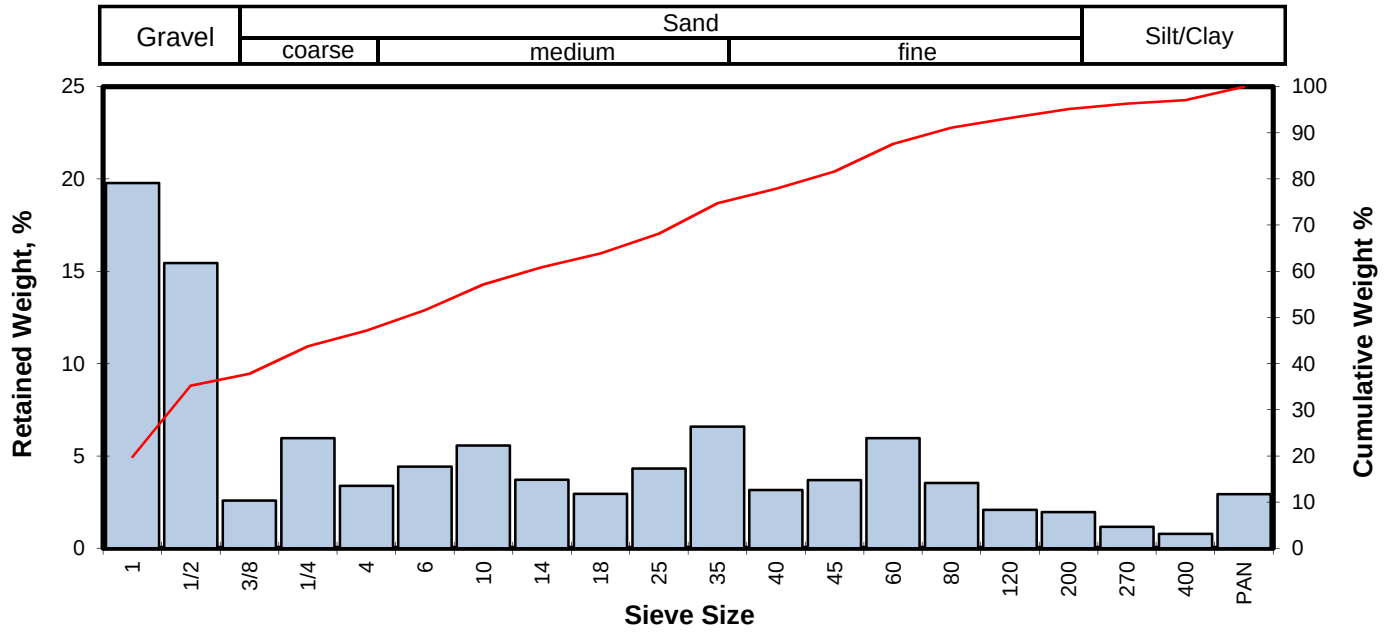
PTS Laboratories, Inc.

PTS ID:- 1

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48276
Sample ID: GUV-S1-051218-478
Depth, ft: 479.10-479.20



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	100.00	19.78	19.78
0.4922	12.501	-3.64	1/2	78.10	15.45	35.23
0.3740	9.500	-3.25	3/8	13.07	2.59	37.82
0.2500	6.351	-2.67	1/4	30.13	5.96	43.78
0.1873	4.757	-2.25	4	17.05	3.37	47.15
0.1324	3.364	-1.75	6	22.39	4.43	51.58
0.0787	2.000	-1.00	10	28.17	5.57	57.15
0.0557	1.414	-0.50	14	18.79	3.72	60.87
0.0394	1.000	0.00	18	14.92	2.95	63.82
0.0278	0.707	0.50	25	21.78	4.31	68.13
0.0197	0.500	1.00	35	33.32	6.59	74.72
0.0166	0.420	1.25	40	15.99	3.16	77.89
0.0139	0.354	1.50	45	18.64	3.69	81.57
0.0098	0.250	2.00	60	30.18	5.97	87.54
0.0070	0.177	2.50	80	17.87	3.54	91.08
0.0049	0.125	3.00	120	10.53	2.08	93.16
0.0029	0.074	3.75	200	9.92	1.96	95.13
0.0021	0.053	4.25	270	5.88	1.16	96.29
0.0015	0.037	4.75	400	3.91	0.77	97.06
			PAN	14.85	2.94	100.00
TOTALS				505.49	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5			
10			
16			
25	-4.31	0.7789	19.785
40	-3.04	0.3228	8.199
50	-1.93	0.1499	3.807
60	-0.62	0.0604	1.534
75	1.02	0.0194	0.492
84	1.70	0.0121	0.307
90	2.35	0.0077	0.197
95	3.70	0.0030	0.077

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.93	-1.93	-1.93
Median, in.	0.1499	0.1499	0.1499
Median, mm	3.807	3.807	3.807
Mean, phi	-3.34		
Mean, in.	0.3992		
Mean, mm	10.139		
Sorting	6.338		
Skewness	0.820		
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	47.15
Coarse Sand	10	10.00
Medium Sand	40	20.73
Fine Sand	200	17.24
Silt/Clay	<200	4.87
	Total	100

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Phone: (713) 316-1800

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Project Name: **Kirtland Vadose Zone Coring** ***PTS File No:*** ***48276***
Project Number: ***62735DM02.1017*** ***Client:*** ***EA Engineering, Science and Technology***

COC No: **COC 3 -S3-PTS-20181206, COC 6 -S3-PTS-20181206, COC 4 -S3-PTS-20181206, COC 2 -S3-PTS-20181206, COC 5 -S3-PTS-20181206, COC 1 -S3-PTS-20181206**

TEST PROGRAM - 20181208

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181207					
GUV-S1-051218-476	**476-478**	**2.0**	**2.0**		LF-1 Freezer
GUV-S1-051218-478	**478-480**	**2.0**	**2.0**		H
GUV-S1-051218-480	**480-482**	**2.0**	**2.0**		LF-1 Freezer
GUV-S1-051218-482	**482-484**	**2.0**	**2.0**		L
GUV-S1-051218-484	**484-486**	**2.0**	**2.0**		LF-1 Freezer
GUV-S1-051218-486	**486-488**	**2.0**	**2.0**		H
TOTALS:	**6 Bags**	**12.0**	**12.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.
Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.
Sample locations to be selected by EA Engineering personnel from core photography.
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-476

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Boring ID.: GUV-S1-051218-476

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

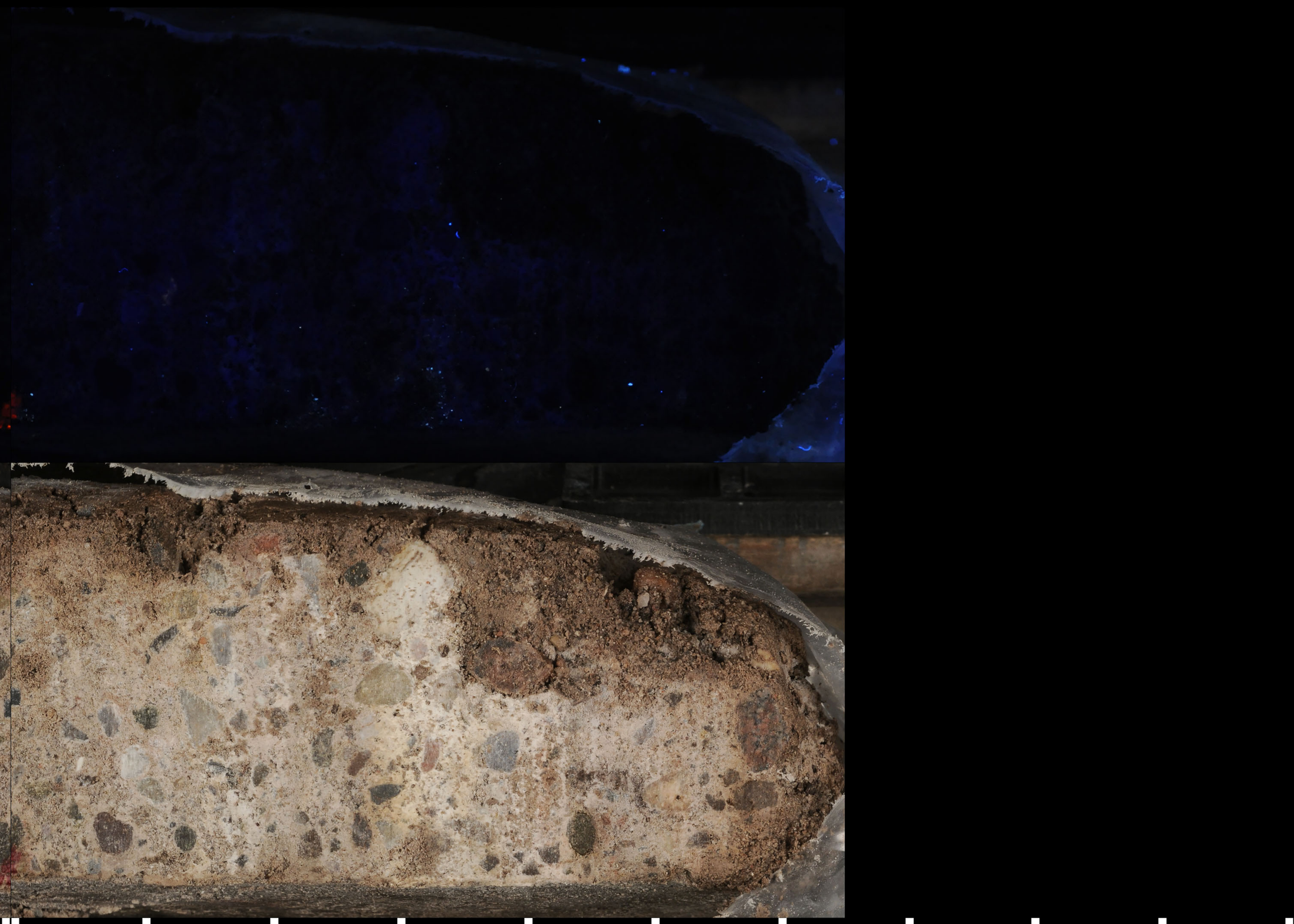
Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-478

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017



Boring ID.: GUV-S1-051218-478

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

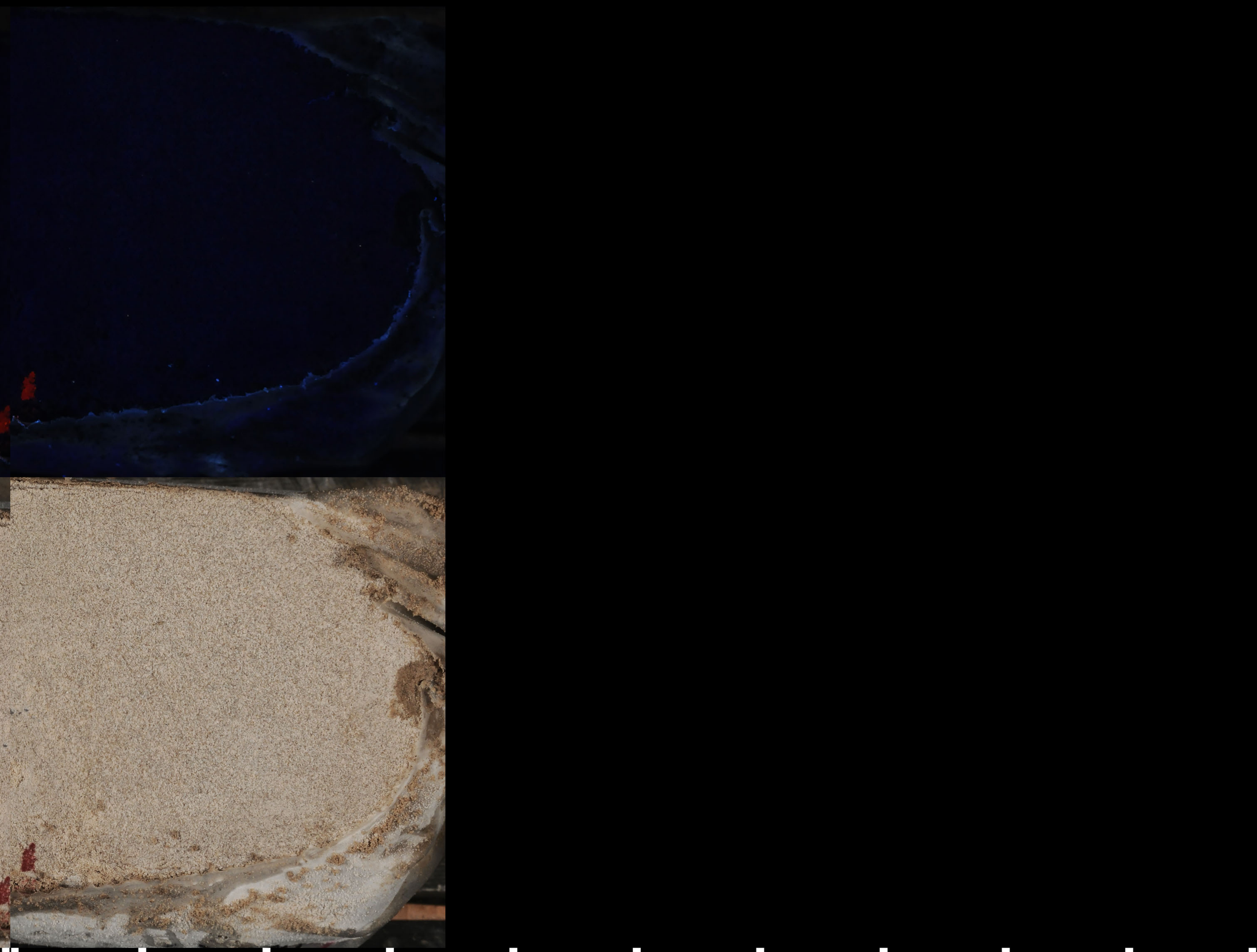
Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-480

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

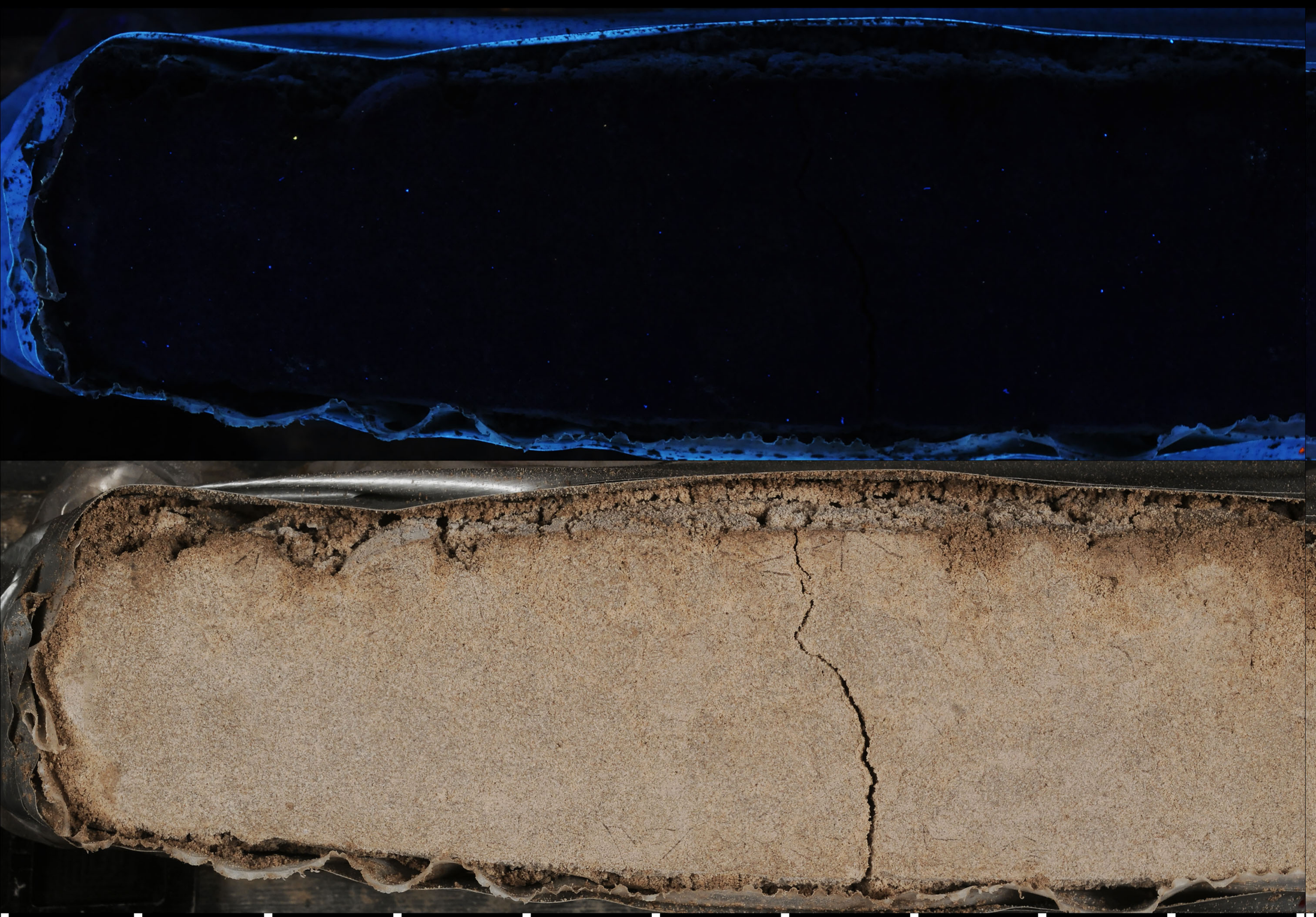


Boring ID.: GUV-S1-051218-480

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

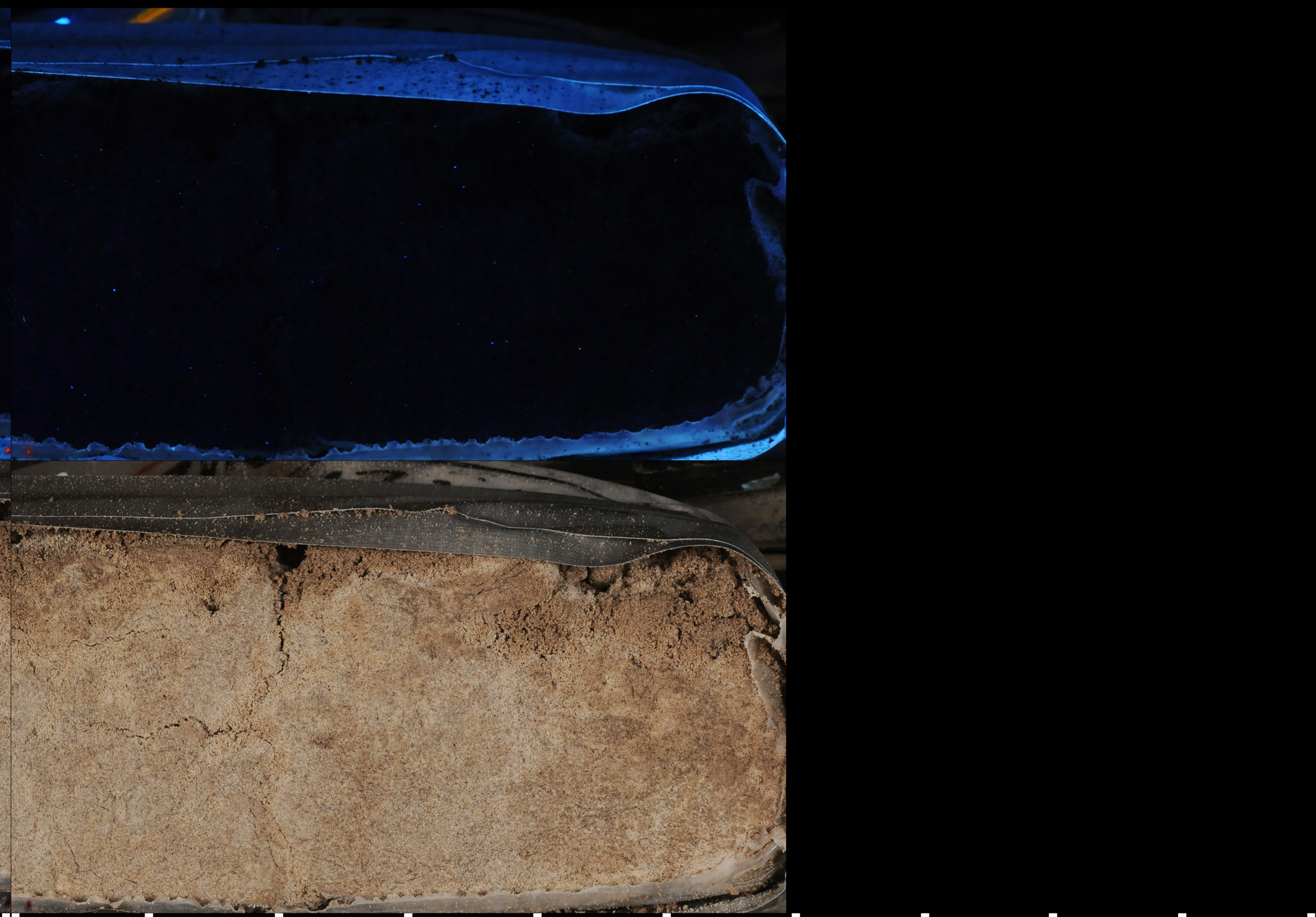


Boring ID.: GUV-S1-051218-482

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-482

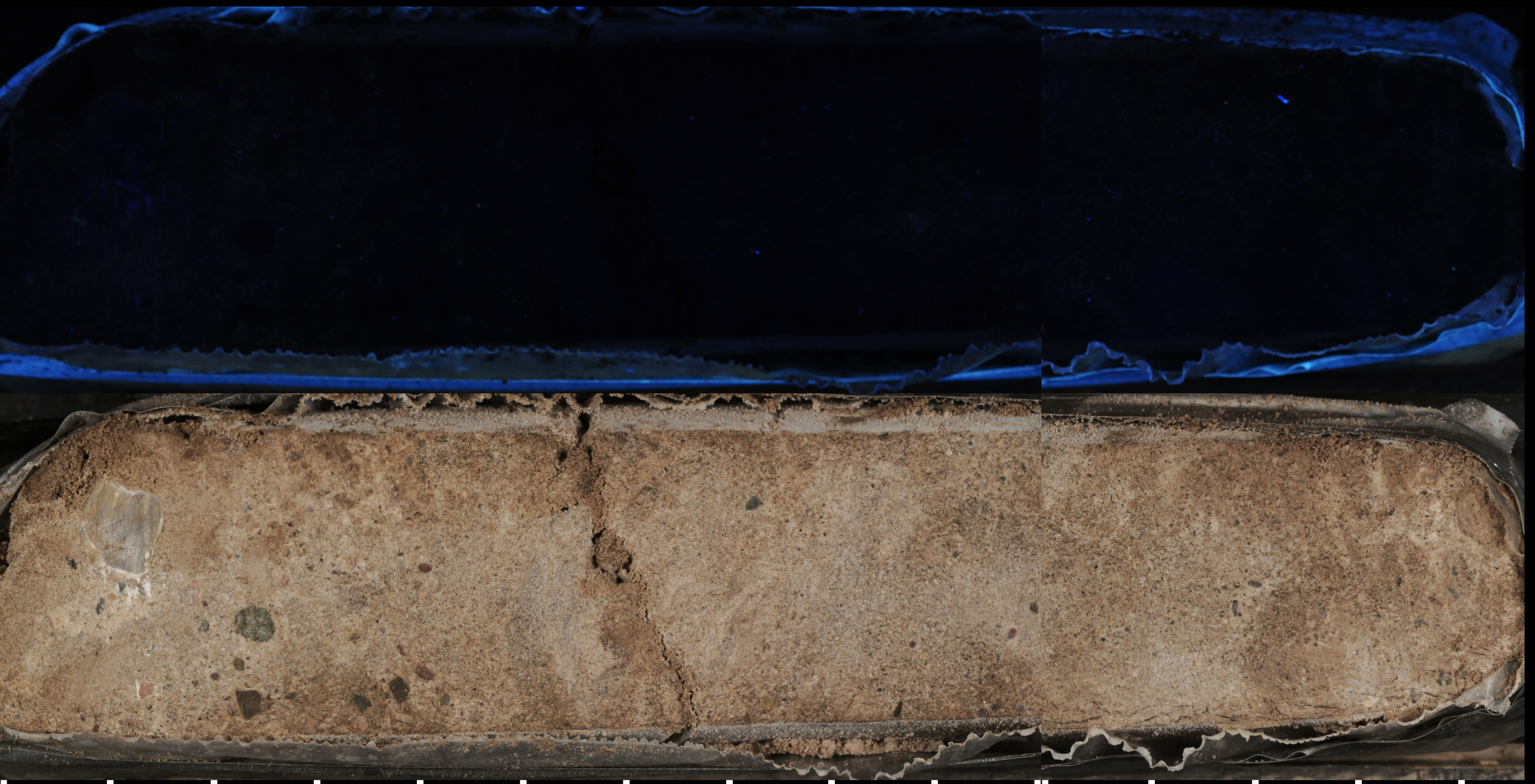
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

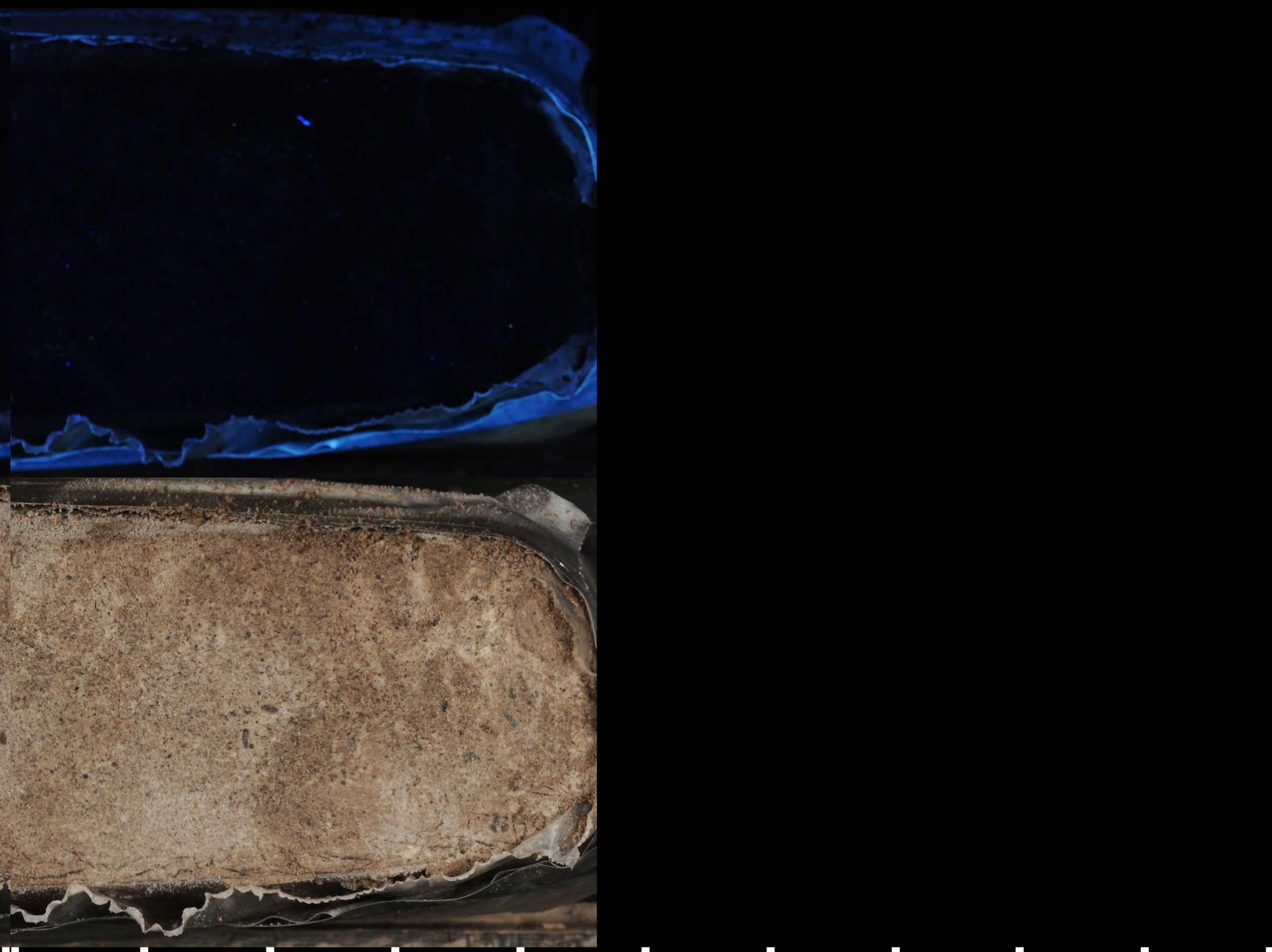
Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-484

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017



Boring ID.: GUV-S1-051218-484

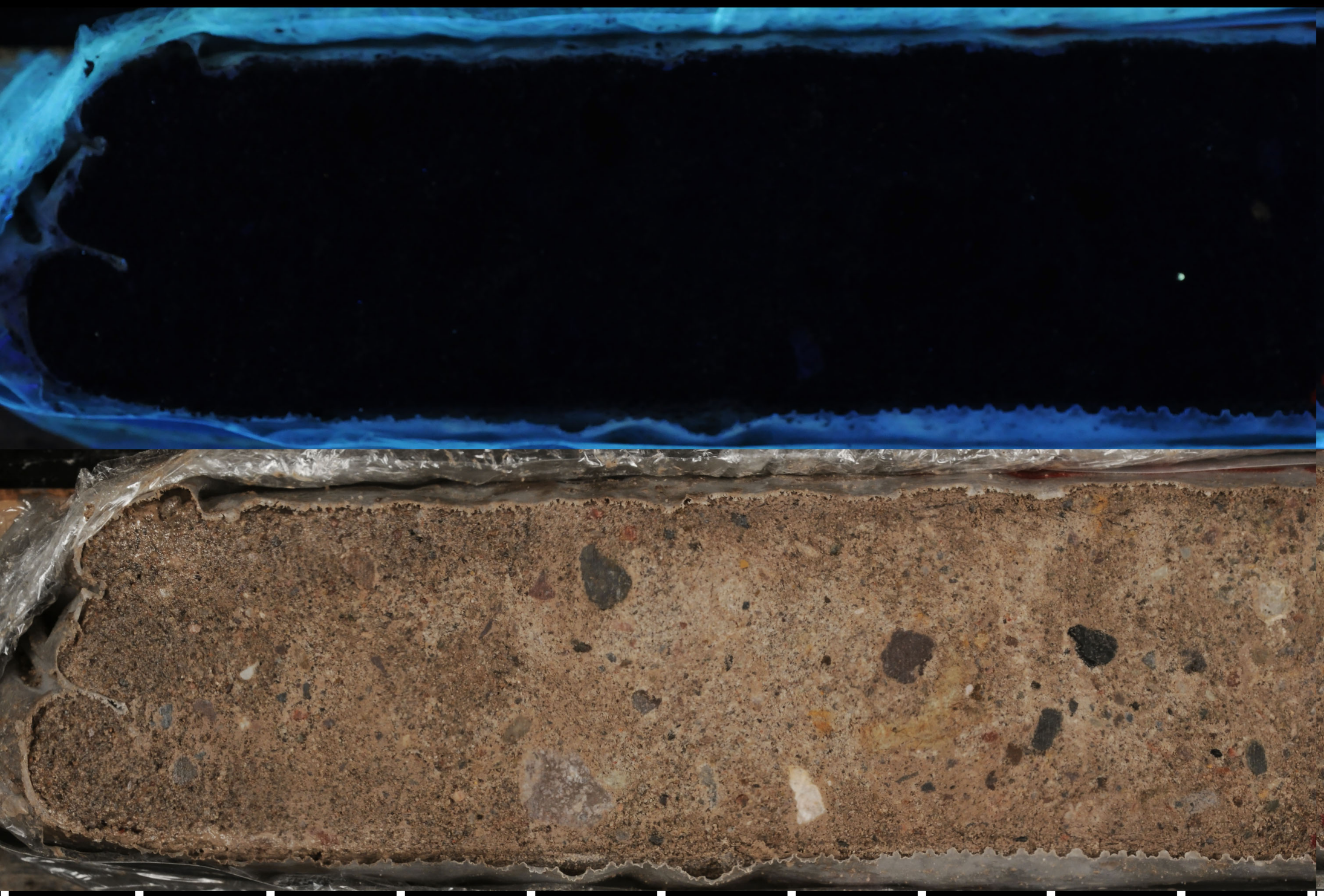
Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276

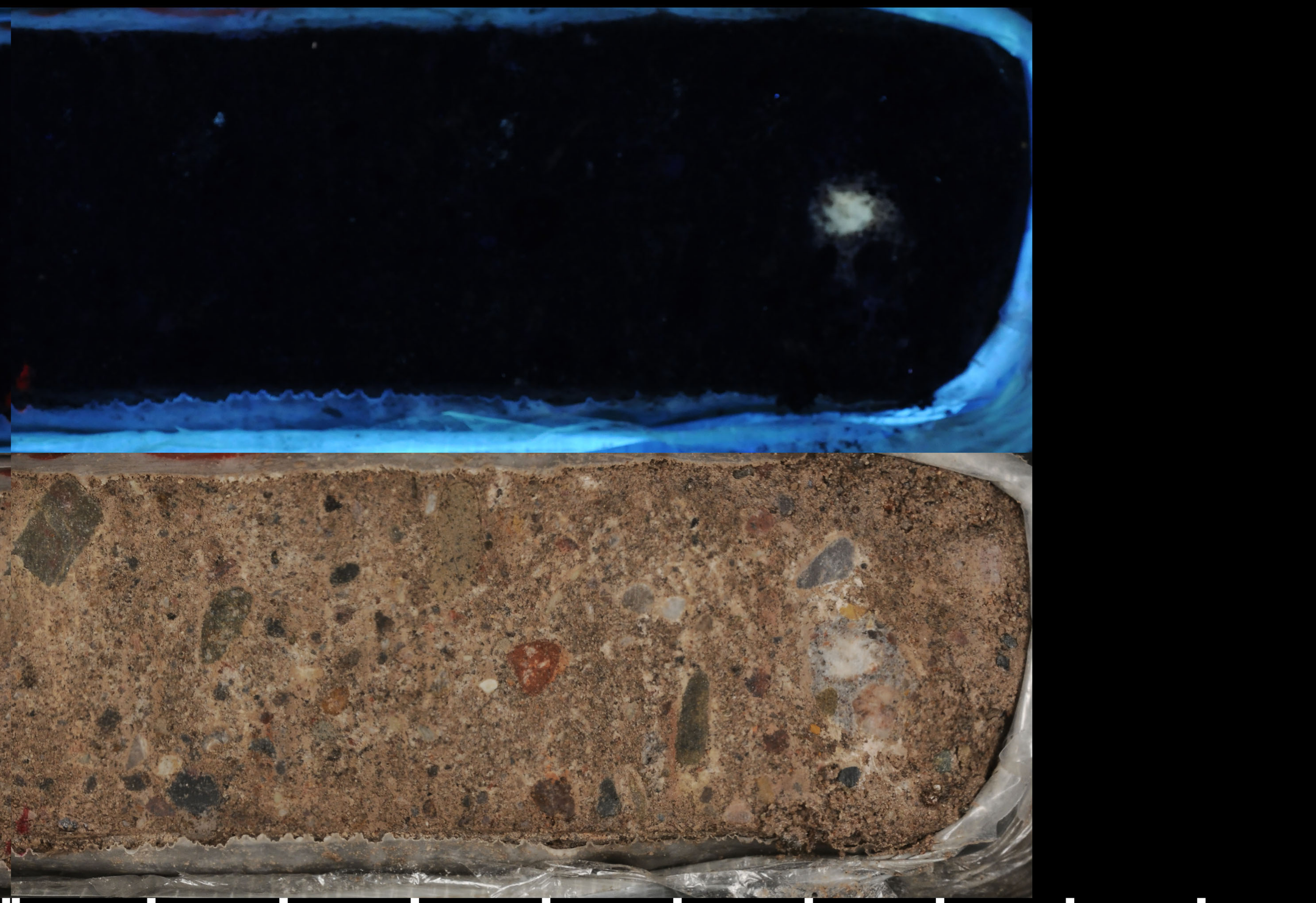
Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48276



Boring ID.: GUV-S1-051218-486

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017



Boring ID.: GUV-S1-051218-486

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

7735 9208 2726 COC3-51-PTS-20181206

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 34

PTS QUOTE NO.:

PTS FILE: 48276

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-51-05|218-976	12/05/18	1035	476-478	1	—	—	—	X	—				

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 1000	DATE TIME	DATE TIME

7735 4208 2120 COC6-SI-PTS-20181206

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE: John Lin

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) ____

PTS QUOTE NO.

PTS FILE: 48276

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SI-051218-478	12/05/18	1035	478-480	1	—			X	—				

ANALYSIS REQUEST

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 10	DATE TIME	DATE TIME

7735 4208 2108 COC4-SI-PTS-20181206

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch email:

PROJECT NAME: Kirtland Vadose Zone Coring PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 38

PTS QUOTE NO.:

PTS FILE: 48276

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SI-051218-480	12/05/18	1035	480-482	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 1000	DATE TIME	DATE TIME

7735 4208 2141 COC2-SI-PTS-20181206

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT X TEMP(F) 36

PTS QUOTE NO.:

PTS FILE: 48276

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SI-051218-482	12/05/18	1035	482-484	1				X					

ANALYSIS REQUEST

ORL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Uruquhart			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 1000	DATE TIME	DATE TIME

7735 42082291 COCS-SI-PTS-20181206

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE: John Tinnin

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 38

PTS QUOTE NO.:

PTS FILE: 48276

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SI-051218-484	12/05/18	1035	484-486	1	—	—	—	X	—				

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 1000	DATE TIME	DATE TIME

7735 4208 2939

COC1-SI-PTS-20181205

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-SI-051218-486	12/05/18	1225	486 - 488	1				X					

PO# 18265

TURNAROUND TIME

24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: per PO

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 34

PTS QUOTE NO.

PTS FILE: 48276

JPL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS Laboratories Inc	COMPANY	COMPANY
DATE: 12/06/18 TIME: 1400	DATE: 12/7/18 TIME: 1000	DATE TIME	DATE TIME

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

July 8, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 48284
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1, 2 & 3 - V2-PTS-20181217

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48284
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20190427

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181218													
GUV-V2-131218-122	**122-124**	**2.0**	**2.0**	**122.45-122.60**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V2-131218-194	**194-196**	**2.0**	**2.0**	**194.60-194.80**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V2-131218-214	**214-215**	**2.0**	**1.0**	**214.30-214.50**									Not selected for Analysis by EA
TOTAL # OF SAMPLES		**6.0**	**5.0**		**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
					DENSITY		POROSITY, %Vb (2)		PORE FLUID	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS, % Pv (3) WATER	NAPL
GUV-V2-131218-122 (122.45-122.60)	1	122.50	H	28.8	1.37	2.59	47.3	7.1	77.7	7.2
GUV-V2-131218-194 (194.60-194.80)	2	194.7	H	14.9	1.4	2.6	44.0	21.4	40.6	10.7

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY		TOTAL	Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V2-131218-122 (122.45-122.60)	122.5	H	20190627	62.1	58.84	1.47	2.59	43.3	88.7	9.72	62.8	9.72
NOTE: No Visible NAPL produced. Produced water clear with moderate gasoline odor and florescences under UV light. Sample Intact.												
GUV-V2-131218-194 (194.60-194.80)	194.70	H	20190627	64.3	58.83	1.58	2.61	39.4	45.1	12.3	38.0	12.3
NOTE: No Visible NAPL produced. Produced water clear, light yellow with strong gasoline odor and florescences under UV light. Sample Intact.												

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V2-131218-122 (122.45-122.60)	122.50	H	20190703	*Filtered Tap Water	0.9060	76.6	4.782	4.99E-06	4.72E-11
GUV-V2-131218-194 (194.60-194.80)	194.7	H	20190703	*Filtered Tap Water	0.9429	73.6	540	5.41E-04	5.33E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY		TOTAL	Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V2-131218-122 (122.45-122.60)	122.50	H	20190703	1.32	2.57	48.8	75.8	6.5	78.6	6.5
NOTE: No visible NAPL produced; 9.67 pore volumes (283ml) of water injected. Produced water - clear with strong hydrocarbon odor. Sample intact, strong spotted fluorescense on sample teflon tape but none on the screens.										
GUV-V2-131218-194 (194.60-194.80)	194.70	H	20190703	1.54	2.58	40.5	40.7	7.3	67.8	7.3
NOTE: No visible NAPL produced; 14.26 pore volumes (347ml) of water injected. Produced water - clear dull yellow with strong hydrocarbon odor. Sample intact, strong patchy fluorescense on sample teflon tape.										

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc, NAPL = 0.76009 g/cc.
Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	25 PSI CONFINING STRESS		
							EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V2-131218-122 (122.45-122.60)	122.50	H	20190702	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7644	70.1	46.505	5.75E-05	4.59E-10
GUV-V2-131218-194 (194.60-194.80)	194.7	H	20190702	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7614	70.5	414.410	5.14E-04	4.09E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
GUV-V2-131218-122 (122.45-122.60)	122.5	H	31.5	1.15	2.56	55.2	14.8	73.2
GUV-V2-131218-194 (194.60-194.80)	194.7	H	11.6	1.45	2.53	42.6	24.2	43.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

METHODS: **API RP 40; EPA 9100**

			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-V2-131218-122 (122.45-122.60)	122.5	H	205.37	2.60	2.47E-06
GUV-V2-131218-194 (194.60-194.80)	194.7	H	345.25	78.75	7.48E-05

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

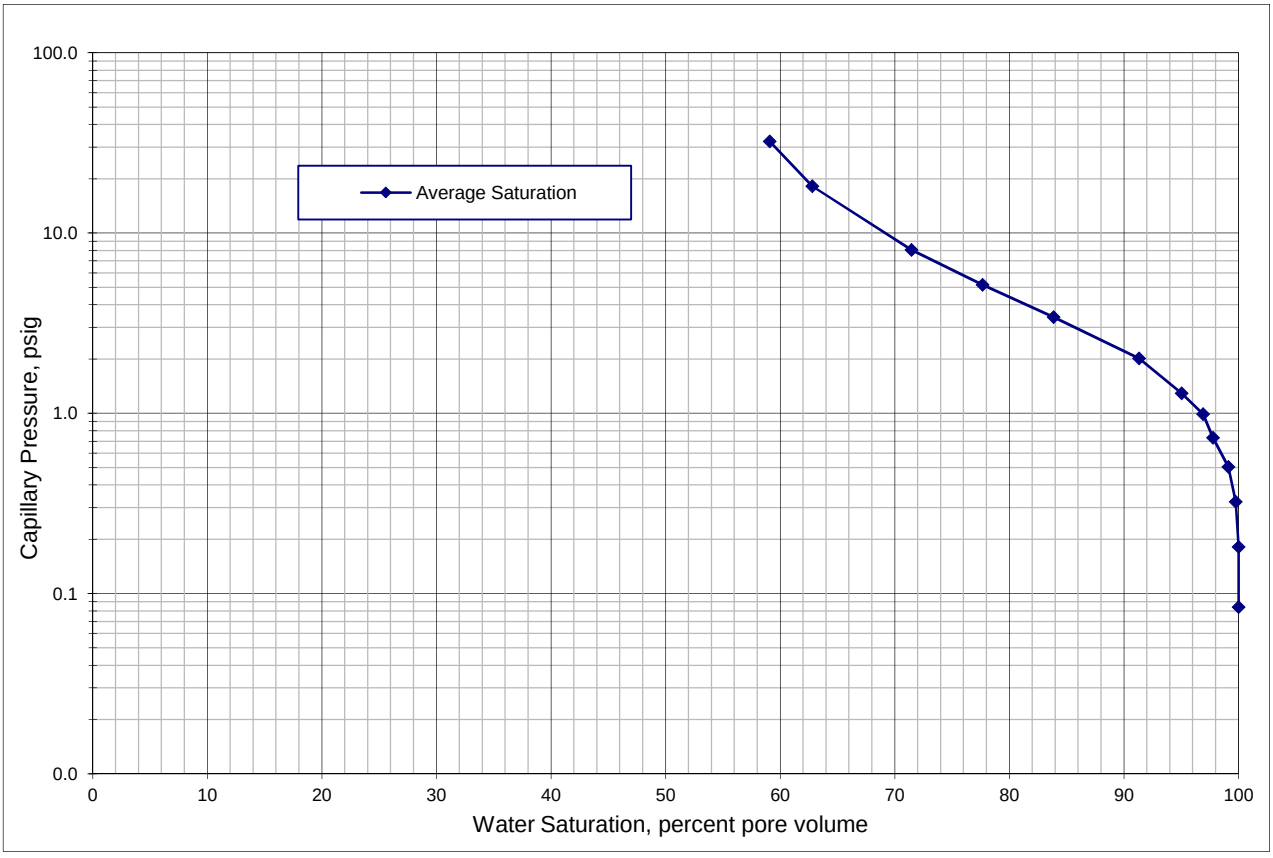
PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V2-131218-122 (122.45-122.60) at 122.50 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	41.7
0.084	5.90	0.194	100.0	41.7
0.181	12.8	0.420	100.0	41.7
0.323	22.7	0.747	99.8	41.6
0.504	35.4	1.17	99.1	41.3
0.731	51.4	1.69	97.8	40.7
0.988	69.5	2.29	96.9	40.4
1.29	90.7	2.99	95.0	39.6
2.02	142	4.67	91.3	38.0
3.41	240	7.89	83.9	35.0
5.16	363	11.9	77.7	32.4
8.07	567	18.7	71.5	29.8
18.1	1276	42.0	62.8	26.2
32.3	2269	74.7	59.1	24.6



PTS Laboratories

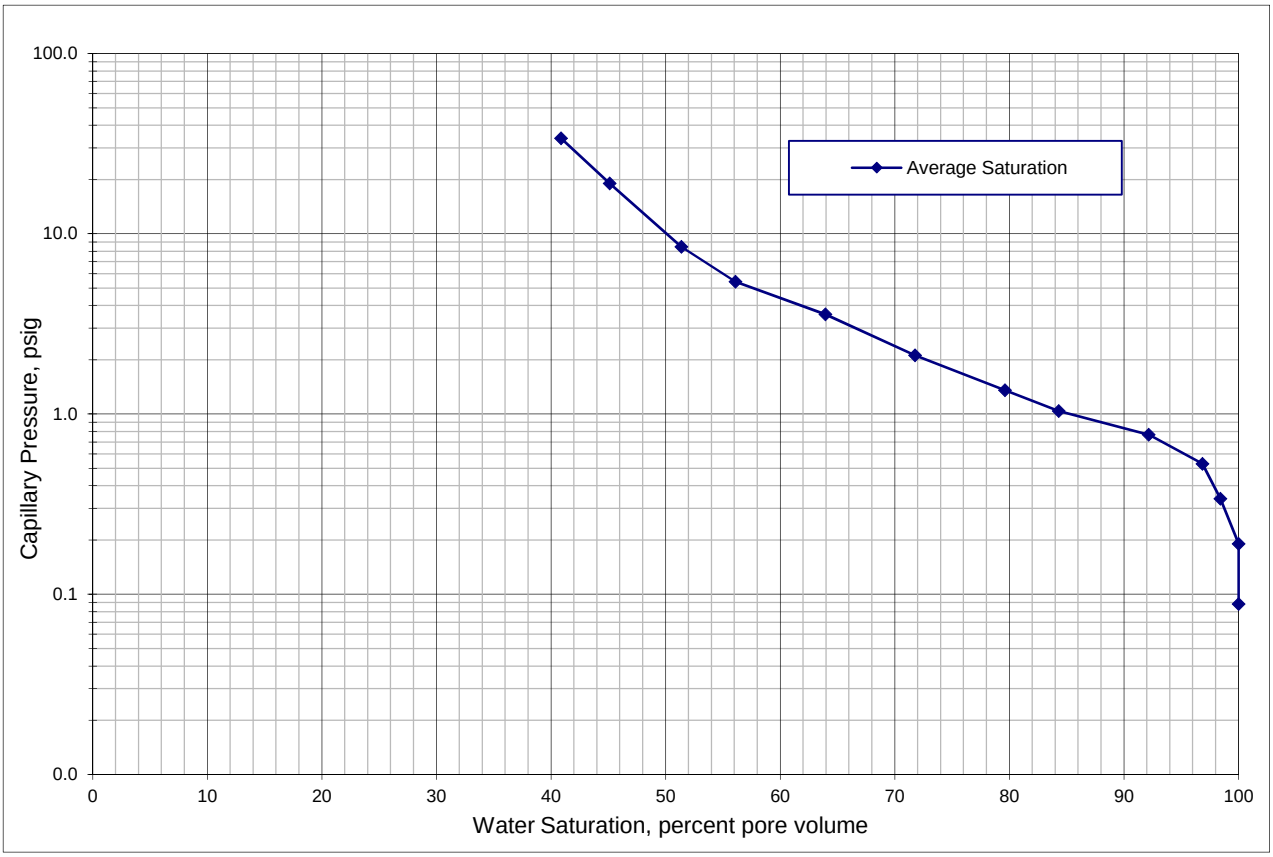
PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V2-131218-194 (194.60-194.80) at 194.70 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	26.4
0.088	6.19	0.204	100.0	26.4
0.191	13.4	0.441	100.0	26.4
0.339	23.8	0.784	98.4	26.0
0.529	37.2	1.22	96.9	25.6
0.767	53.9	1.78	92.2	24.3
1.037	72.9	2.40	84.3	22.3
1.35	95.3	3.14	79.6	21.0
2.12	149	4.90	71.8	19.0
3.58	252	8.28	63.9	16.9
5.42	381	12.5	56.1	14.8
8.47	595	19.6	51.4	13.6
19.1	1340	44.1	45.1	11.9
33.9	2381	78.4	40.9	10.8



PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-V2-131218-122 (122.45-122.60)	122.5	H	33.2	1.14	2.56	55.5	3.3	94.1
GUV-V2-131218-194 (194.60-194.80)	194.7	H	12.8	1.43	2.56	44.4	4.5	90.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V2-131218-122 (122.45-122.60)	122.50	H	20190703	47.42	4.25E-05
GUV-V2-131218-194 (194.60-194.80)	194.70	H	20190703	187.8	1.69E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7234 g/cc.

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V2-131218-122 at 122.50ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.019	1.31	0.157	99.4	0.6
0.040	2.83	0.340	98.2	1.8
0.072	5.03	0.605	97.6	2.4
0.112	7.87	0.94	96.8	3.2
0.161	11.33	1.36	96.1	3.9
0.219	15.42	1.85	95.5	4.5
0.286	20.14	2.42	90.5	9.5
0.448	31.46	3.78	85.8	14.2
0.756	53.18	6.39	79.3	20.7
1.146	80.55	9.7	73.9	26.1
1.790	125.86	15.1	69.2	30.8
4.03	283.18	34.0	63.3	36.7
7.16	503.44	60.5	58.5	41.5

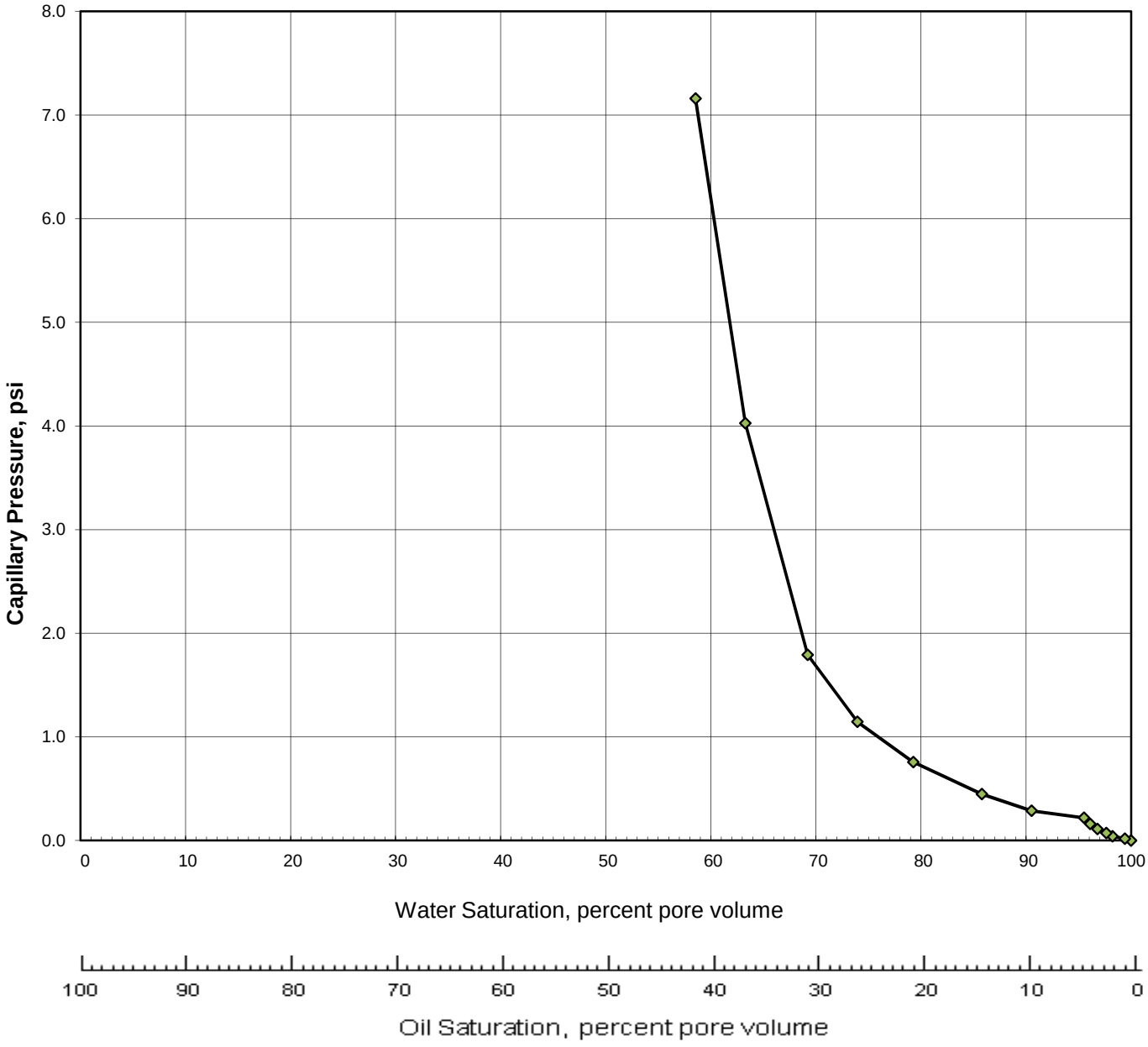
Effective Permaeability to Water, mD.: 100.890

Hydraulic Conductivity, cm/sec: 9.95E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V2-131218-122**
Depth, ft:- **122.50**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V2-131218-194 at 194.70ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.019	1.31	0.157	97.5	2.5
0.040	2.83	0.340	95.9	4.1
0.072	5.03	0.604	94.6	5.4
0.112	7.86	0.94	93.8	6.2
0.161	11.31	1.36	92.9	7.1
0.219	15.40	1.85	91.0	9.0
0.286	20.11	2.42	86.6	13.4
0.447	31.42	3.77	80.6	19.4
0.755	53.11	6.38	75.4	24.6
1.144	80.45	9.7	70.5	29.5
1.788	125.70	15.1	66.4	33.6
4.02	282.82	34.0	59.0	41.0
7.15	502.78	60.4	54.1	45.9

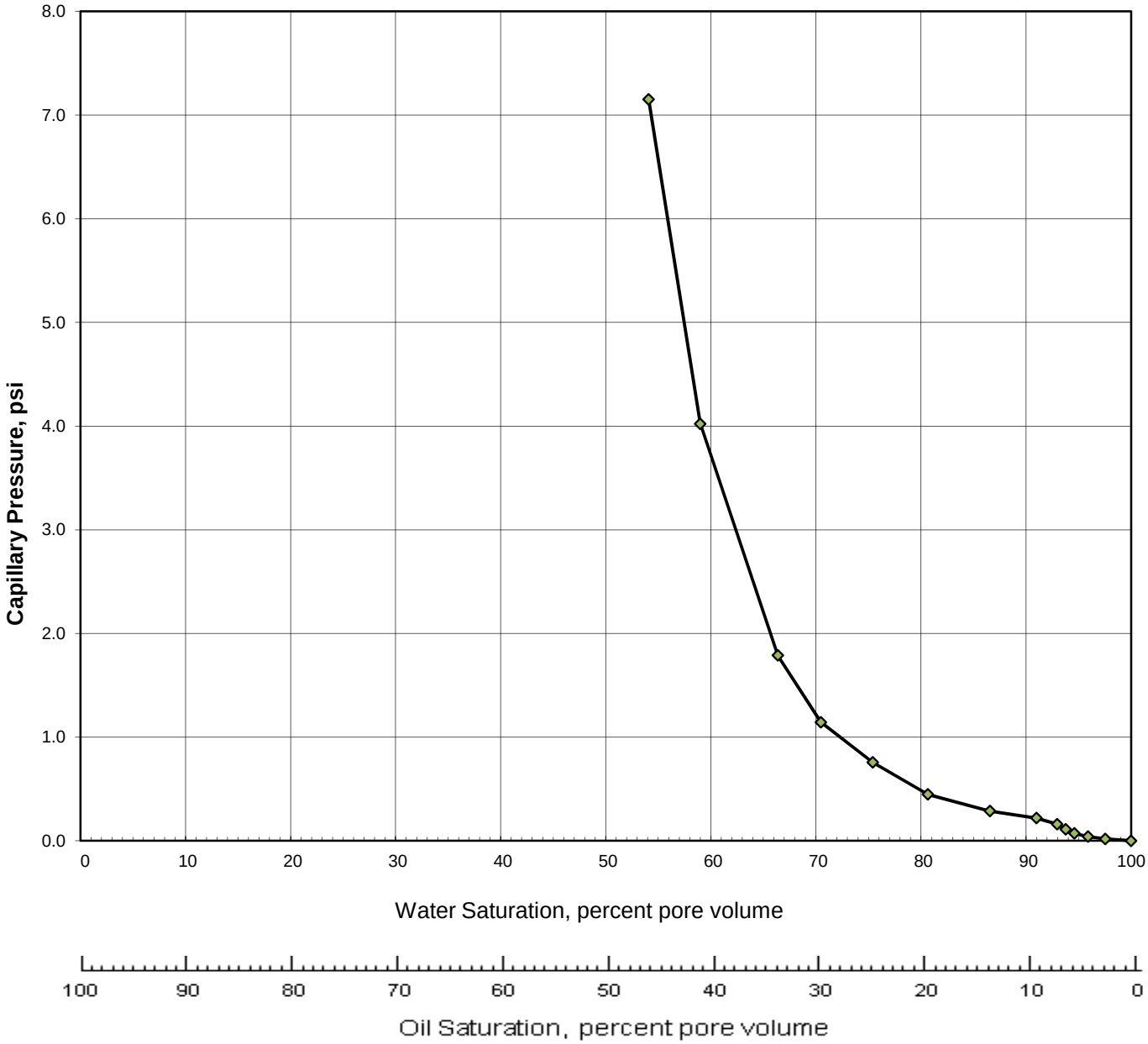
Effective Permaeability to Water, mD.: 55.810

Hydraulic Conductivity, cm/sec: 5.26E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V2-131218-194**
Depth, ft:- **194.70**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-V2-131218-122 (122.45-122.60)	122.5	H	33.2	1.14	2.56	55.5	3.3	94.1
GUV-V2-131218-194 (194.60-194.80)	194.7	H	12.8	1.43	2.56	44.4	4.5	90.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	25 PSI CONFINING STRESS	
				EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V2-131218-122 (122.45-122.60)	122.50	H	20190703	47.42	4.25E-05
GUV-V2-131218-194 (194.60-194.80)	194.70	H	20190703	187.8	1.69E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7234 g/cc.

PTS Laboratories

PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V2-131218-122 at 122.50ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	58.5	41.5
-0.032	2.26	0.271	80.0	20.0
-0.070	4.95	0.594	83.4	16.6
-0.126	8.85	1.063	84.6	15.4
-0.193	13.6	1.63	85.2	14.8
-0.278	19.5	2.34	85.8	14.2
-0.380	26.7	3.21	86.1	13.9
-0.494	34.7	4.17	86.4	13.6
-0.777	54.7	6.56	86.6	13.4
-1.303	92	11.00	86.9	13.1
-1.974	139	16.7	87.3	12.7
-3.085	217	26.0	87.6	12.4
-6.94	488	58.6	88.2	11.8
-12.34	868	104.2	88.9	11.1

Effective Permaeability to Water, mD.: 100.890

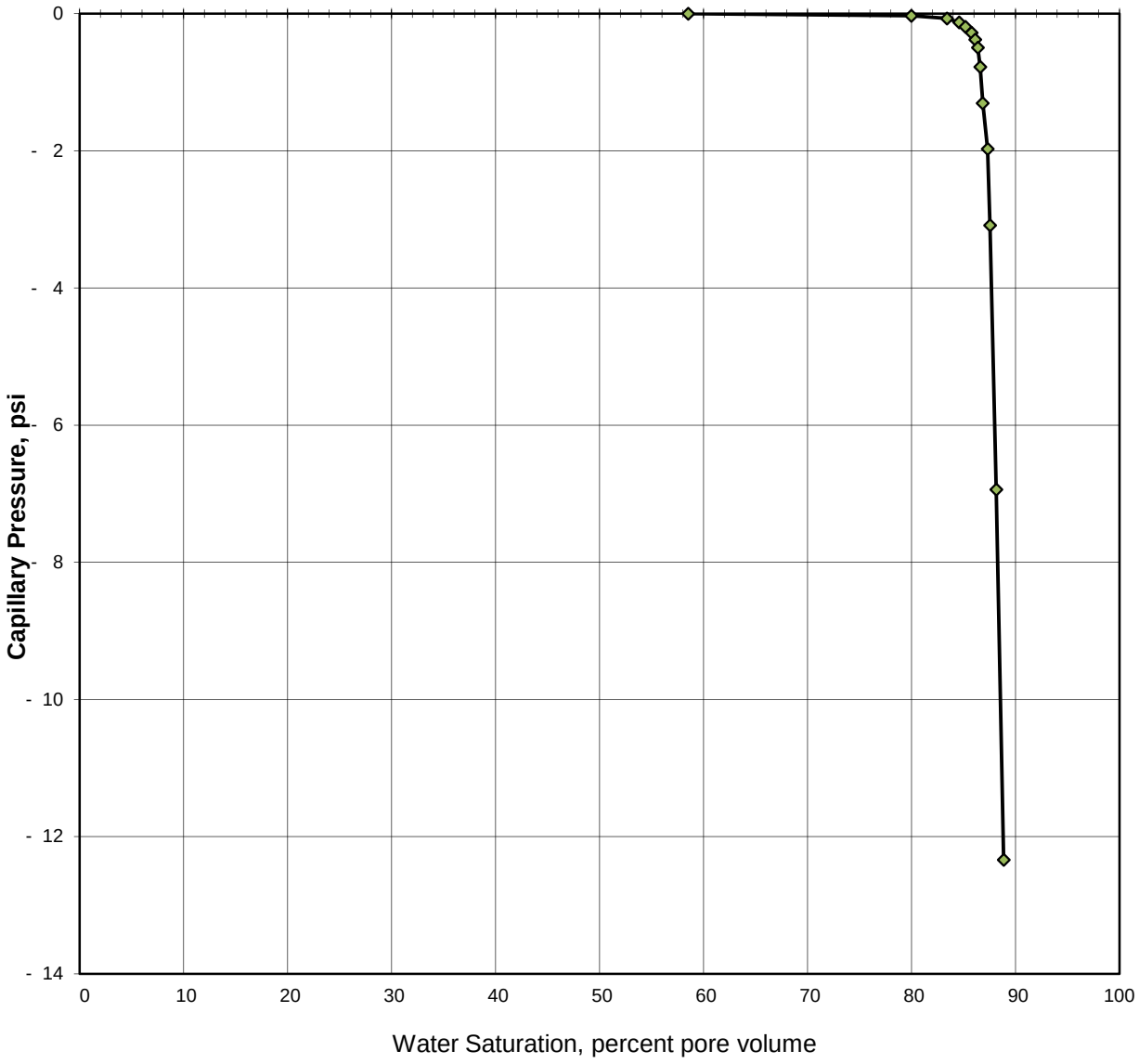
Hydraulic Conductivity, cm/sec: 9.95E-05

EA Engineering, Science
and Technology.
PTS File No.: 48284

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V2-131218-122
Depth, ft.: 122.50



PTS File No: 48284
Client: EA Engineering, Science and Technology
Report Date: 07/08/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V2-131218-194 at 194.70ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	54.1	45.9
-0.032	2.26	0.271	66.5	33.5
-0.070	4.95	0.594	77.0	23.0
-0.126	8.9	1.063	79.5	20.5
-0.193	13.6	1.63	80.3	19.7
-0.278	19.5	2.34	81.5	18.5
-0.380	26.7	3.21	82.3	17.7
-0.494	34.7	4.17	82.8	17.2
-0.777	54.7	6.56	83.4	16.6
-1.303	92	11.00	83.8	16.2
-1.974	139	16.7	84.1	15.9
-3.085	217	26.0	84.9	15.1
-6.94	488	58.6	85.4	14.6
-12.34	868	104.2	86.1	13.9

Effective Permaeability to Water, mD.: 55.810

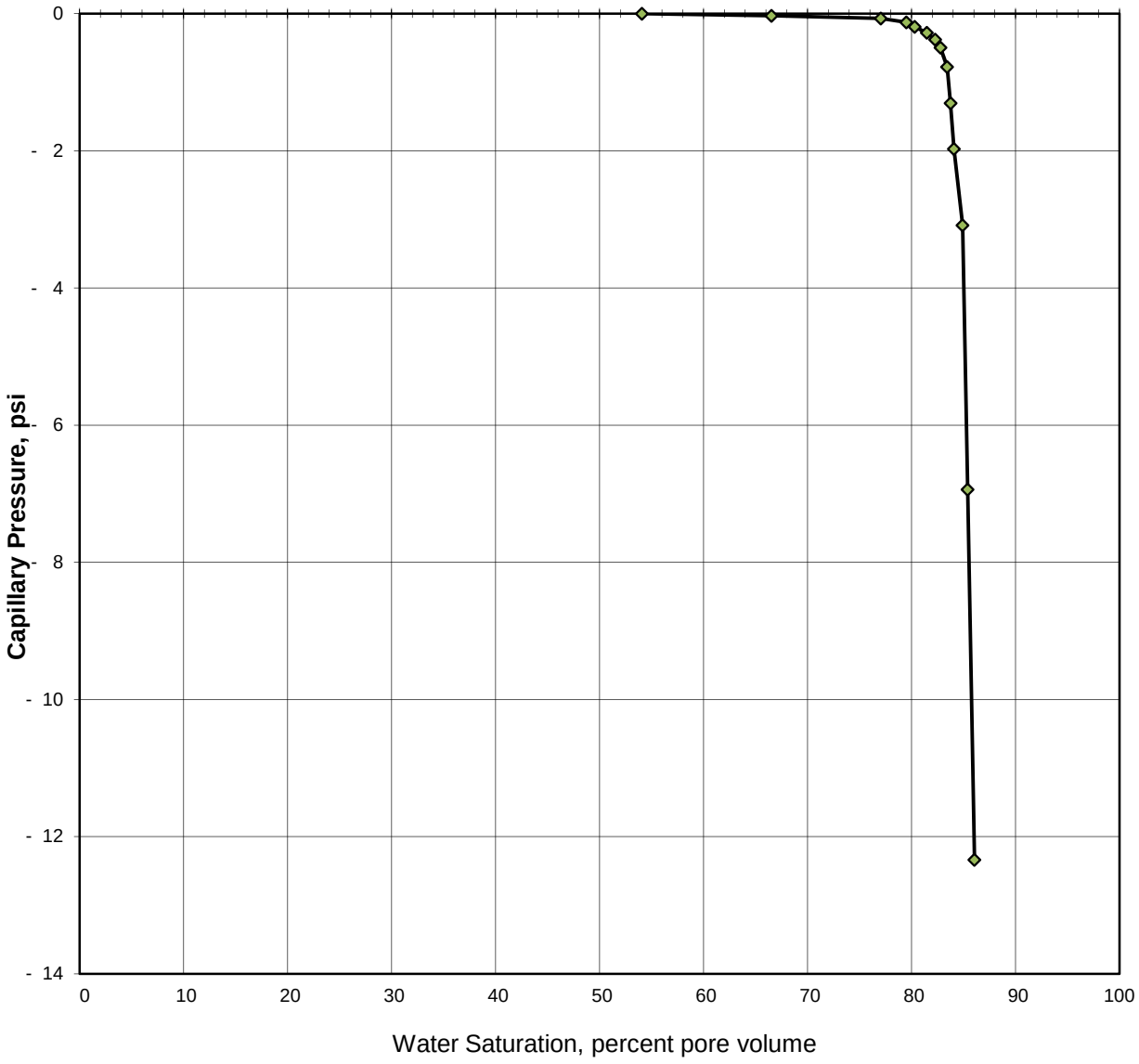
Hydraulic Conductivity, cm/sec: 5.26E-05

EA Engineering, Science
and Technology.
PTS File No.: 48284

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V2-131218-194
Depth, ft.: 194.70



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-V2-131218-122	122.45-122.60	Fine sand	0.111	0.00	1.65	22.10	41.64	34.62
GUV-V2-131218-194	194.60-194.80	Medium sand	0.772	19.18	12.64	31.54	30.58	6.06

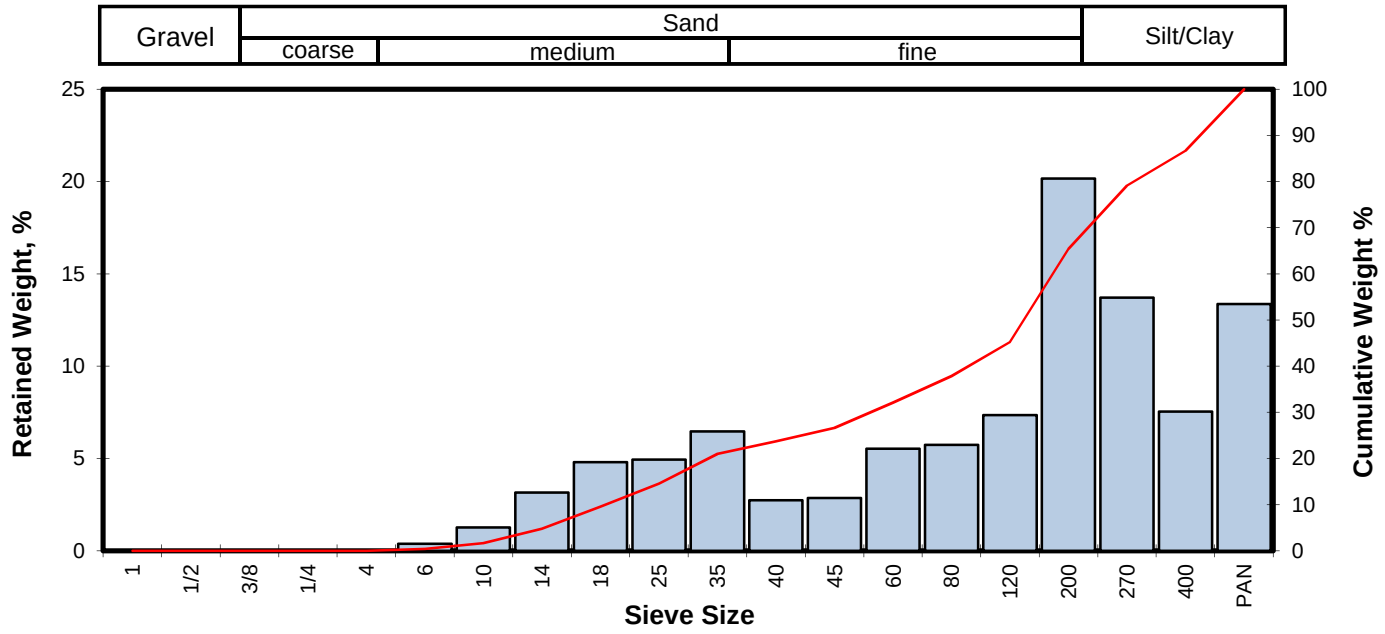
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 1

PTS File No: 48284
Sample ID: GUV-V2-131218-122
Depth, ft: 122.45-122.60



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.82	0.39	0.39
0.0787	2.000	-1.00	10	2.66	1.26	1.65
0.0557	1.414	-0.50	14	6.65	3.15	4.80
0.0394	1.000	0.00	18	10.13	4.80	9.60
0.0278	0.707	0.50	25	10.42	4.94	14.53
0.0197	0.500	1.00	35	13.66	6.47	21.00
0.0166	0.420	1.25	40	5.79	2.74	23.74
0.0139	0.354	1.50	45	6.03	2.86	26.60
0.0098	0.250	2.00	60	11.68	5.53	32.13
0.0070	0.177	2.50	80	12.13	5.75	37.88
0.0049	0.125	3.00	120	15.51	7.35	45.23
0.0029	0.074	3.75	200	42.55	20.15	65.38
0.0021	0.053	4.25	270	28.96	13.72	79.10
0.0015	0.037	4.75	400	15.93	7.55	86.64
			PAN	28.20	13.36	100.00
TOTALS				211.12	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-0.48	0.0549	1.394
10	0.04	0.0383	0.972
16	0.61	0.0257	0.654
25	1.36	0.0153	0.390
40	2.64	0.0063	0.160
50	3.18	0.0044	0.111
60	3.55	0.0034	0.085
75	4.10	0.0023	0.058
84	4.57	0.0017	0.042
90	3.56	0.0033	0.085
95	1.78	0.0115	0.292

Measure	Trask	Inman	Folk-Ward
Median, phi	3.18	3.18	3.18
Median, in.	0.0044	0.0044	0.0044
Median, mm	0.111	0.111	0.111
Mean, phi	2.16	2.59	2.79
Mean, in.	0.0088	0.0065	0.0057
Mean, mm	0.224	0.166	0.145
Sorting	2.585	1.981	1.332
Skewness	1.364	-0.295	-1.267
Kurtosis	0.187	-0.430	0.337
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	1.65
Medium Sand	40	22.10
Fine Sand	200	41.64
Silt/Clay	<200	34.62
	Total	100

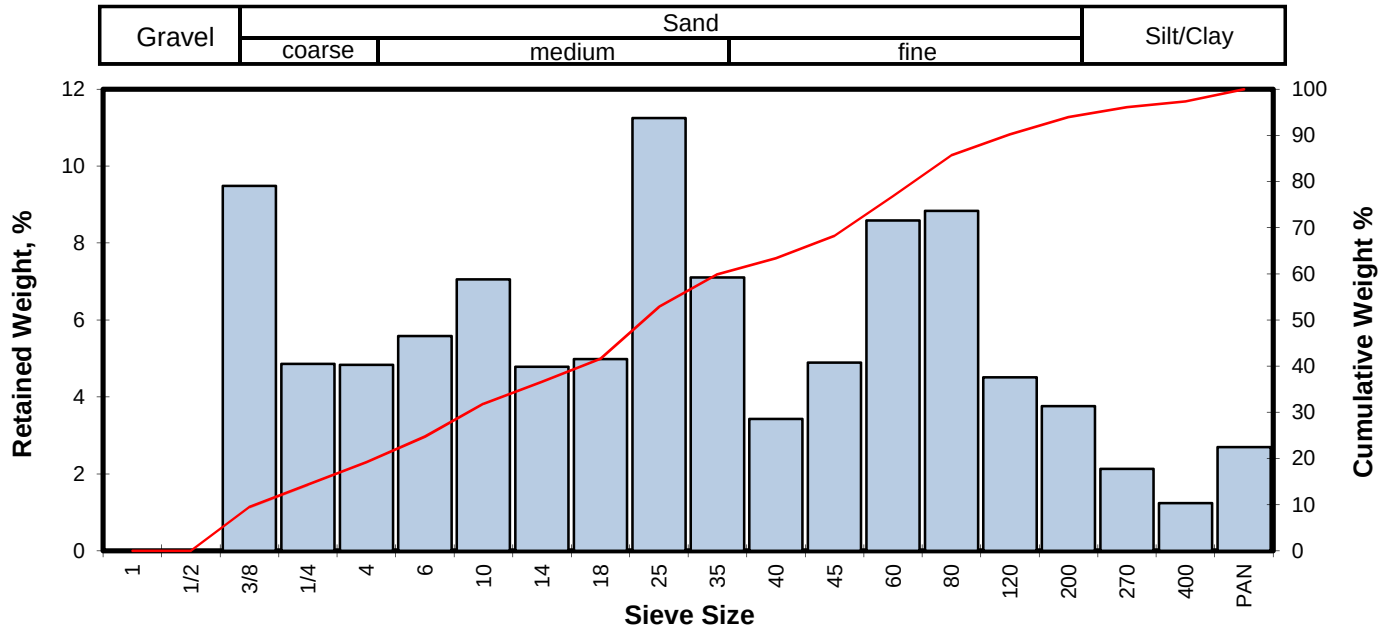
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Phone: (713) 316-1800

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 2

PTS File No: 48284
Sample ID: GUV-V2-131218-194
Depth, ft: 194.60-194.80



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	24.59	9.49	9.49
0.2500	6.351	-2.67	1/4	12.59	4.86	14.34
0.1873	4.757	-2.25	4	12.54	4.84	19.18
0.1324	3.364	-1.75	6	14.47	5.58	24.76
0.0787	2.000	-1.00	10	18.30	7.06	31.82
0.0557	1.414	-0.50	14	12.40	4.78	36.60
0.0394	1.000	0.00	18	12.92	4.98	41.59
0.0278	0.707	0.50	25	29.15	11.24	52.83
0.0197	0.500	1.00	35	18.42	7.11	59.93
0.0166	0.420	1.25	40	8.88	3.43	63.36
0.0139	0.354	1.50	45	12.68	4.89	68.25
0.0098	0.250	2.00	60	22.25	8.58	76.83
0.0070	0.177	2.50	80	22.91	8.84	85.67
0.0049	0.125	3.00	120	11.69	4.51	90.18
0.0029	0.074	3.75	200	9.74	3.76	93.94
0.0021	0.053	4.25	270	5.53	2.13	96.07
0.0015	0.037	4.75	400	3.21	1.24	97.31
			PAN	6.98	2.69	100.00
TOTALS				259.25	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-3.44	0.4259	10.817
10	-3.19	0.3584	9.103
16	-2.52	0.2264	5.752
25	-1.72	0.1301	3.305
40	-0.16	0.0440	1.117
50	0.37	0.0304	0.772
60	1.00	0.0196	0.498
75	1.89	0.0106	0.269
84	2.41	0.0074	0.189
90	2.98	0.0050	0.127
95	4.00	0.0025	0.063

Measure	Trask	Inman	Folk-Ward
Median, phi	0.37	0.37	0.37
Median, in.	0.0304	0.0304	0.0304
Median, mm	0.772	0.772	0.772
Mean, phi	-0.84	-0.06	0.09
Mean, in.	0.0704	0.0410	0.0371
Mean, mm	1.787	1.042	0.943
Sorting	3.504	2.465	2.359
Skewness	1.222	-0.176	-0.100
Kurtosis	0.169	0.508	0.842
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	19.18
Coarse Sand	10	12.64
Medium Sand	40	31.54
Fine Sand	200	30.58
Silt/Clay	<200	6.06
	Total	100

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Phone: (713) 316-1800

PTS Laboratories

Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48284***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***

COC No: COC1 -V2-PTS-20181217, COC2 -V2-PTS-20181217, COC3 -V2-PTS-20181217

TEST PROGRAM - 20181219

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181218					
GUV-V2-131218-122	122-124	2.0	2.0		
GUV-V2-131218-194	194-196	2.0	2.0		
GUV-V2-131218-214	214-215	1.0	1.0		
TOTALS:	3 Bags	5.0	5.0		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

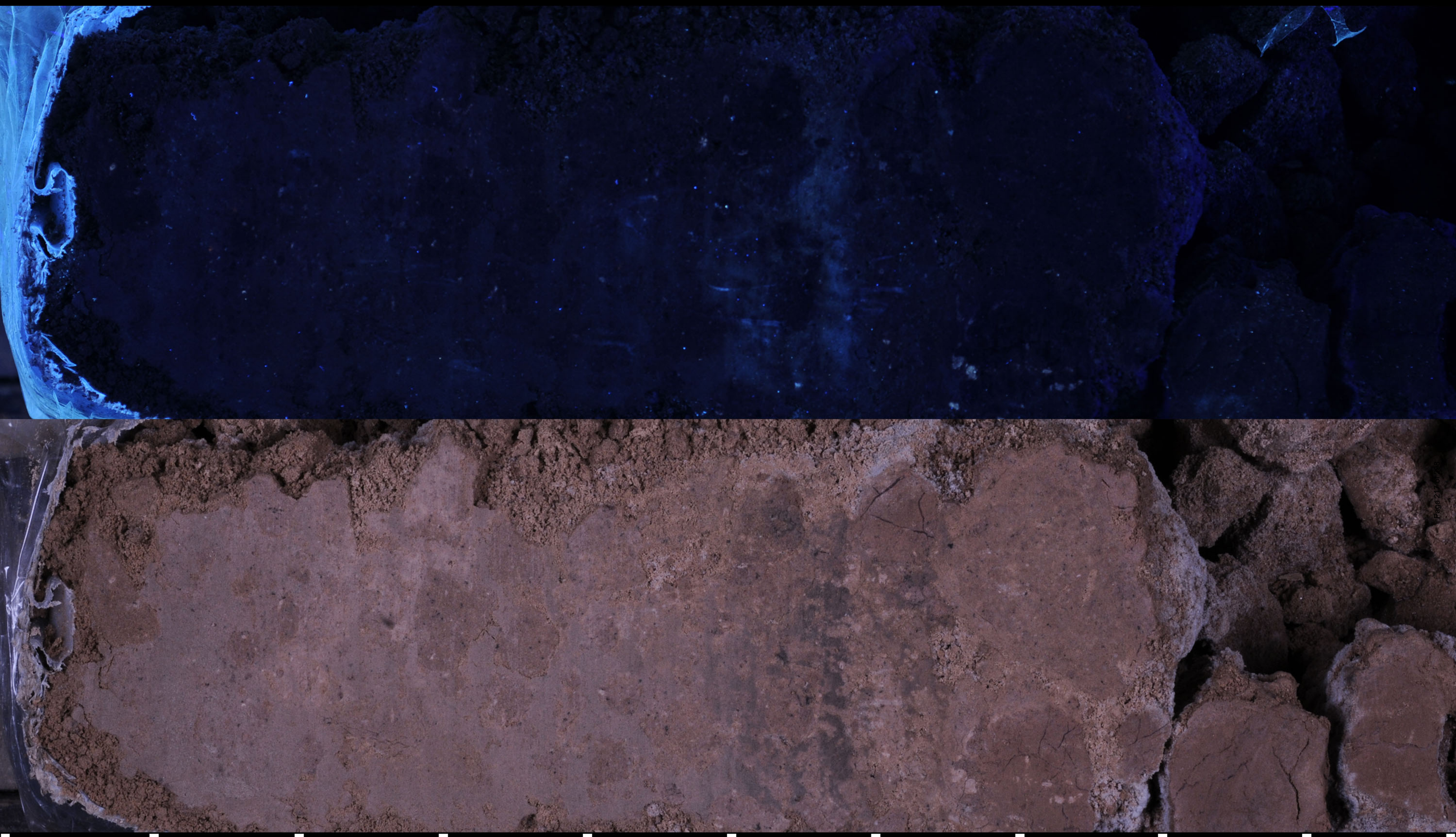
Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48284



122.0

Each Interval Equals One Tenth of a Foot

123.0

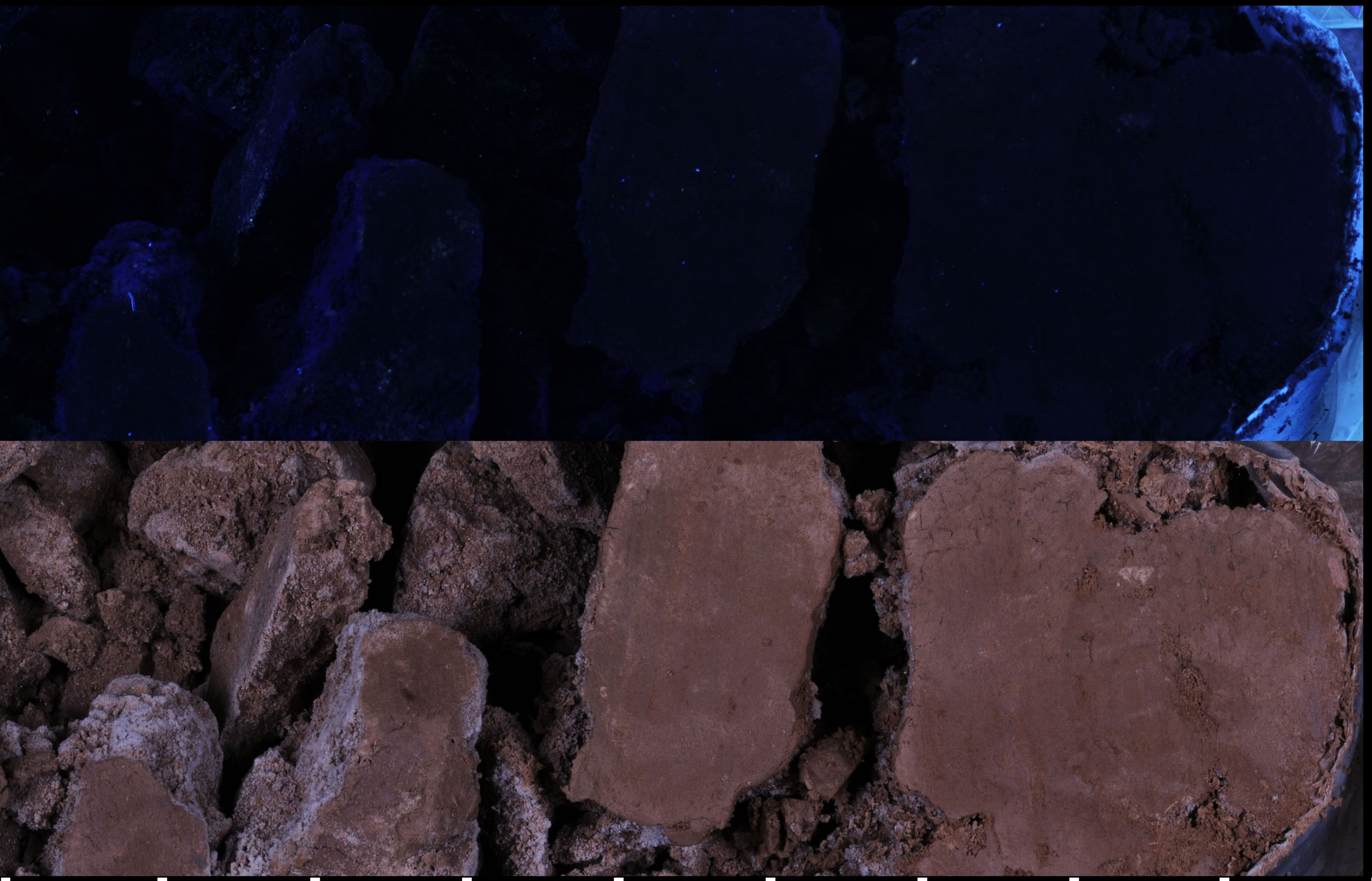
Project Name: Kirtland Vadose Zone Coring

Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48284



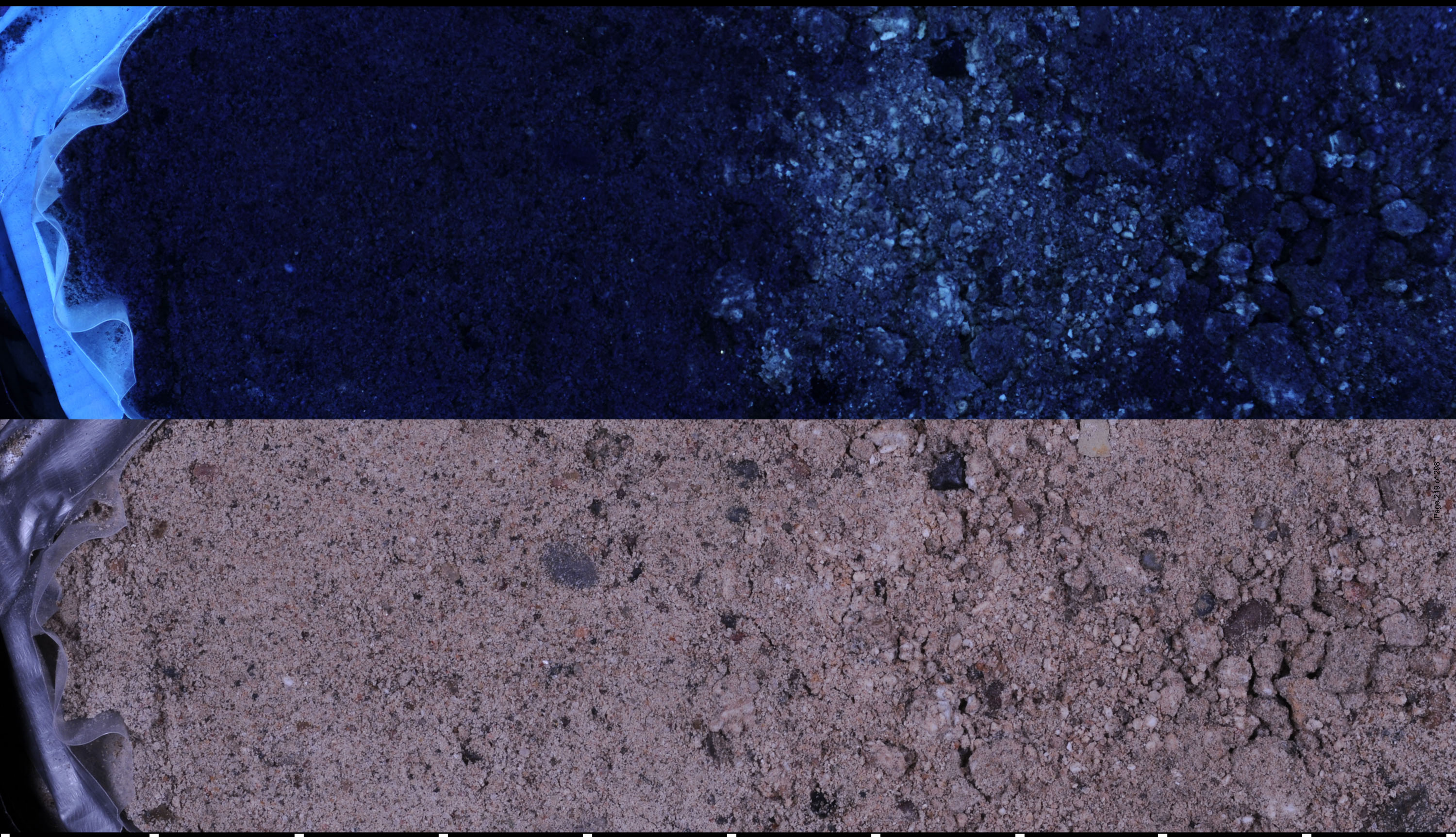
Project Name: Kirtland Vadose Zone Coring

Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48284



194.0

Each Interval Equals One Tenth of a Foot

195.0

Project Name: Kirtland Vadose Zone Coring

Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48284



195.0

Each Interval Equals One Tenth of a Foot

196.0

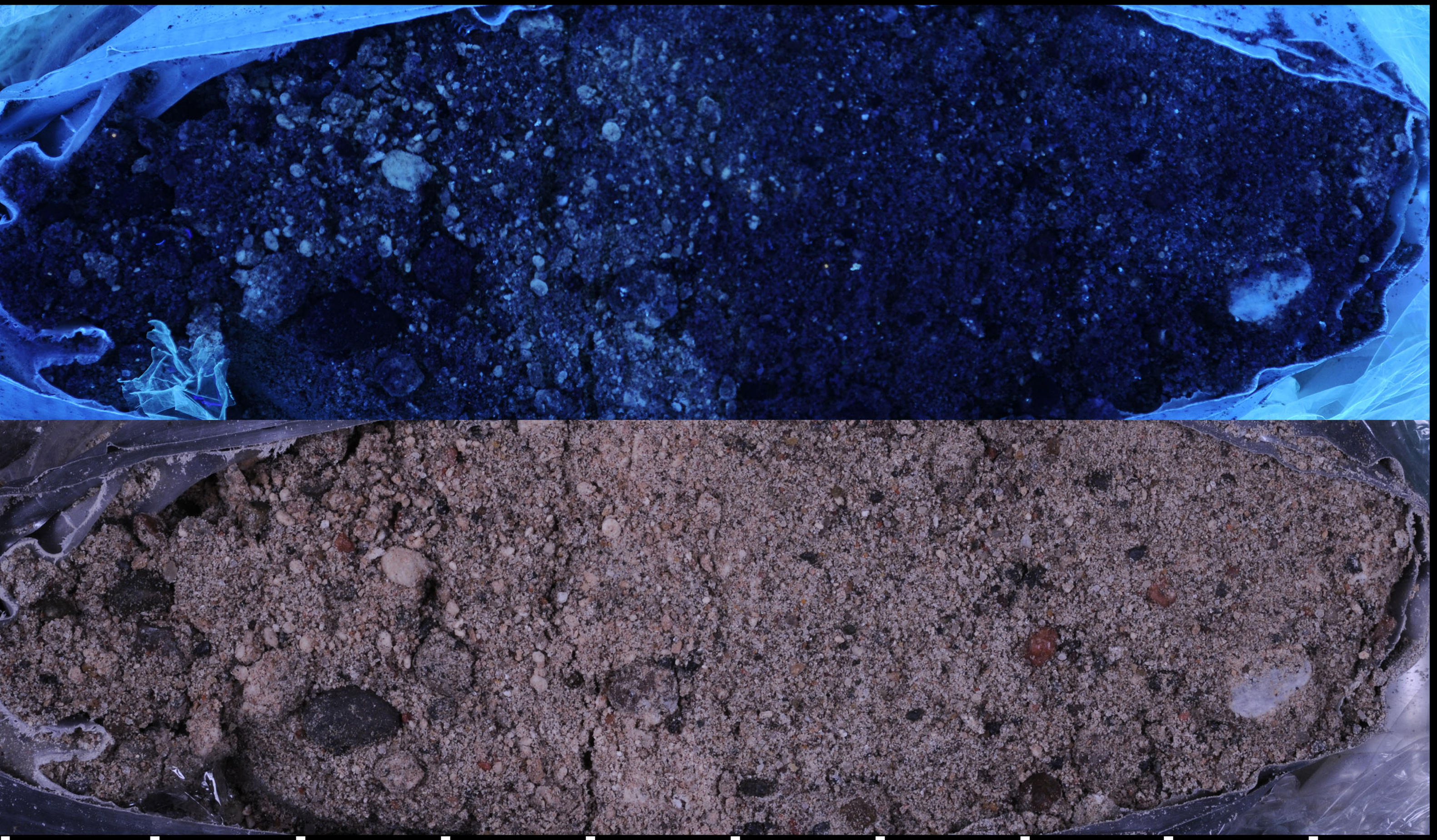
Project Name: Kirtland Vadose Zone Coring

Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48284



214.0

215.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring

Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

7735 4208 2987 COC2-V2-PTS-20181217

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: per po

SAMPLE INTEGRITY (CHECK): INTACT ___ TEMP(F) 52.6

PTS QUOTE NO.:

PTS FILE: 48284

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓ GUV-V2-131218-122	12/13/18	0853	122-129	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston			
COMPANY: EA	COMPANY: PTS laboratories, Inc	COMPANY	COMPANY
DATE: 12/17/18 TIME: 1800	DATE: 12/19/18 TIME: 1080	DATE TIME	DATE TIME

PTS Laboratories, Inc.

7735 4208 2575 Coc3-V2-PTS-20181217

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE
GUV-V2-131218-194	12/13/18	1559	194-196	1	—	—	—	X	—			

PO# 18265

TURNAROUND TIME

24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐

OTHER: per PO

SAMPLE INTEGRITY (CHECK):

INTACT ____ TEMP(F) 37.6

PTS QUOTE NO.

PTS FILE: 48284

COMMENTS

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Lawesson			
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 12/17/18 TIME: 1800	DATE: 12/19/18 TIME: 10	DATE TIME	DATE TIME

7735 4208 3990 COC1-V2-PTS-20181217

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch email:

PROJECT NAME: Kirtland Vadose Zone Coring PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ___ TEMP(F) 37.6

PTS QUOTE NO.:

PTS FILE: 48284

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
✓ GUV-V2-191218-214	12/19/18	0932	214-215	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY: Joshua Livingston — COMPANY: EA — DATE: 12/17/18 — TIME: 1800

2. RECEIVED BY: — COMPANY: PTS Laboratories, Inc — DATE: 12/19/18 — TIME: 1000

3. RELINQUISHED BY: — COMPANY: — DATE: — TIME:

4. RECEIVED BY: — COMPANY: — DATE: — TIME:

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

July 30, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: **48286**
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC1 & 2 – V1-PTS-20181118 & COC1 & 2 – V2-PTS-20181118

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48286
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20190427

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181219													
GUV-V1-171218-120	**120-122**	**2.0**	**2.0**	**120.40-120.50**									Not selected for Analysis by EA
GUV-V1-171218-122	**122-124**	**2.0**	**2.0**	**122.10-122.30**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V2-131218-120	**120-122**	**2.0**	**2.0**	**120.10-120.30**									Not selected for Analysis by EA
GUV-V2-131218-168	**169-170**	**2.0**	**2.0**	**168.1-168.30**									Not selected for Analysis by EA
TOTAL # OF SAMPLES	**4 bags**	**8.0**	**8.0**		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.
***120.80-121.00** Additional interval of interest as seen in the core photography that is suggested for analysis

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

						METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	Temps °F	OIL, gm/cc:	WATER, gm/cc:	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY DRY BULK, g/cc	DENSITY GRAIN, g/cc	POROSITY, %Vb (2) TOTAL	POROSITY, %Vb (2) AIR FILLED	PORE FLUID SATURATIONS, % Pv (3) WATER	PORE FLUID SATURATIONS, % Pv (3) NAPL
GUV-V1-171218-122 (122.10-122.30)	1	122.20	62	0.76284	0.99877	H	31.1	1.22	2.58	52.8	13.2	61.9	13.1

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:		API RP 40		API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY			Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190715	62.17	59.80	1.18	2.55	53.8	57.9	16.19	45.4	16.19

NOTE: No Visible NAPL produced. Produced water clear with moderate gasoline odor and moderate florescence under UV light. Sample Intact.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190722	*Filtered Tap Water	0.9720	71.4	0.127	1.24E-07	1.25E-12

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY		TOTAL	Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190722	1.43	2.62	45.3	79.0	13.3	81.8	13.3

NOTE: No visible NAPL produced; 4.38 pore volumes (115ml) of water could only be injected for 3 days before reaching residual oil saturation point.
Produced water - clear with very faint hydrocarbon odor. No fluorescence under UV light.
Sample intact, patchy spotted fluorescense on sample teflon tape but none on the screens.

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9982 g/cc, NAPL = 0.75853g/cc.
Water drives conducted at 25 psi confining pressure and 71.4°F. Laboratory fresh water (tap) used as injection fluid.
Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.
Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190720	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7526	71.7	0.173	2.17E-07	1.71E-12

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
		SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	SATURATIONS (3), % Pv
GUV-V1-171218-122 (122.10-122.30)	122.2	H	33.0	1.20	2.60	53.9	9.7	82.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40; EPA 9100		
			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-V1-171218-122 (122.10-122.30)	122.2	H	131	1.519	1.47E-06

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

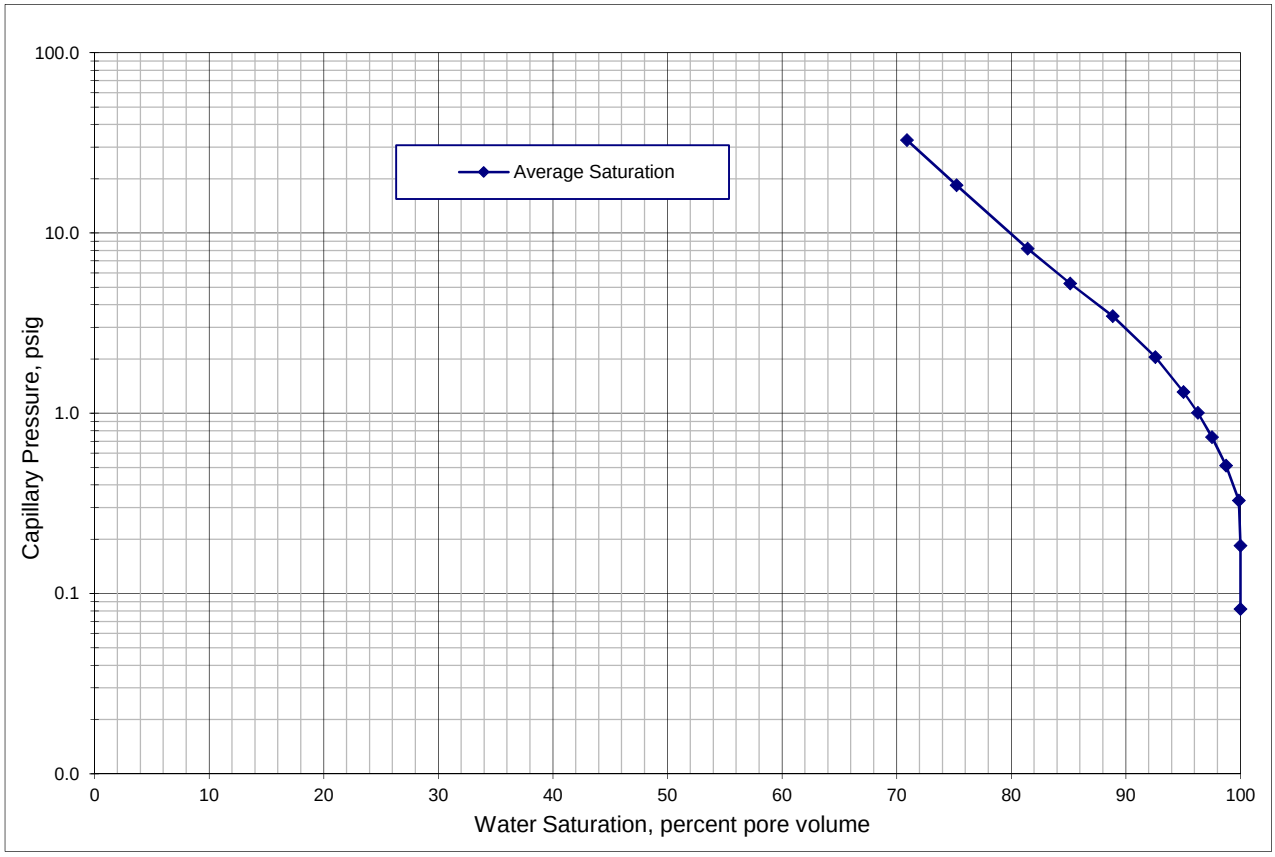
PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-171218-122 (122.10-122.30) at 122.20 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	38.8
0.082	5.76	0.190	100.0	38.8
0.184	13.0	0.427	100.0	38.8
0.328	23.0	0.759	99.9	38.8
0.512	36.0	1.19	98.8	38.3
0.738	51.9	1.71	97.5	37.9
1.004	70.6	2.32	96.3	37.4
1.31	92.2	3.03	95.0	36.9
2.05	144	4.74	92.6	35.9
3.46	243	8.01	88.9	34.5
5.25	369	12.1	85.1	33.1
8.20	576	19.0	81.4	31.6
18.4	1297	42.7	75.2	29.2
32.8	2305	75.9	70.9	27.5



PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-V1-171218-122 (122.10-122.30)	122.20	H	31.9	1.20	2.60	54.0	3.7	93.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190723	0.539	5.04E-07

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7238 g/cc.

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-171218-122 at 122.20ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.018	1.28	0.192	100.0	0.0
0.040	2.82	0.423	100.0	0.0
0.071	5.01	0.752	99.7	0.3
0.111	7.83	1.17	99.4	0.6
0.160	11.27	1.69	98.4	1.6
0.218	15.34	2.30	97.7	2.3
0.285	20.04	3.01	97.1	2.9
0.445	31.31	4.70	96.2	3.8
0.753	52.91	7.94	95.6	4.4
1.140	80.15	12.0	94.0	6.0
1.781	125.24	18.8	92.5	7.5
4.01	281.79	42.3	84.9	15.1
7.12	500.96	75.2	78.6	21.4

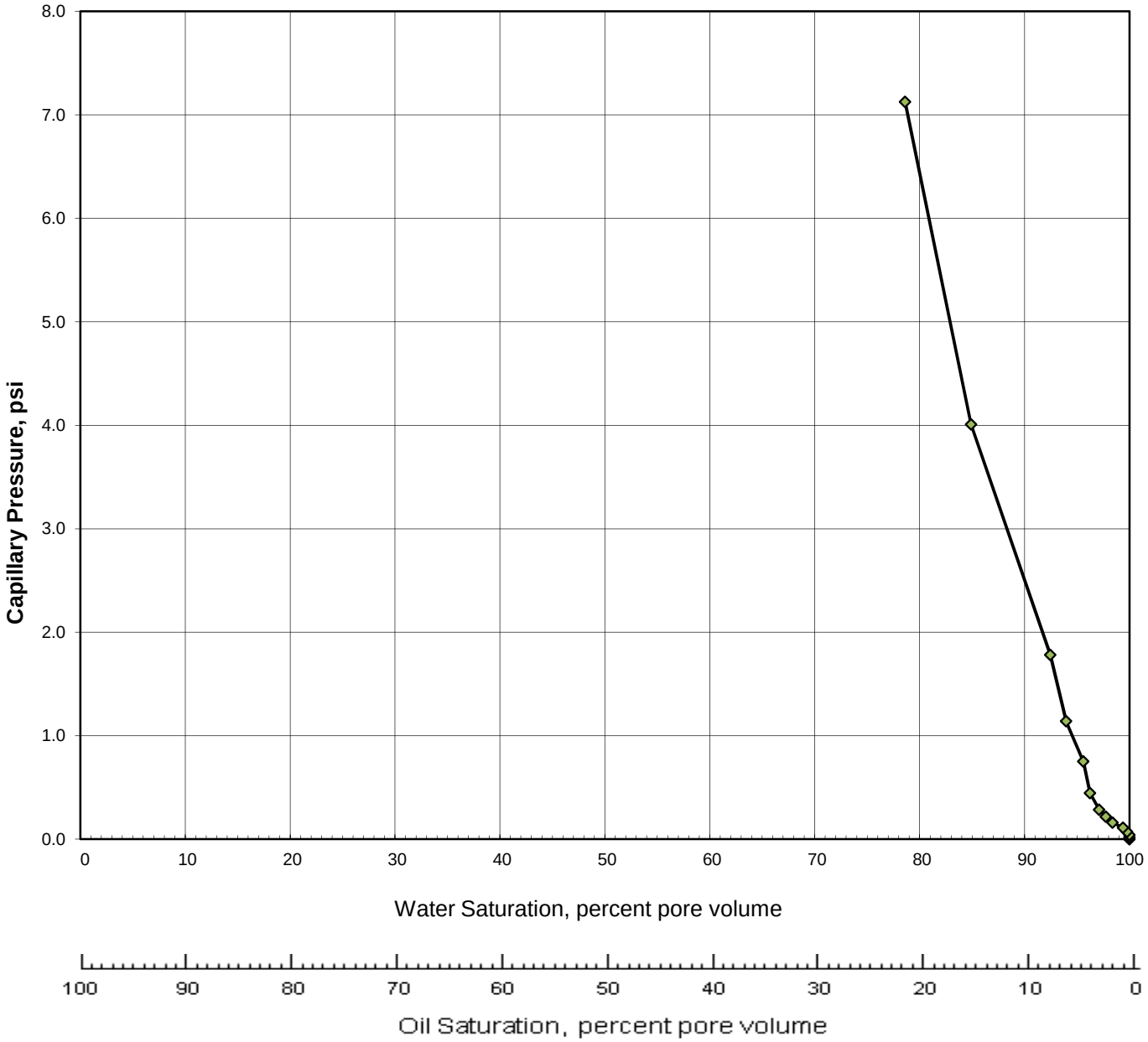
Effective Permaeability to Water, mD.: 0.415

Hydraulic Conductivity, cm/sec: 4.04E-07

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V1-171218-122**
Depth, ft:- **122.20**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-V1-171218-122 (122.10-122.30)	122.20	H	31.9	1.20	2.60	54.0	3.7	93.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V1-171218-122 (122.10-122.30)	122.20	H	20190723	0.539	5.04E-07

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7238 g/cc.

PTS Laboratories

PTS File No: 48286
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V1-171218-122 at 122.20ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	78.6	21.4
-0.039	2.76	0.331	80.5	19.5
-0.085	5.97	0.717	82.6	17.4
-0.151	10.61	1.274	84.9	15.1
-0.236	16.6	1.99	86.8	13.2
-0.340	23.9	2.87	87.7	12.3
-0.462	32.5	3.90	88.0	12.0
-0.604	42.4	5.10	88.3	11.7
-0.943	66.3	7.96	88.6	11.4
-1.594	112	13.46	88.7	11.3
-2.415	170	20.4	88.9	11.1
-3.773	265	31.9	89.3	10.7
-8.49	597	71.7	89.8	10.2
-15.09	1061	127.4	90.6	9.4

Effective Permaeability to Water, mD.: 0.41

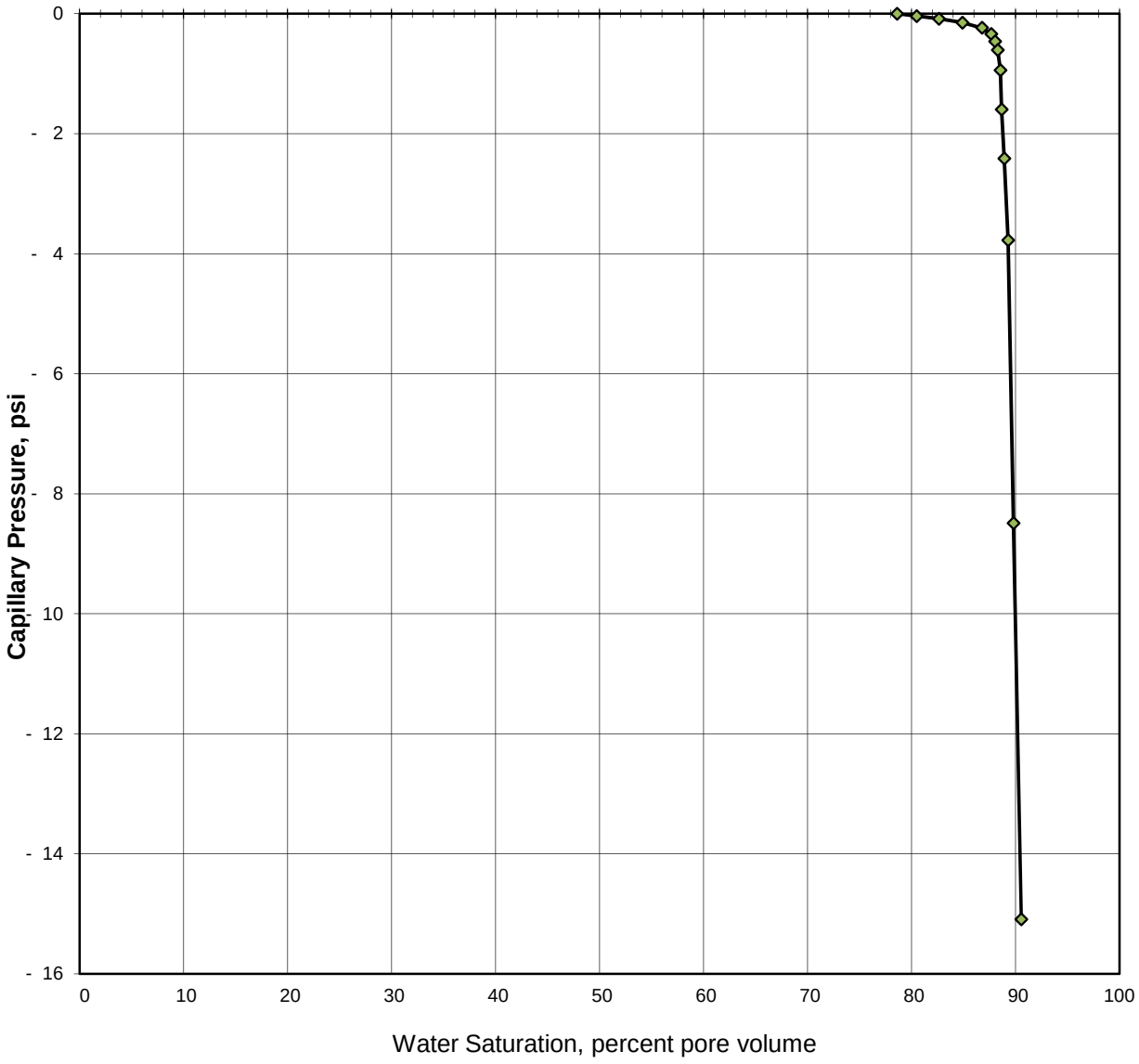
Hydraulic Conductivity, cm/sec: 4.04E-07

EA Engineering, Science
and Technology.
PTS File No.: 48286

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V1-171218-122
Depth, ft.: 122.20



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-V1-171218-122	122.10-122.30	Fine Sand	0.118	0.00	2.14	21.59	49.82	26.45

(1) Based on Mean from Trask

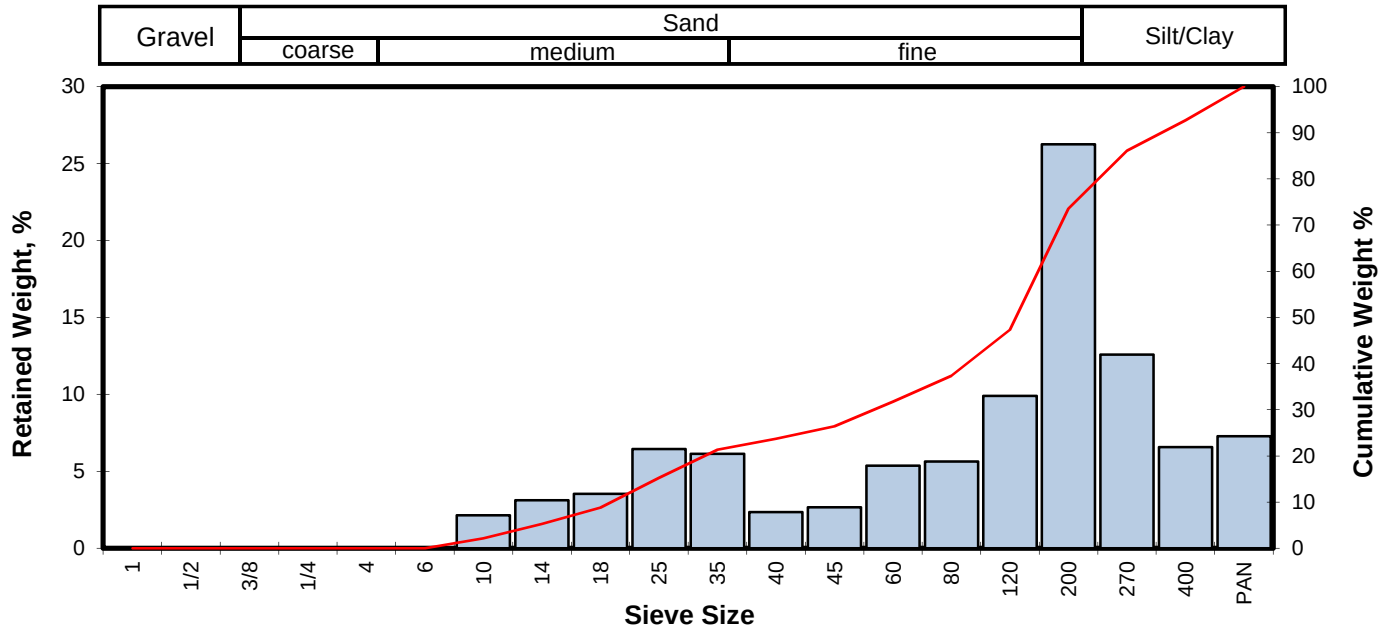
PTS Laboratories, Inc.

PTS ID:- 1

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

PTS File No: 48286
Sample ID: GUV-V1-171218-122
Depth, ft: 122.10-122.30



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	5.42	2.14	2.14
0.0557	1.414	-0.50	14	7.88	3.11	5.25
0.0394	1.000	0.00	18	8.95	3.54	8.79
0.0278	0.707	0.50	25	16.33	6.45	15.24
0.0197	0.500	1.00	35	15.55	6.14	21.39
0.0166	0.420	1.25	40	5.94	2.35	23.73
0.0139	0.354	1.50	45	6.72	2.65	26.39
0.0098	0.250	2.00	60	13.59	5.37	31.76
0.0070	0.177	2.50	80	14.29	5.65	37.40
0.0049	0.125	3.00	120	25.06	9.90	47.30
0.0029	0.074	3.75	200	66.45	26.25	73.55
0.0021	0.053	4.25	270	31.84	12.58	86.13
0.0015	0.037	4.75	400	16.65	6.58	92.71
			PAN	18.45	7.29	100.00
TOTALS				253.12	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.54	0.0573	1.455
10	0.09	0.0369	0.937
16	0.56	0.0267	0.677
25	1.37	0.0152	0.387
40	2.63	0.0064	0.161
50	3.08	0.0047	0.118
60	3.36	0.0038	0.097
75	3.81	0.0028	0.071
84	4.17	0.0022	0.056
90	4.54	0.0017	0.043
95	3.26	0.0041	0.105

Measure	Trask	Inman	Folk-Ward
Median, phi	3.08	3.08	3.08
Median, in.	0.0047	0.0047	0.0047
Median, mm	0.118	0.118	0.118
Mean, phi	2.13	2.36	2.60
Mean, in.	0.0090	0.0077	0.0065
Mean, mm	0.229	0.194	0.165
Sorting	2.328	1.802	1.477
Skewness	1.403	-0.396	-0.650
Kurtosis	0.176	0.054	0.639
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	2.14
Medium Sand	40	21.59
Fine Sand	200	49.82
Silt/Clay	<200	26.45
	Total	100

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Phone: (713) 316-1800

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Project Name:	**Kirtland Vadose Zone Coring**	***PTS File No:***	***48286***
Project Number:	***62735DM02.1017***	***Client:***	***EA Engineering, Science and Technology***

COC No: COC1 -V1-PTS-20181218, COC2 -V1-PTS-20181218, COC2 -V2-PTS-20181218,

TEST PROGRAM - 20181219

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181219					
GUV-V1-171218-120	120-122	2.0	2.0		REEFER
GUV-V1-171218-122	122-124	2.0	2.0		REEFER
GUV-V2-131218-120	120-122	2.0	2.0		REEFER
GUV-V2-131218-168	169-170	2.0	2.0		REEFER
TOTALS:	4 Bags	8.0	8.0		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

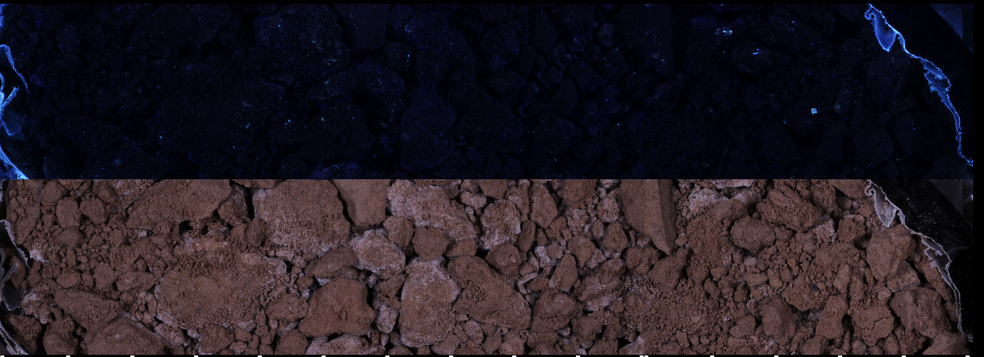
Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286



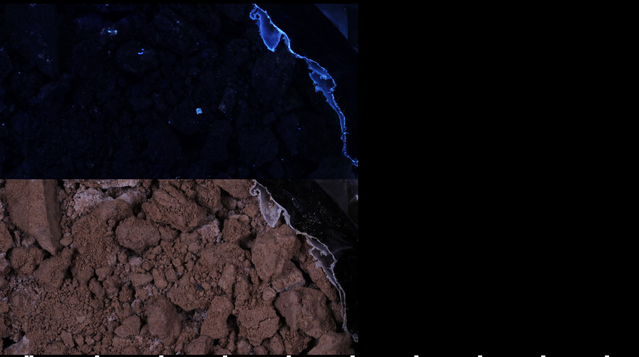
120.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-171218
Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286



121.0
121.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-171218
Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48286

Client Name: EA Engineering, Science and Technology



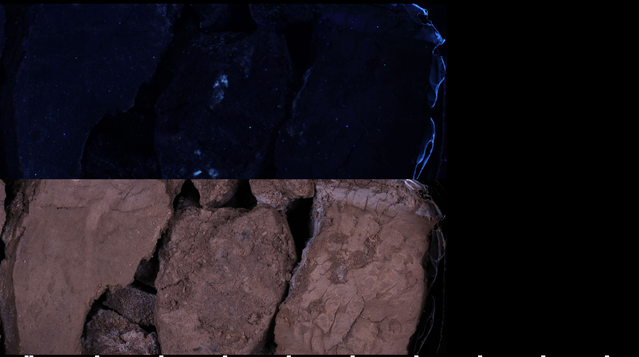
122.0
122.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-171218
Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48286

Client Name: EA Engineering, Science and Technology



123.0
123.0

Each Interval Equals One Tenth of a Foot

124.0

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-171218
Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48286

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286



120.0 121.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

121.0 122.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48286



168.0 169.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

169.0 170.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V2-131218

Project No.: 62735DM02.1017

7735 4208 3620

COC2-VI-PTS-20181218

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE
GVV-VI-171218-120	12/17/18	0846	120-122	1				X				

JRL

PO# 18265

TURNAROUND TIME

24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: Per PO

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 38°F

PTS QUOTE NO.

PTS FILE: 48286

COMMENTS

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS LABS, INC	COMPANY	COMPANY
DATE: 12/18/18 TIME: 1400	DATE: 12/19/18 TIME: 1000	DATE TIME	DATE TIME

7735 9208 3696

CoC1-V1-PTS-20181218

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: per PO

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 35°F

PTS QUOTE NO.

PTS FILE: 48286

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-V1-171218-122	12/17/18	0846	122-124	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston			
COMPANY: EA	COMPANY: PTS LABS, INC	COMPANY	COMPANY
DATE: 12/18/18 TIME: 1400	DATE: 12/19/18 TIME: 1000	DATE TIME	DATE TIME

PTS Laboratories, Inc. 7735 4208 3045 ~~COC1-V2-PTS-20181217~~ JRL

CHAIN OF CUSTODY RECORD

COC1-V2-PTS-20181218

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE
GUV-V2-131218-120	12/13/18	0853	120-122	1	—	—	—	X	—	—	—	—

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: Per PO

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 26°F

PTS QUOTE NO.

PTS FILE: 48286

COMMENTS

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston			
COMPANY: EA	COMPANY: PTS LABS, INC	COMPANY	COMPANY
DATE: 12/17/18 TIME: 1800	DATE: 12/19/18 TIME: 1000	DATE TIME	DATE TIME

7735 4208 3365 COC 2-V2-PTS-20181218

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, Albuquerque, NM, 87102 (CITY, ZIP CODE)

PROJECT MANAGER: Bernie Bockisch (email)

PROJECT NAME: Kirtland Vadose Zone Coring

PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017

FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 38.2°F

PTS QUOTE NO.:

PTS FILE: 48286

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-V2-131218-168	12/13/18	1210	168-170	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS LABS, INC	COMPANY:	COMPANY:
DATE: 12/18/18 TIME: 1400	DATE: 12/19/18 TIME: 1000	DATE: TIME:	DATE: TIME:

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

July 30, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: **48292**
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC Nos: COC 1, 2, 3 & 4 – V1-PTS-20181220

Subject: **Pore Fluid Saturation; A/W Drainage Capillarity Package; O/W Drainage Capillarity Package; O/W Imbibition Capillarity Package; Free Product Mobility; Residual Saturation by Water drive-(RSWD); NAPL Permeability; Grain Size Analysis-ASTM D422.)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 48292
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20190427

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Pore Fluid Saturation Package	A/W Drng. Capillarity Pkg.	O/W Drng. Capillarity Pkg.	O/W Imbibition Capillarity Pkg.	Free Product Mobility	Residual Saturation by Water Drive	NAPL Permeability API RP40	Grain Size Analysis	Comments
			1/4:3/4		Hor. 1.5'	Hor. 1"	Hor. 1"	Hor. 1"	Hor. 1.5'	Hor. 1.5'	Hor. 1.5'	Grab	
Date Received: 20181221													
GUV-V1-161218-158	**158-160**	**2.0**	**2.0**	**158.1-158.5**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V1-161218-162	**162-164**	**2.0**	**2.0**	**162.60-162.90**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V1-161218-164	**164-166**	**2.0**	**2.0**	**164.30-164.50**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	Recommended depths are areas of UV Fluorescence
GUV-V1-161218-202	**202-204**	**2.0**	**2.0**	**202.50-202.60**									Not selected for Analysis by EA
TOTAL # OF SAMPLES	**4 bags**	**8.0**	**8.0**		**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.

Laboratory Test Program Notes
Standard TAT for basic analysis is 10-15 business days. Advanced tests require additional time.
Sample locations to be selected by EA Engineering, Science, and Technology, Inc.
Grain Size Analysis: Laser or sieve method; includes tabular data, graphics and statistical sorting in Excel format.

PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
SAMPLE ID.	PTS Plug ID	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		PORE FLUID SATURATIONS, % Pv (3)	
					DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	WATER	NAPL
GUV-V1-161218-158 (158.10-158.50)	1	158.30	H	14.3	1.21	2.48	51.2	32.6	25.8	10.5
GUV-V1-161218-162 (162.60-162.90)	2	162.75	H	12.9	1.32	2.59	49.0	31.0	28.4	8.4
GUV-V1-161218-164 (164.30-164.50)	3	164.40	H	8.5	1.43	2.59	44.8	31.6	19.0	10.3

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99877 g/cc, NAPL = 0.76284 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

FREE PRODUCT MOBILITY: INITIAL AND RESIDUAL SATURATIONS

(Centrifugal method: samples spun under air)

Project Name: Kirtland Vadose Zone Coring
COC ID: 62735DM02.1017

				METHODS:	API RP 40			API RP 40	ASTM D425M, DEAN-STARK			
									PORE FLUID SATURATIONS (3), % Pv			
				TOTAL SAMPLE VOLUME		DENSITY			Initial Fluid Saturations		After Centrifuge at 25xG	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	INITIAL cc	FINAL cc	DRY BULK, g/cc	GRAIN, g/cc	TOTAL POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190715	61.85	56.00	1.07	2.45	56.3	25.8	8.8	16.4	8.8
NOTE: No Visible NAPL produced but oil sheen on produced water. Produced water clear, amber with strong gasoline odor and florescences under UV light. Sample Intact.												
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190715	60.95	59.52	1.31	2.59	49.2	29.8	5.3	18.7	5.3
NOTE: No Visible NAPL produced but oil sheen on produced water. Produced water clear, amber with strong gasoline odor and florescences under UV light. Sample Intact.												
GUV-V1-161218-164 (164.30-164.50)	164.40	H	20190715	59.39	58.20	1.40	2.58	45.8	23.5	8.3	13.4	8.3
NOTE: No Visible NAPL produced but oil sheen on produced water. Produced water clear, amber with strong gasoline odor and florescences under UV light. Sample Intact.												

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water =0.99830 g/cc, NAPL = 0.76009 g/cc.

Swi = Initial Water Saturation as received prior to centrifuging at 25xG, Soi = Initial NAPL Saturation as received prior to centrifuging at 25xG for 10 hours.

Srw = Residual Water Saturation after centrifuging at 25xG, Sor = Residual NAPL Saturation after centrifuging at 25xG for duration of 10 hours

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - Residual Saturation by Water Drive

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	25 PSI CONFINING STRESS		
							EFFECTIVE PERMEABILITY TO Water at Sor (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190722	*Filtered Tap Water	0.9559	72.6	205.68	2.03E-04	2.03E-09
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190723	*Filtered Tap Water	0.9507	73.0	488.88	4.87E-04	4.83E-09
GUV-V1-161218-164 (164.30-164.50)	164.4	H	20190724	*Filtered Tap Water	0.9761	71.1	917.99	8.88E-04	9.06E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3)Effective Water Permeability at residual oil saturation.
*Filtered Tap Water was used for flood test. Its properties matched the GW 150-031218 received from EA Engineering.

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY		TOTAL	Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190722	1.09	2.41	54.6	33.4	11.5	59.9	11.5
NOTE: No visible NAPL produced; 11.55 pore volumes (357ml) of water injected. Produced water - clear dull yellow with strong hydrocarbon odor. Sample intact, spotted fluorescense on sample teflon tape but none on the screens.										
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190723	1.30	2.59	49.6	25.7	7.6	66.0	7.6
NOTE: No visible NAPL produced; 12.76 pore volumes (387ml) of water injected. Produced water - clear dull yellow with strong hydrocarbon odor. Sample intact, patchy UV fluorescense on sample teflon tape.										
GUV-V1-161218-164 (164.30-164.50)	164.40	H	20190724	1.51	2.60	41.8	28.5	7.8	80.4	7.8
NOTE: No visible NAPL produced; 21.51 pore volumes (500ml) of water injected. Produced water - clear dull yellow with strong hydrocarbon odor. Sample intact, patchy fluorescense on sample teflon tape.										

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all non & interconnected pore channels.

(3) Average Fluid density used to calculate pore fluid saturations: Water = 0.9980 g/cc, NAPL = 0.75817 g/cc.

Water drives conducted at 25 psi confining pressure and 72.2°F. Laboratory fresh water (tap) used as injection fluid.

Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.

Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - HYDRAULIC CONDUCTIVITY

(Methodology: API RP 40; EPA 9100)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

							25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	FLUID USED	FLUID VISCOSITY (CP)	TEST TEMPERATURE (oF)	EFFECTIVE PERMEABILITY TO fluid (2,3), millidarcy	HYDRAULIC CONDUCTIVITY (3), cm/s	INTRINSIC PERMEABILITY TO Fluid (3), cm^2
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190721	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7526	71.7	361.998	4.54E-04	3.57E-09
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190721	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7540	71.5	261.386	3.27E-04	2.58E-09
GUV-V1-161218-164 (164.30-164.50)	164.40	H	20190721	*Blended Lab oil (60% Isopar-C & 40% Isopar-L)	0.7547	71.4	342.485	4.29E-04	3.38E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to Fluid and hydraulic conductivity measured at saturated conditions.
*Blended Lab oil (60% Isopar-C & 40% Isopar-L) matched the properties of the NAPL-N-079-261118-01 received from EA Engineering.

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

SAMPLE PROPERTIES - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-V1-161218-158 (158.10-158.50)	158.30	H	38.9	1.10	2.46	55.2	12.3	77.8
GUV-V1-161218-162 (162.60-162.90)	162.75	H	30.5	1.34	2.61	48.6	7.4	84.7
GUV-V1-161218-164 (164.30-164.50)	164.40	H	26.3	1.43	2.61	45.2	7.5	83.4

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PERMEABILITY DATA - AIR/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

METHODS: **API RP 40; EPA 9100**

			25 PSI CONFINING STRESS		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	SPECIFIC PERMEABILITY TO AIR, millidarcy (2)	EFFECTIVE PERMEABILITY TO WATER, millidarcy (3,4)	HYDRAULIC CONDUCTIVITY, cm/s (4)
GUV-V1-161218-158 (158.10-158.50)	158.3	H	585.58	65.97	6.39E-05
GUV-V1-161218-162 (162.60-162.90)	162.75	H	600.15	374.91	3.57E-04
GUV-V1-161218-164 (164.30-164.50)	164.4	H	1129.06	705.23	6.83E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Specific = No pore fluids in place.

(3) Effective (Native) = With as-received pore fluids in place.

(4) Permeability to water and hydraulic conductivity measured at saturated conditions.

Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

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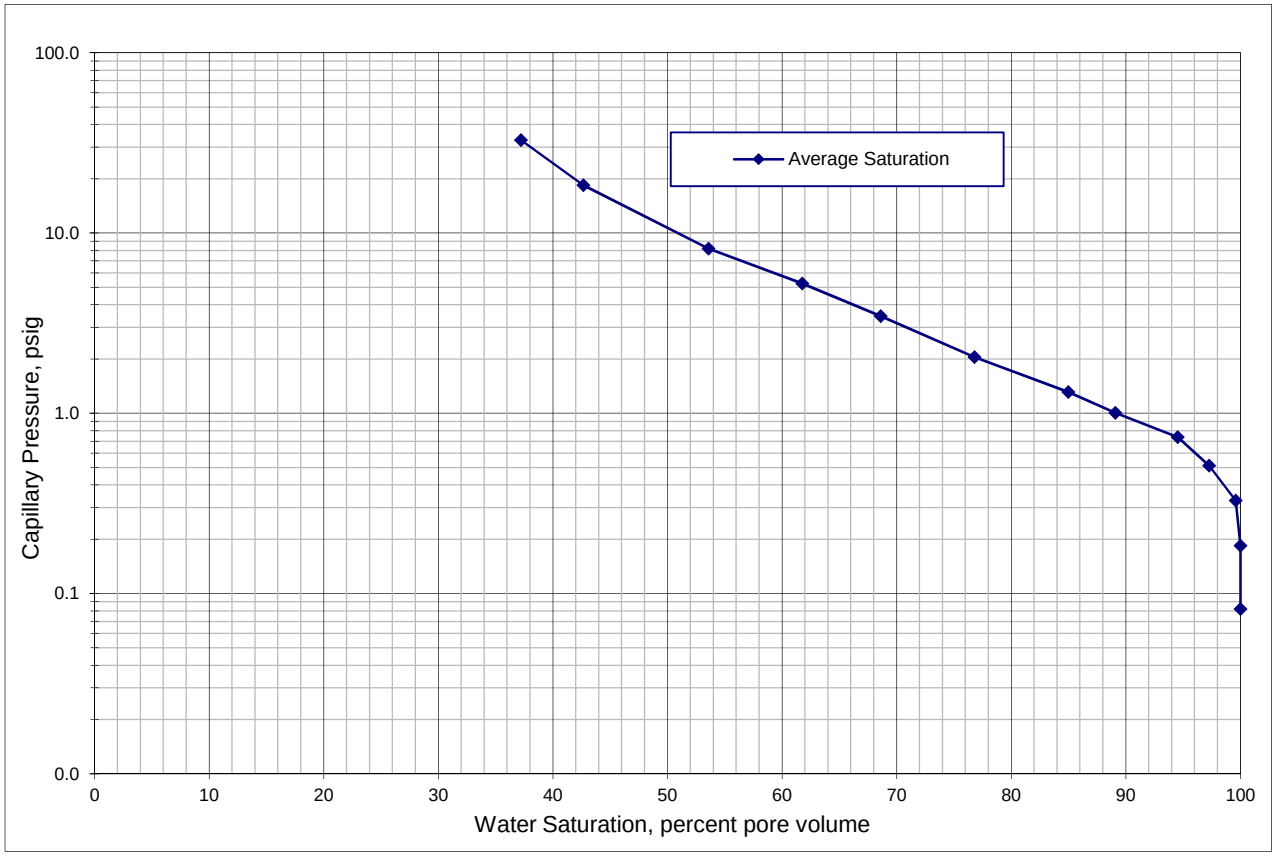
PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-161218-158 (158.10-158.50) at 158.30 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	38.9
0.082	5.76	0.190	100.0	38.9
0.184	13.0	0.427	100.0	38.9
0.328	23.0	0.758	99.6	38.8
0.512	36.0	1.19	97.3	37.9
0.737	51.8	1.71	94.5	36.8
1.004	70.6	2.32	89.1	34.7
1.31	92.2	3.03	85.0	33.1
2.05	144	4.74	76.8	29.9
3.46	243	8.01	68.6	26.7
5.24	369	12.1	61.8	24.1
8.19	576	19.0	53.6	20.9
18.4	1296	42.7	42.7	16.6
32.8	2304	75.8	37.2	14.5



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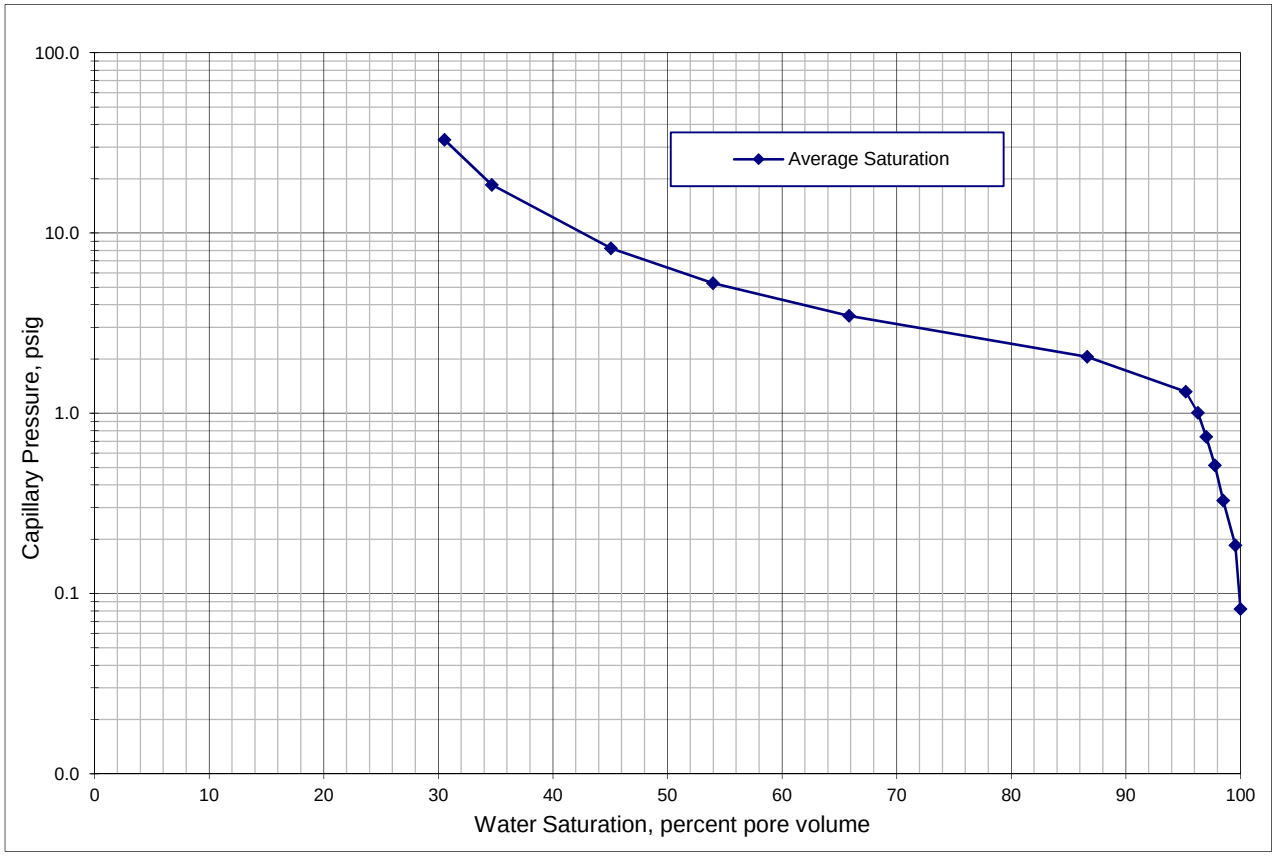
PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-161218-162 (162.60-162.90) at 162.75 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	30.5
0.082	5.78	0.190	100.0	30.5
0.185	13.0	0.428	99.6	30.4
0.329	23.1	0.760	98.5	30.1
0.513	36.1	1.19	97.8	29.9
0.739	52.0	1.71	97.0	29.6
1.006	70.8	2.33	96.3	29.4
1.31	92.4	3.04	95.3	29.1
2.05	144	4.75	86.6	26.5
3.47	244	8.03	65.9	20.1
5.26	370	12.2	54.0	16.5
8.21	578	19.0	45.1	13.8
18.5	1300	42.8	34.7	10.6
32.9	2310	76.0	30.5	9.3



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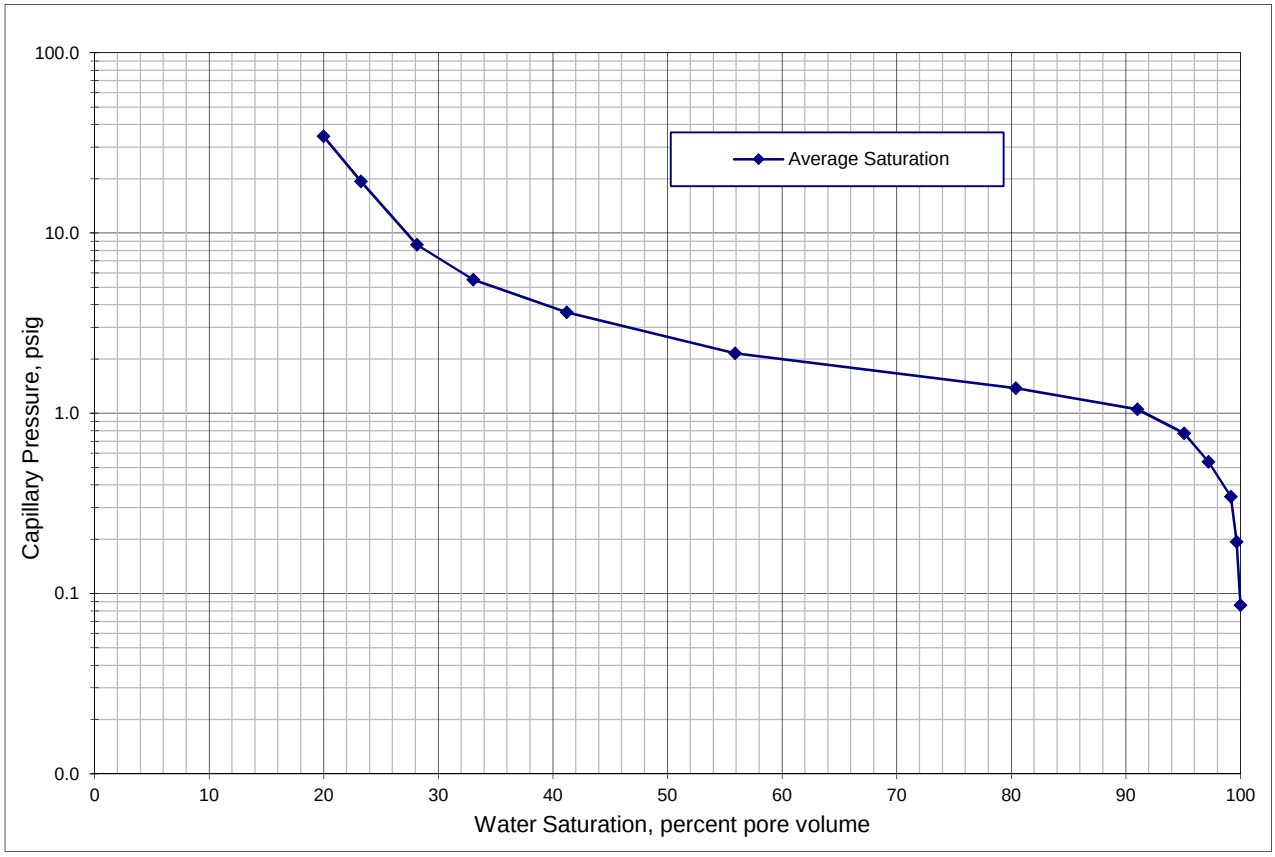
PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

AIR/WATER CAPILLARY PRESSURE TABULAR DATA

ASTM D6836; Method E (Centrifugal Method: air displacing water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-161218-164 (164.30-164.50) at 164.40 ft	
			Average Saturation	Moisture,
psi	cm water	ft	% pore volume	% dry weight
0.000	0.00	0.000	100.0	26.3
0.086	6.05	0.199	100.0	26.3
0.193	13.6	0.448	99.7	26.2
0.344	24.2	0.796	99.2	26.1
0.537	37.8	1.24	97.2	25.6
0.774	54.4	1.79	95.1	25.0
1.053	74.1	2.44	91.0	23.9
1.38	96.7	3.18	80.4	21.1
2.15	151	4.98	55.9	14.7
3.63	255	8.41	41.2	10.8
5.50	387	12.7	33.1	8.7
8.60	605	19.9	28.2	7.4
19.3	1360	44.8	23.3	6.1
34.4	2418	79.6	20.0	5.3



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PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DENSITY		POROSITY, %Vb (2)		TOTAL PORE FLUID SATURATIONS (3), % Pv
				DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	
GUV-V1-161218-158 (158.10-158.50)	158.3	H	18.8	1.22	2.55	51.9	0.9	98.3
GUV-V1-161218-162 (162.60-162.90)	162.75	H	14.2	1.45	2.69	46.2	0.1	99.8
GUV-V1-161218-164 (164.30-164.50)	164.4	H	10.1	1.49	2.88	48.3	0.5	99.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

				25 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190723	130.21	1.16E-04
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190723	109.8	9.85E-05
GUV-V1-161218-164 (164.30-164.50)	164.40	H	20190723	411.5	3.65E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7234 g/cc.

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V1-161218-158 at 158.30ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.018	1.29	0.154	99.3	0.7
0.040	2.84	0.341	98.6	1.4
0.072	5.04	0.606	97.9	2.1
0.112	7.88	0.95	96.5	3.5
0.161	11.35	1.36	95.7	4.3
0.220	15.45	1.85	94.3	5.7
0.287	20.17	2.42	92.2	7.8
0.448	31.52	3.79	87.5	12.5
0.758	53.27	6.40	81.6	18.4
1.148	80.70	9.7	74.5	25.5
1.793	126.09	15.1	64.6	35.4
4.03	283.70	34.1	49.4	50.6
7.17	504.35	60.6	41.2	58.8

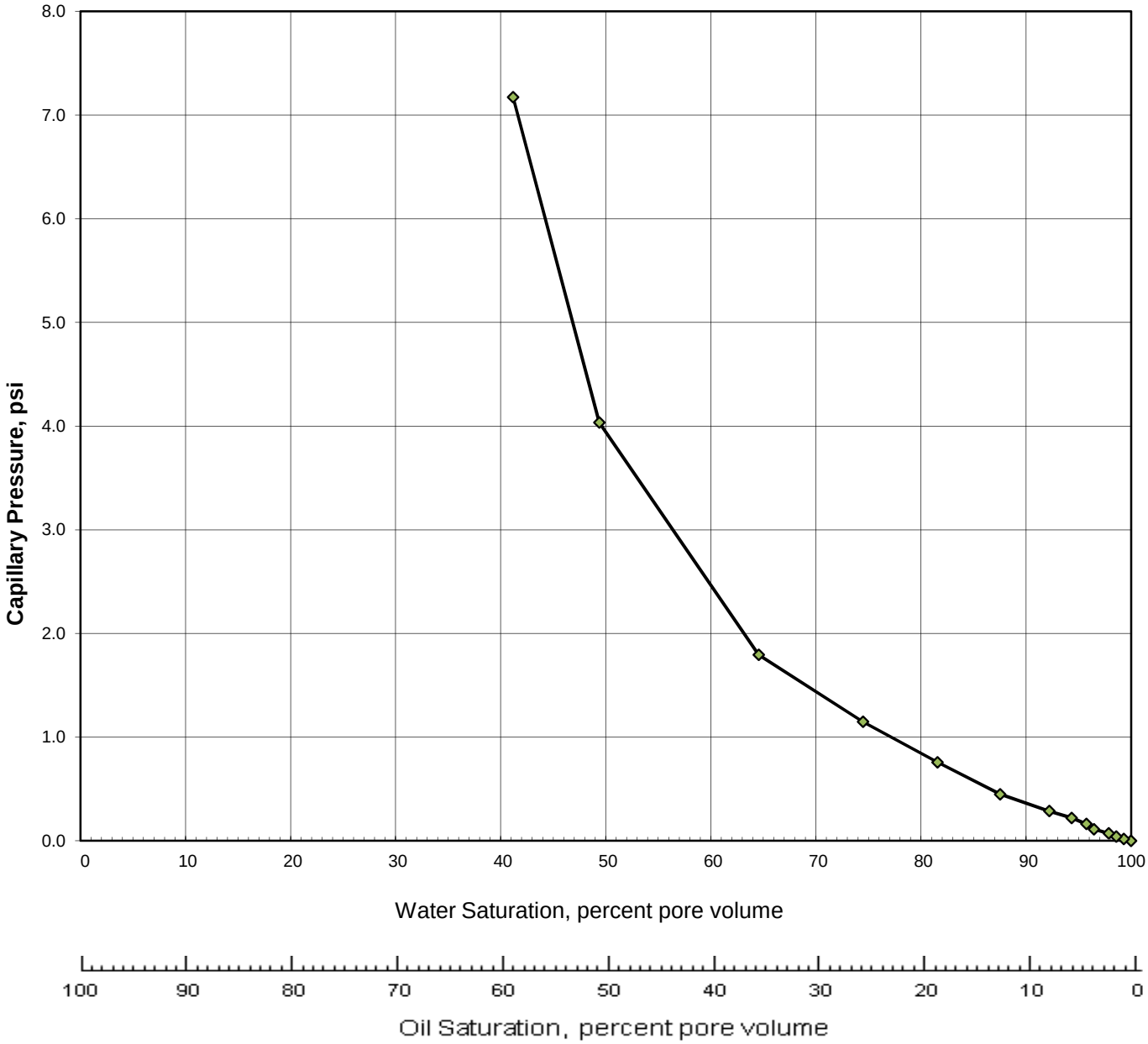
Effective Permaeability to Water, mD.: 56.185

Hydraulic Conductivity, cm/sec: 5.44E-05

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V1-161218-158**
Depth, ft:- **158.30**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-161218-162 at 162.75ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.018	1.29	0.155	99.2	0.8
0.041	2.85	0.342	97.7	2.3
0.072	5.07	0.608	96.2	3.8
0.113	7.92	0.95	95.4	4.6
0.162	11.40	1.37	94.6	5.4
0.221	15.51	1.86	93.9	6.1
0.288	20.26	2.43	93.1	6.9
0.450	31.66	3.80	90.8	9.2
0.761	53.51	6.43	86.2	13.8
1.153	81.05	9.7	77.7	22.3
1.801	126.64	15.2	64.7	35.3
4.05	284.94	34.2	47.8	52.2
7.20	506.56	60.8	40.1	59.9

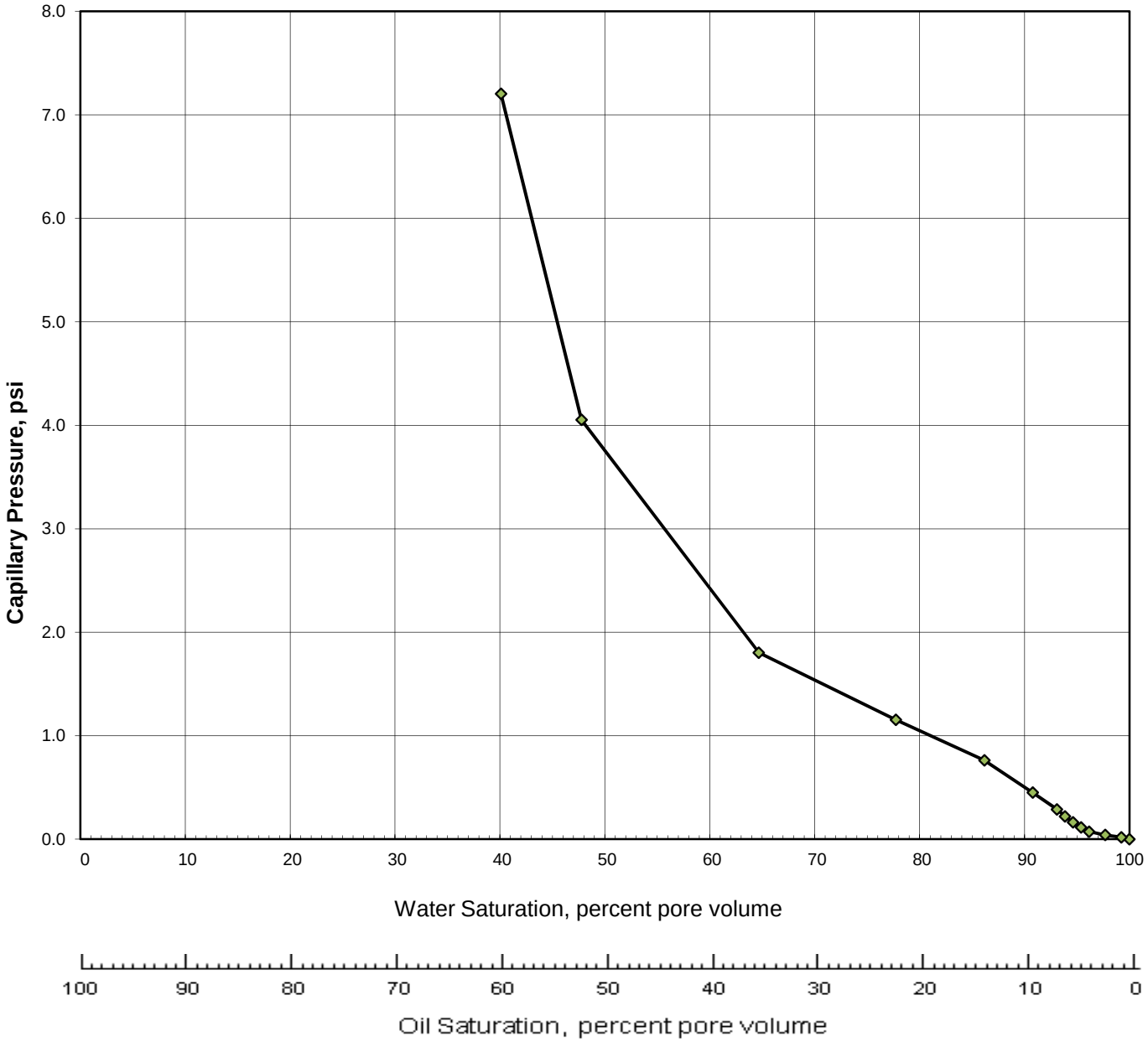
Effective Permaeability to Water, mD.: 308.731

Hydraulic Conductivity, cm/sec: 2.96E-04

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V1-161218-162**
Depth, ft:- **162.75**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - DRAINAGE CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: Oil displacing Water)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID: GUV-V1-161218-164 at 164.40ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	100.0	0.0
0.019	1.35	0.162	99.5	0.5
0.042	2.98	0.358	98.3	1.7
0.075	5.29	0.636	97.5	2.5
0.118	8.27	0.99	96.6	3.4
0.169	11.91	1.43	95.8	4.2
0.231	16.21	1.95	94.9	5.1
0.301	21.18	2.54	94.1	5.9
0.471	33.09	3.97	89.8	10.2
0.795	55.92	6.72	71.2	28.8
1.205	84.71	10.2	52.5	47.5
1.883	132.37	15.9	40.7	59.3
4.24	297.82	35.8	29.6	70.4
7.53	529.46	63.6	25.9	74.1

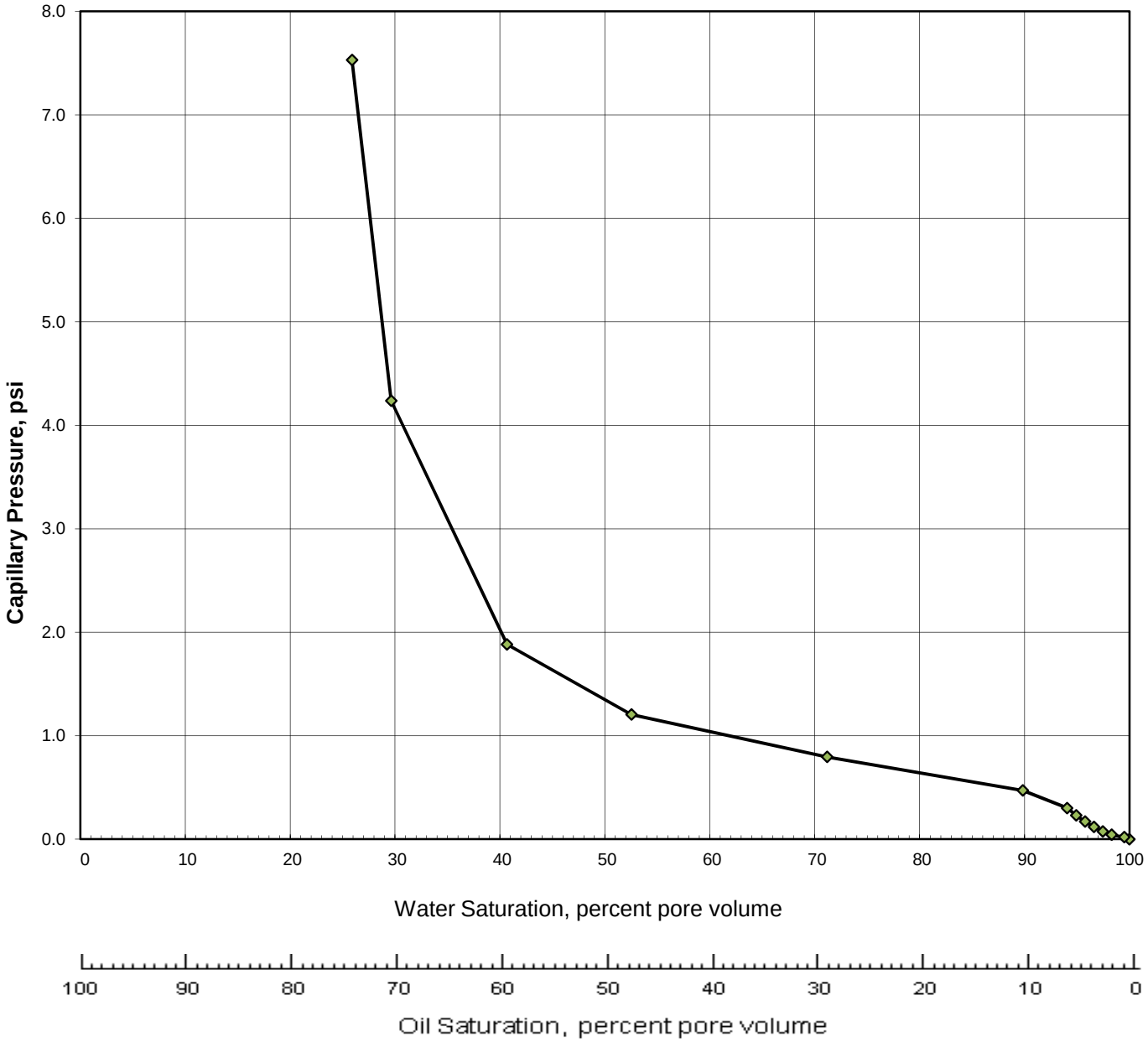
Effective Permaeability to Water, mD.: 614.159

Hydraulic Conductivity, cm/sec: 5.84E-04

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Drainage (Oil Displacing Water - ASTM D6836)

Sample ID: **GUV-V1-161218-164**
Depth, ft:- **164.40**

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017



PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

INITIAL SAMPLE PROPERTIES - OIL (NAPL)/WATER CAPILLARY PRESSURE

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

		METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40
				DENSITY		POROSITY, %Vb (2)		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc	TOTAL	AIR FILLED	TOTAL PORE FLUID SATURATIONS (3), % Pv
GUV-V1-161218-158 (158.10-158.50)	158.3	H	18.8	1.22	2.55	51.9	0.9	98.3
GUV-V1-161218-162 (162.60-162.90)	162.75	H	14.2	1.45	2.69	46.2	0.1	99.8
GUV-V1-161218-164 (164.30-164.50)	164.4	H	10.1	1.49	2.88	48.3	0.5	99.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9992 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - PERMEABILITY TO PRODUCT

(Methodology: API RP 40)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	25 PSI CONFINING STRESS	
				EFFECTIVE PERMEABILITY TO PRODUCT, (2,3), millidarcy	NAPL CONDUCTIVITY (3), cm/s
GUV-V1-161218-158 (158.10-158.50)	158.30	H	20190723	130.21	1.16E-04
GUV-V1-161218-162 (162.60-162.90)	162.75	H	20190723	109.8	9.85E-05
GUV-V1-161218-164 (164.30-164.50)	164.40	H	20190723	411.5	3.65E-04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Permeability to NAPL and NAPL conductivity measured at saturated conditions.
NAPL properties used to calculate permeability to product at 71.4°F: Viscosity = 0.7547 cP; Density = 0.7234 g/cc.

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PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V1-161218-158 at 158.30ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	41.2	58.8
-0.032	2.28	0.273	66.0	34.0
-0.070	4.92	0.591	66.8	33.2
-0.124	8.75	1.051	68.4	31.6
-0.194	13.7	1.64	69.2	30.8
-0.280	19.7	2.36	69.8	30.2
-0.381	26.8	3.22	70.2	29.8
-0.498	35.0	4.20	70.5	29.5
-0.778	54.7	6.57	70.8	29.2
-1.314	92	11.10	71.2	28.8
-1.991	140	16.8	71.7	28.3
-3.111	219	26.3	72.2	27.8
-7.00	492	59.1	73.1	26.9
-12.44	875	105.1	74.5	25.5

Effective Permaeability to Water, mD.: 56.185

Hydraulic Conductivity, cm/sec: 5.44E-05

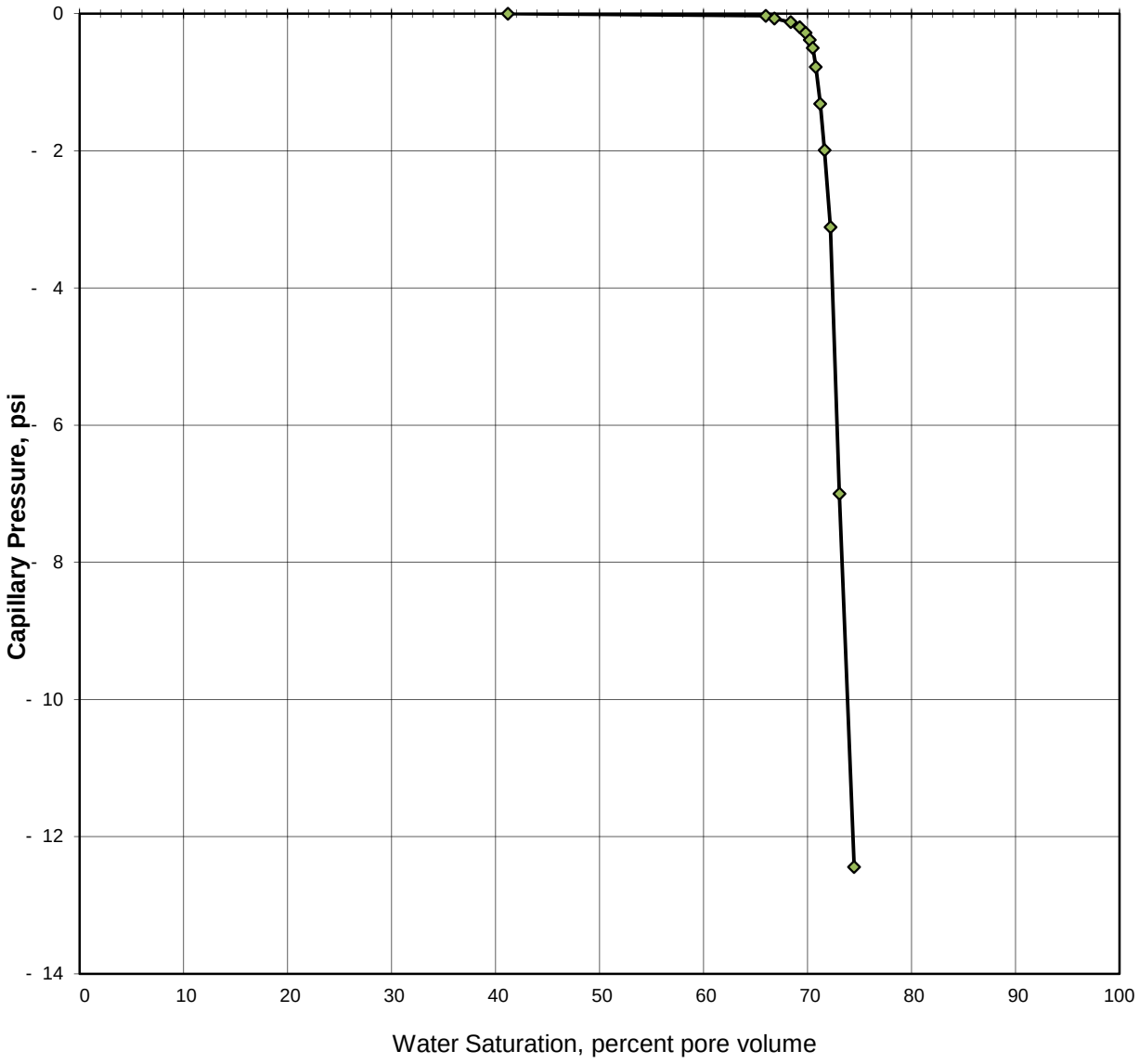
DENSITIES, gm/cc		
Air	Water	Oil
0.0012	0.9992	0.7260

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PTS File No.: 48292

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V1-161218-158
Depth, ft.: 158.30



PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

PTS Laboratories

PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V1-161218-162 at 162.75ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	40.1	59.9
-0.032	2.25	0.270	71.3	28.7
-0.069	4.87	0.585	73.1	26.9
-0.123	8.7	1.040	74.5	25.5
-0.192	13.5	1.62	75.4	24.6
-0.277	19.5	2.34	76.2	23.8
-0.377	26.5	3.18	76.8	23.2
-0.492	34.6	4.16	77.1	22.9
-0.770	54.1	6.50	77.7	22.3
-1.300	91	10.98	78.2	21.8
-1.970	139	16.6	78.7	21.3
-3.078	216	26.0	79.3	20.7
-6.93	487	58.5	80.2	19.8
-12.31	866	104.0	81.3	18.7

Effective Permaeability to Water, mD.: 308.731

Hydraulic Conductivity, cm/sec: 2.96E-04

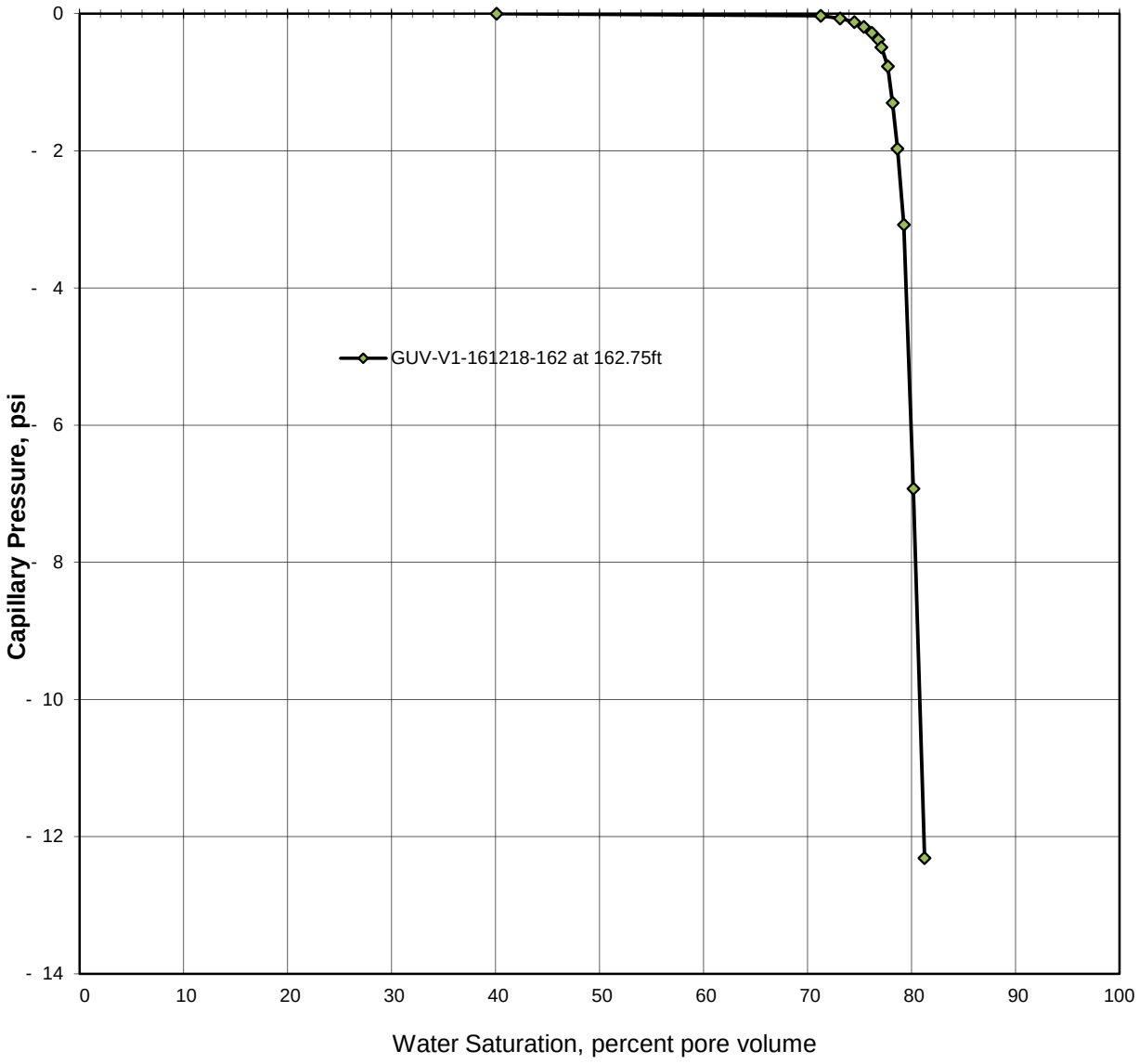
DENSITIES, gm/cc		
Air	Water	Oil
0.0012	0.9992	0.7260

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and Technology.
PTS File No.: 48292

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V1-161218-162
Depth, ft.: 162.75



PTS File No: 48292
Client: EA Engineering, Science and Technology
Report Date: 07/27/19

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PHYSICAL PROPERTIES DATA - IMBIBITION CAPILLARY PRESSURE

(ASTM D6836; Centrifugal Method: water displacing oil)

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

Capillary Pressure		Height Above Water Table,	Sample ID	
			GUV-V1-161218-164 at 164.40ft	
			Average Saturation, % Pore Volume	
psi	cm water	ft	Water	Oil (NAPL)
0.000	0.00	0.000	25.9	74.1
-0.033	2.35	0.282	63.2	36.8
-0.072	5.07	0.609	70.7	29.3
-0.128	9.0	1.083	74.7	25.3
-0.200	14.1	1.69	76.4	23.6
-0.289	20.3	2.44	76.9	23.1
-0.393	27.6	3.32	77.6	22.4
-0.513	36.1	4.33	78.1	21.9
-0.802	56.4	6.77	78.6	21.4
-1.355	95	11.44	79.0	21.0
-2.053	144	17.3	79.3	20.7
-3.208	226	27.1	79.8	20.2
-7.22	507	60.9	80.5	19.5
-12.83	902	108.3	81.3	18.7

Effective Permaeability to Water, mD.: 614.159

Hydraulic Conductivity, cm/sec: 5.84E-04

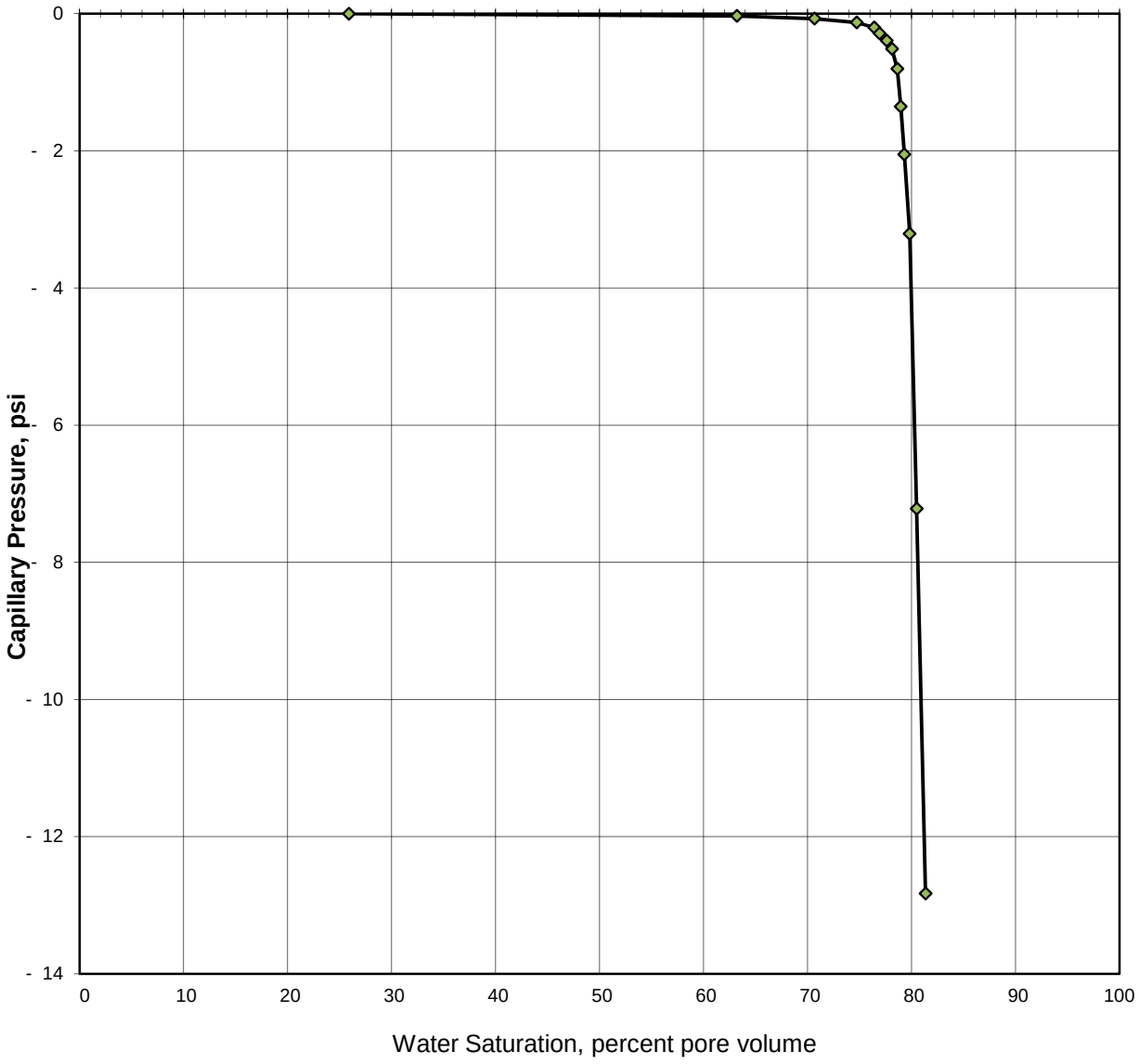
DENSITIES, gm/cc		
Air	Water	Oil
0.0012	0.9992	0.7260

EA Engineering, Science
and Technology.
PTS File No.: 48292

CAPILLARY PRESSURE
Centrifuge Method
Oil/Water Imbibition (Water Displacing Oil) - ASTM D6836

Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017

Sample ID: GUV-V1-161218-164
Depth, ft.: 164.40



PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422)

PROJECT NAME: Kirtland Vadose Zone Coring
PROJECT NO: 62735DM02.1017

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
GUV-V1-161218-158	158.10-158.50	Fine sand	0.320	10.63	9.53	21.06	45.97	12.81
GUV-V1-161218-162	162.60-162.90	Fine sand	0.085	0.00	0.00	1.47	62.73	35.80
GUV-V1-161218-164	164.30-164.50	Fine sand	0.129	0.00	0.00	0.73	90.77	8.51

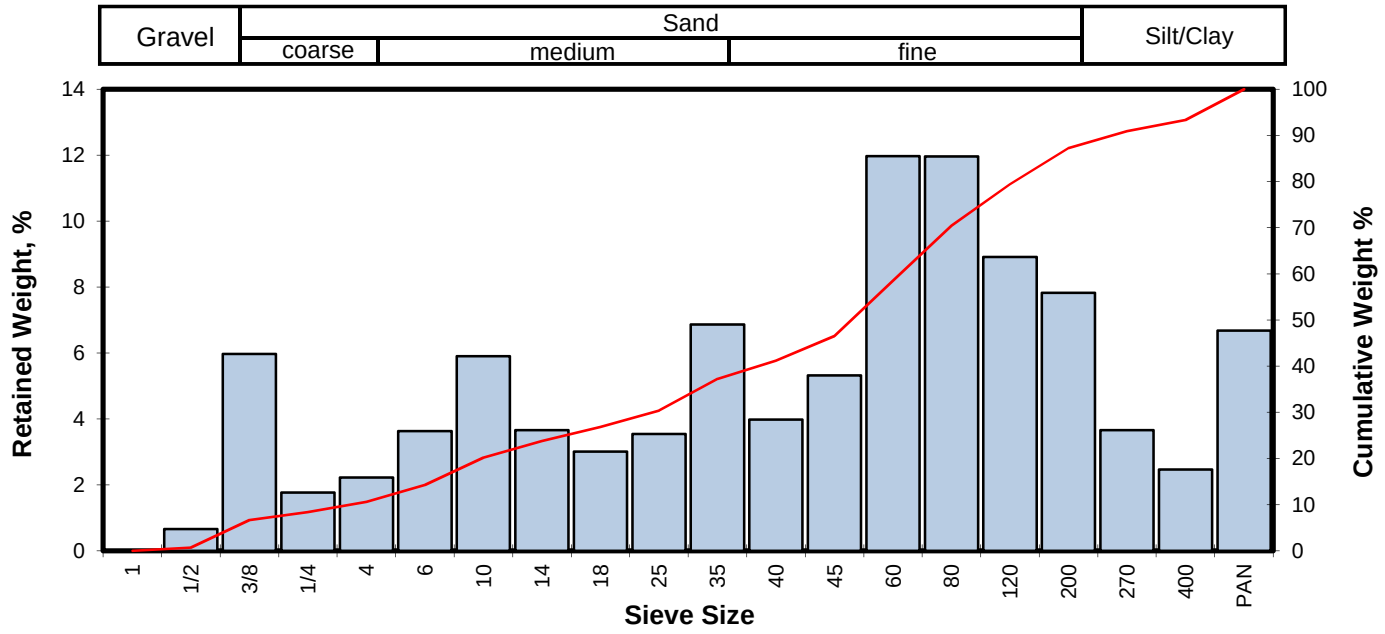
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 1

PTS File No: 48292
Sample ID: GUV-V1-161218-158
Depth, ft: 158.10-158.50



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	1.52	0.66	0.66
0.3740	9.500	-3.25	3/8	13.65	5.97	6.63
0.2500	6.351	-2.67	1/4	4.05	1.77	8.40
0.1873	4.757	-2.25	4	5.09	2.23	10.63
0.1324	3.364	-1.75	6	8.30	3.63	14.26
0.0787	2.000	-1.00	10	13.49	5.90	20.16
0.0557	1.414	-0.50	14	8.36	3.66	23.81
0.0394	1.000	0.00	18	6.89	3.01	26.83
0.0278	0.707	0.50	25	8.11	3.55	30.37
0.0197	0.500	1.00	35	15.69	6.86	37.23
0.0166	0.420	1.25	40	9.11	3.98	41.22
0.0139	0.354	1.50	45	12.17	5.32	46.54
0.0098	0.250	2.00	60	27.36	11.96	58.50
0.0070	0.177	2.50	80	27.34	11.96	70.46
0.0049	0.125	3.00	120	20.37	8.91	79.37
0.0029	0.074	3.75	200	17.90	7.83	87.19
0.0021	0.053	4.25	270	8.38	3.66	90.86
0.0015	0.037	4.75	400	5.64	2.47	93.32
			PAN	15.27	6.68	100.00
TOTALS				228.69	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	-3.36	0.4032	10.242
10	-2.37	0.2032	5.162
16	-1.53	0.1136	2.885
25	-0.30	0.0486	1.234
40	1.17	0.0175	0.443
50	1.64	0.0126	0.320
60	2.06	0.0094	0.239
75	2.75	0.0058	0.148
84	3.44	0.0036	0.092
90	4.13	0.0022	0.057
95	3.56	0.0033	0.085

Measure	Trask	Inman	Folk-Ward
Median, phi	1.64	1.64	1.64
Median, in.	0.0126	0.0126	0.0126
Median, mm	0.320	0.320	0.320
Mean, phi	0.53	0.96	1.19
Mean, in.	0.0272	0.0203	0.0173
Mean, mm	0.691	0.515	0.439
Sorting	2.886	2.486	2.291
Skewness	1.337	-0.276	-0.362
Kurtosis	0.106	0.390	0.926
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

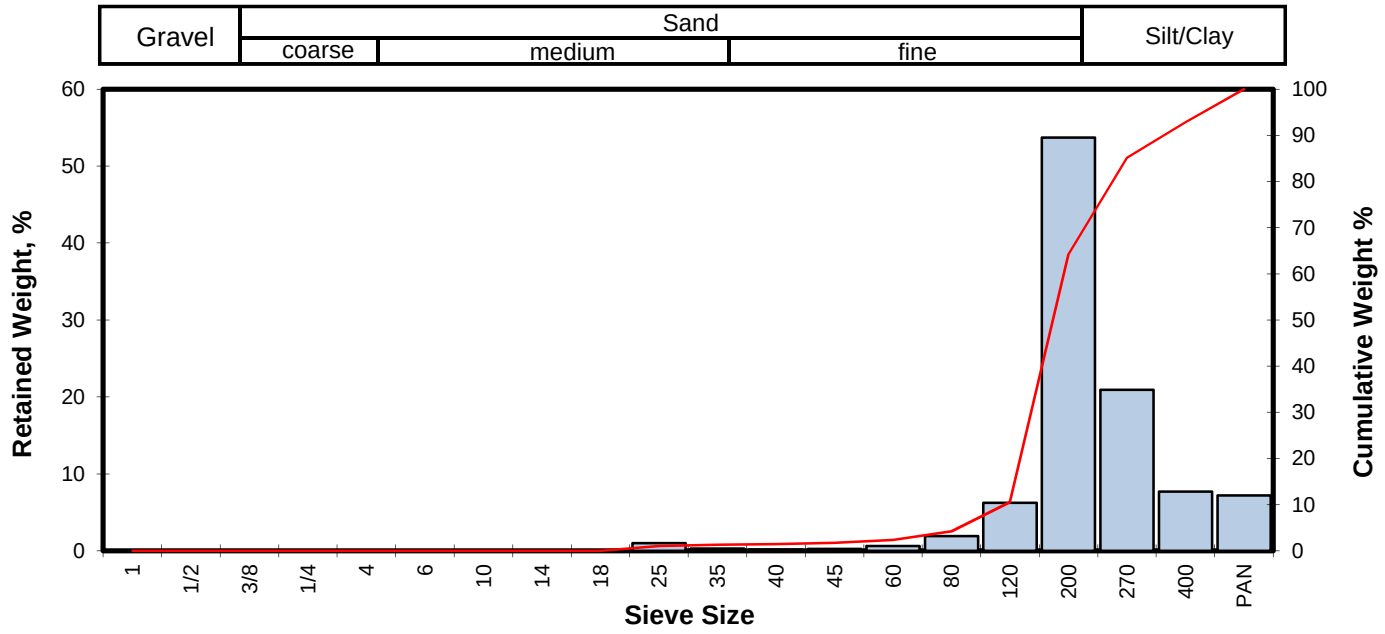
Description	Retained on Sieve #	Weight Percent
Gravel	4	10.63
Coarse Sand	10	9.53
Medium Sand	40	21.06
Fine Sand	200	45.97
Silt/Clay	<200	12.81
	Total	100

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Sieve Analysis Results - ASTM D422

Client:	EA Engineering, Science and Technology	**PTS File No:**	48292
Project:	Kirtland Vadose Zone Coring	**Sample ID:**	GUV-V1-161218-162
Project No:	62735DM02.1017 PTS ID:- 2	**Depth, ft:**	162.60-162.90



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0557	1.414	-0.50	14	0.00	0.00	0.00
0.0394	1.000	0.00	18	0.00	0.00	0.00
0.0278	0.707	0.50	25	2.83	1.02	1.02
0.0197	0.500	1.00	35	0.76	0.27	1.29
0.0166	0.420	1.25	40	0.48	0.17	1.47
0.0139	0.354	1.50	45	0.65	0.23	1.70
0.0098	0.250	2.00	60	1.79	0.65	2.35
0.0070	0.177	2.50	80	5.31	1.92	4.26
0.0049	0.125	3.00	120	17.33	6.25	10.51
0.0029	0.074	3.75	200	148.85	53.68	64.20
0.0021	0.053	4.25	270	58.03	20.93	85.13
0.0015	0.037	4.75	400	21.32	7.69	92.82
			PAN	19.92	7.18	100.00
TOTALS				277.27	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.56	0.0067	0.170
10	2.96	0.0051	0.129
16	3.08	0.0047	0.119
25	3.20	0.0043	0.109
40	3.41	0.0037	0.094
50	3.55	0.0034	0.085
60	3.69	0.0030	0.077
75	4.01	0.0024	0.062
84	4.22	0.0021	0.054
90	4.57	0.0017	0.042
95	3.31	0.0040	0.101

Measure	Trask	Inman	Folk-Ward
Median, phi	3.55	3.55	3.55
Median, in.	0.0034	0.0034	0.0034
Median, mm	0.085	0.085	0.085
Mean, phi	3.55	3.65	3.62
Mean, in.	0.0034	0.0031	0.0032
Mean, mm	0.085	0.080	0.081
Sorting	1.322	0.573	0.400
Skewness	0.964	0.171	-0.744
Kurtosis	0.269	-0.349	0.380
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	1.47
Fine Sand	200	62.73
Silt/Clay	<200	35.80
	Total	100

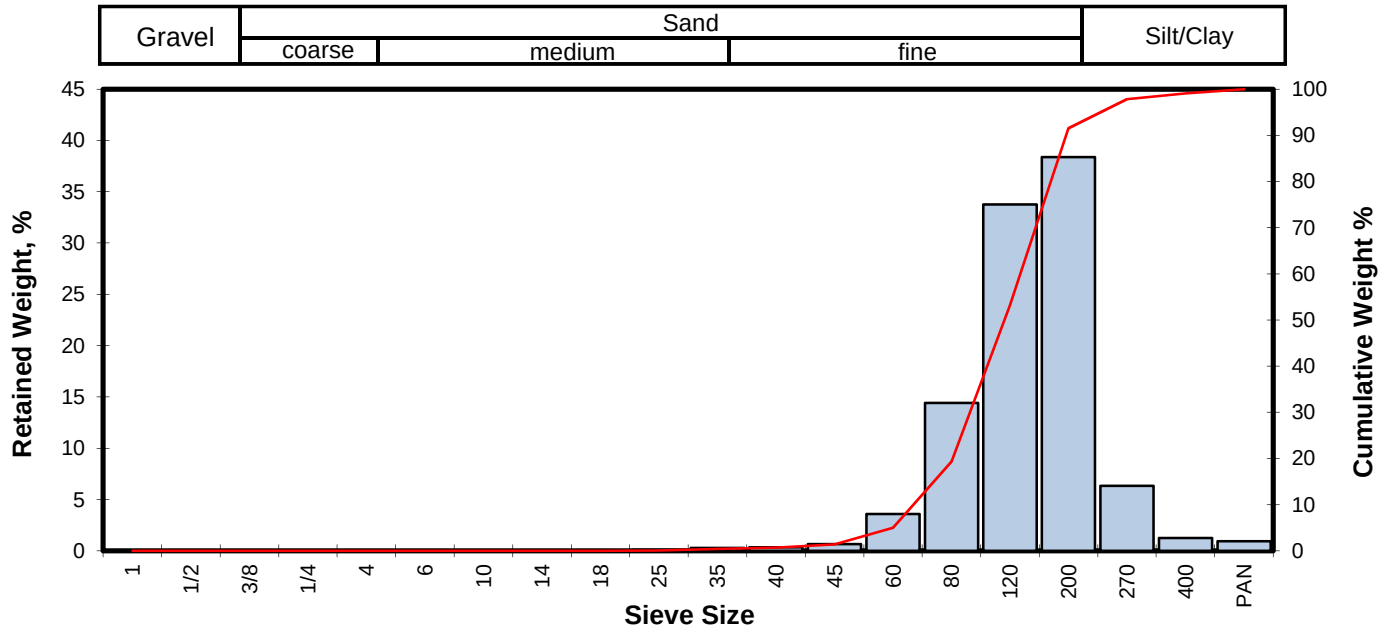
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PTS Laboratories, Inc.

Sieve Analysis Results - ASTM D422

Client: EA Engineering, Science and Technology
Project: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017 PTS ID:- 3

PTS File No: 48292
Sample ID: GUV-V1-161218-164
Depth, ft: 164.30-164.50



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0557	1.414	-0.50	14	0.00	0.00	0.00
0.0394	1.000	0.00	18	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.27	0.11	0.11
0.0197	0.500	1.00	35	0.71	0.28	0.39
0.0166	0.420	1.25	40	0.84	0.34	0.73
0.0139	0.354	1.50	45	1.66	0.66	1.39
0.0098	0.250	2.00	60	8.99	3.59	4.97
0.0070	0.177	2.50	80	36.11	14.40	19.38
0.0049	0.125	3.00	120	84.61	33.75	53.12
0.0029	0.074	3.75	200	96.21	38.37	91.49
0.0021	0.053	4.25	270	15.86	6.33	97.82
0.0015	0.037	4.75	400	3.10	1.24	99.05
			PAN	2.37	0.95	100.00
TOTALS				250.73	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	2.00	0.0098	0.250
10	2.17	0.0087	0.222
16	2.38	0.0075	0.192
25	2.58	0.0066	0.167
40	2.81	0.0056	0.143
50	2.95	0.0051	0.129
60	3.13	0.0045	0.114
75	3.43	0.0037	0.093
84	3.60	0.0032	0.082
90	3.72	0.0030	0.076
95	4.03	0.0024	0.061

Measure	Trask	Inman	Folk-Ward
Median, phi	2.95	2.95	2.95
Median, in.	0.0051	0.0051	0.0051
Median, mm	0.129	0.129	0.129
Mean, phi	2.94	2.99	2.98
Mean, in.	0.0051	0.0049	0.0050
Mean, mm	0.130	0.126	0.127
Sorting	1.340	0.610	0.612
Skewness	0.965	0.065	0.062
Kurtosis	0.254	0.660	0.984
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.73
Fine Sand	200	90.77
Silt/Clay	<200	8.51
	Total	100

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Project Name: **Kirtland Vadose Zone Coring** ***PTS File No:*** ***48292***
Project Number: ***62735DM02.1017*** ***Client:*** ***EA Engineering, Science and Technology***

COC No: **COC1 -V1-PTS-20181220, COC2 -V1-PTS-20181220, COC3 -V1-PTS-20181220, COC4 -V1-PTS-20181220**

TEST PROGRAM - 20181221

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20181221					
GUV-V1-161218-158	**158-160**	**2.0**	**2.0**		REEFER
GUV-V1-161218-162	**162-164**	**2.0**	**2.0**		REEFER
GUV-V1-161218-169	**164-166**	**2.0**	**2.0**		REEFER
GUV-V1-161218-202	**202-204**	**2.0**	**2.0**		REEFER
TOTALS:	**4 Bags**	**8.0**	**8.0**		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.

Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.

Sample locations to be selected by EA Engineering personnel from core photography.

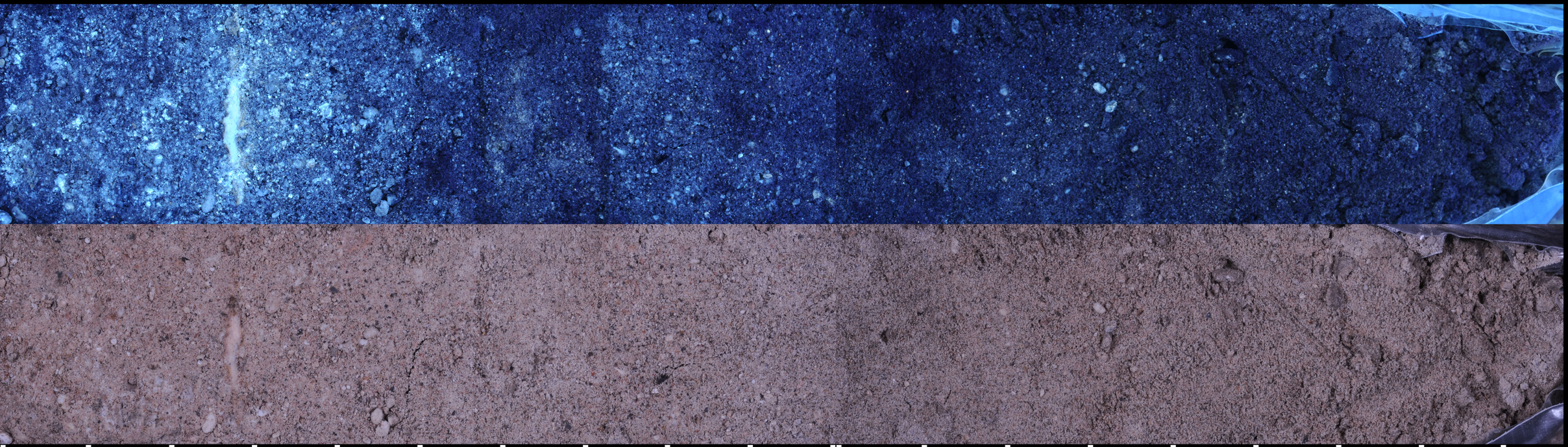
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48292

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48292



158.0 159.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

159.0 160.0

Each Interval Equals One Tenth of a Foot

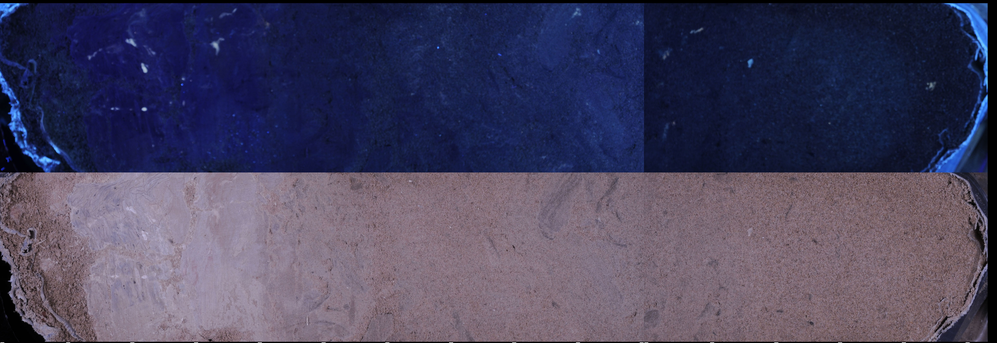
Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48292

Client Name: EA Engineering, Science and Technology



162.0

163.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48292

Client Name: EA Engineering, Science and Technology

163.0

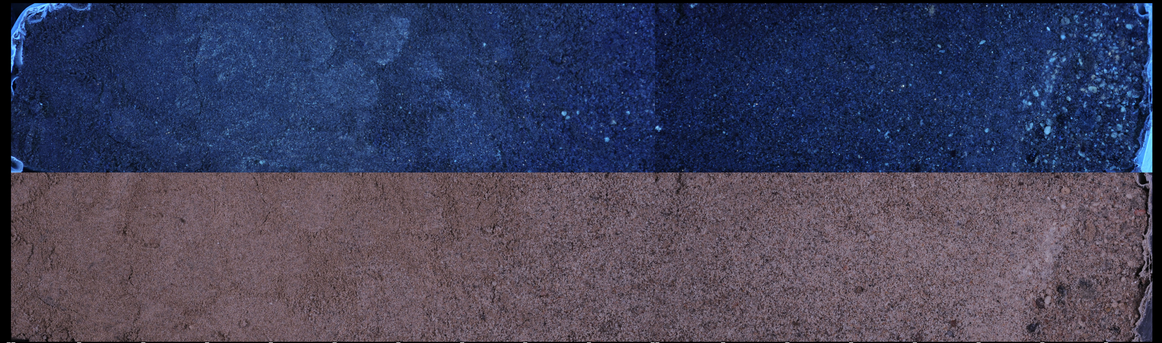
Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48292

Client Name: EA Engineering, Science and Technology



164.0

165.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48292

Client Name: EA Engineering, Science and Technology

165.0

Each Interval Equals One Tenth of a Foot

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

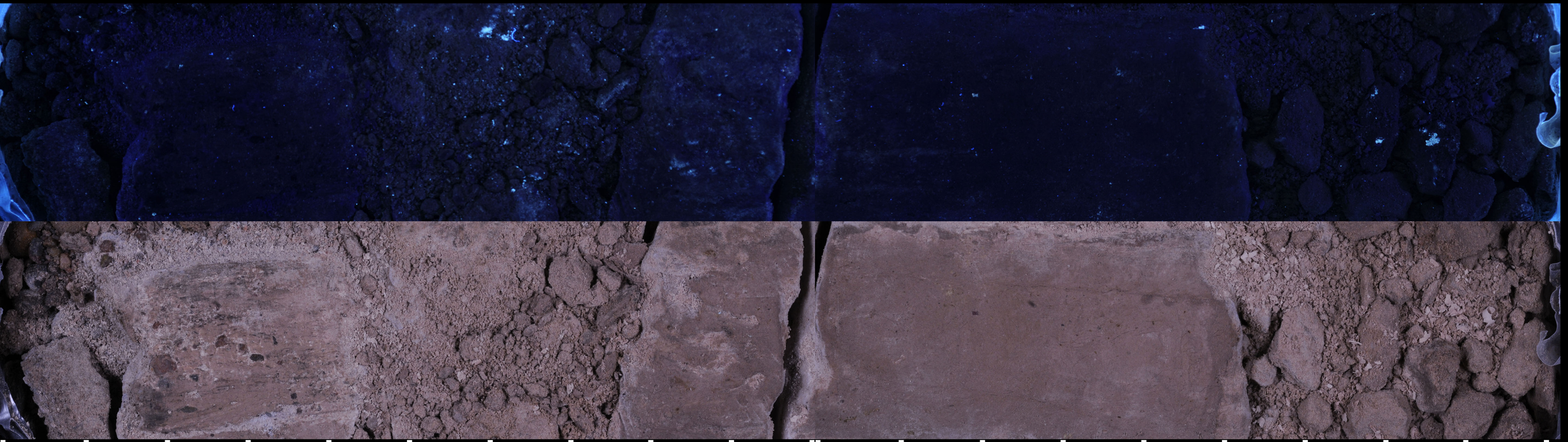
Project No.: 62735DM02.1017

PTS Laboratories
PTS File No.: 48292

166.0

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48292



Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48292

Project Name: Kirtland Vadose Zone Coring Boring ID.: GUV-V1-161218

Project No.: 62735DM02.1017

7740 0594 3467 COCY-VI-PTS-20181220

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY	EA Engineering, Science, and Technology
ADDRESS / CITY / ZIP CODE	320 Gold Ave. Ste 1300, Albuquerque, NM, 87102
PROJECT MANAGER / email	Bernie Bockisch
PROJECT NAME / PHONE NUMBER	Kirtland Vadose Zone Coring / 505-234-1105
PROJECT NUMBER / FAX NUMBER	62735DM02.1017
SITE LOCATION	Kirtland AFB
SAMPLER SIGNATURE	

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-VI-161218-158	12/16/18	1633	158-160	1	—	—	—	X	—	—	—	—	

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: Pw po

SAMPLE INTEGRITY (CHECK):
INTACT ____ TEMP(F) 33.6

PTS QUOTE NO.

PTS FILE: 48272

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS Labs. Inc	COMPANY	COMPANY
DATE: 12/20/18 TIME: 1500	DATE: 12-21-18 TIME: 1000	DATE TIME	DATE TIME

7740 0594 3662

COC3-VI-PTS-20181220

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, Albuquerque, NM, 87102 (CITY / ZIP CODE)

PROJECT MANAGER: Bernie Bockisch (email)

PROJECT NAME: Kirtland Vadose Zone Coring

PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017

FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per Po

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 32.6

PTS QUOTE NO.:

PTS FILE: 48272

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-VI-161218-162	12/16/18	1655	162-164	1	—	—	—	X	—				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
JOSHUA LIVINGSTON			
COMPANY: EA	COMPANY: PTS Labs. Inc	COMPANY:	COMPANY:
DATE: 12/20/18 TIME: 1500	DATE: 12-21-18 TIME: 1000	DATE: TIME:	DATE: TIME:

7735 4208 3560 COC2-VI-PTS-20181220

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, ZIP CODE: NM, 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per Po

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 33.6

PTS QUOTE NO.:

PTS FILE: 48272

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-VI-161218-164	12/16/18	1655	164-166	1				X					

1. RELINQUISHED BY: JOSHUA LIVINGSTON — COMPANY: EA — DATE: 12/20/18 — TIME: 1500

2. RECEIVED BY: — COMPANY: PTS Labs. Inc — DATE: 12-21-18 — TIME: 1000

3. RELINQUISHED BY: — COMPANY: — DATE: — TIME:

4. RECEIVED BY: — COMPANY: — DATE: — TIME:

7735 9208 3870 COC1-VI-PTS-20181220

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, NM, ZIP CODE: 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE:

PO# 18265

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐ OTHER: Per PO

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) 33.6

PTS QUOTE NO.:

PTS FILE: 48272

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE: A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-VI-181218-202	12/18/18	1320	202-204	1				X					

1. RELINQUISHED BY: Joshua Livingston — COMPANY: EA — DATE: 12/20/18 — TIME: 1500

2. RECEIVED BY: — COMPANY: PTS Labs. Inc — DATE: 12-21-18 — TIME: 1000

3. RELINQUISHED BY: — COMPANY: — DATE: — TIME:

4. RECEIVED BY: — COMPANY: — DATE: — TIME:

6016 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

August 13, 2019

Bernie Bockisch / Pamela Moss.
Project Managers,
EA Engineering, Science and Technology,
320 Gold Ave. Ste 1300,
Albuquerque, NM 87102.

Re: PTS File No: 49005
Project Name: Kirtland Vadose Zone Coring
Project Number: 62735DM02.1017
Site Location: Kirtland AFB
COC No: COC1 – S7-PTS-20190123

Subject: **Pore Fluid Saturation (Dean Stark Method)**

Dear Bernie / Pamela,

Please find enclosed final report for **Physical Properties** analyses conducted upon samples received from your **Kirtland Vadose Zone Coring** project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past the completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact me or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

C.A.Umeh

Chidi Umeh
Flow Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring**
Project Number: **62735DM02.1017**

PTS File No: 49005
Client: EA Engineering, Science and Technology

TEST PROGRAM - 20190503

CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo	Recommended Depth. ft.	Dean Stark / PFS Analysis ASTM D425			Comments
			1/4:3/4		Hor. 1.5'			
Date Received: 2018190124								
GUV-S7-220119-492	**492.0-494.0**	**1.7**	**2**	**492.8-493.0**	**X**			
TOTAL # OF SAMPLES	**4 bags**	**1.7**	**2.0**		**1**			

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.
Laboratory Test Program Notes

PTS Laboratories

PTS File No: 49005
Client: EA Engineering, Science and Technology
Report Date: 08/12/19

PHYSICAL PROPERTIES DATA - PORE FLUID SATURATIONS

Project Name: Kirtland Vadose Zone Coring
Project No: 62735DM02.1017

			METHODS:	API RP 40 / ASTM D2216	API RP 40		API RP 40		API RP 40	
			SAMPLE	MOISTURE	DENSITY		POROSITY, %Vb (2)		PORE FLUID	
SAMPLE	PTS	DEPTH,	ORIENTATION	CONTENT,	DRY BULK,	GRAIN,		AIR	SATURATIONS, % Pv (3)	
ID.	Plug ID	ft.	(1)	% weight	g/cc	g/cc	TOTAL	FILLED	WATER	NAPL
GUV-S7-220119-492 (492.0-494.0)	1	492.85	H	6.9	1.58	2.64	40.1	28.4	29.2	0.04

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all non & interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water =0.99768 g/cc, NAPL = 0.75734 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

Project Name: **Kirtland Vadose Zone Coring** ***PTS File No:*** ***49005***
Project Number: ***62735DM02.1017*** ***Client:*** ***EA Engineering, Science and Technology***

COC No: **COC 1 -S7-PTS-20190123**

TEST PROGRAM - 20190429

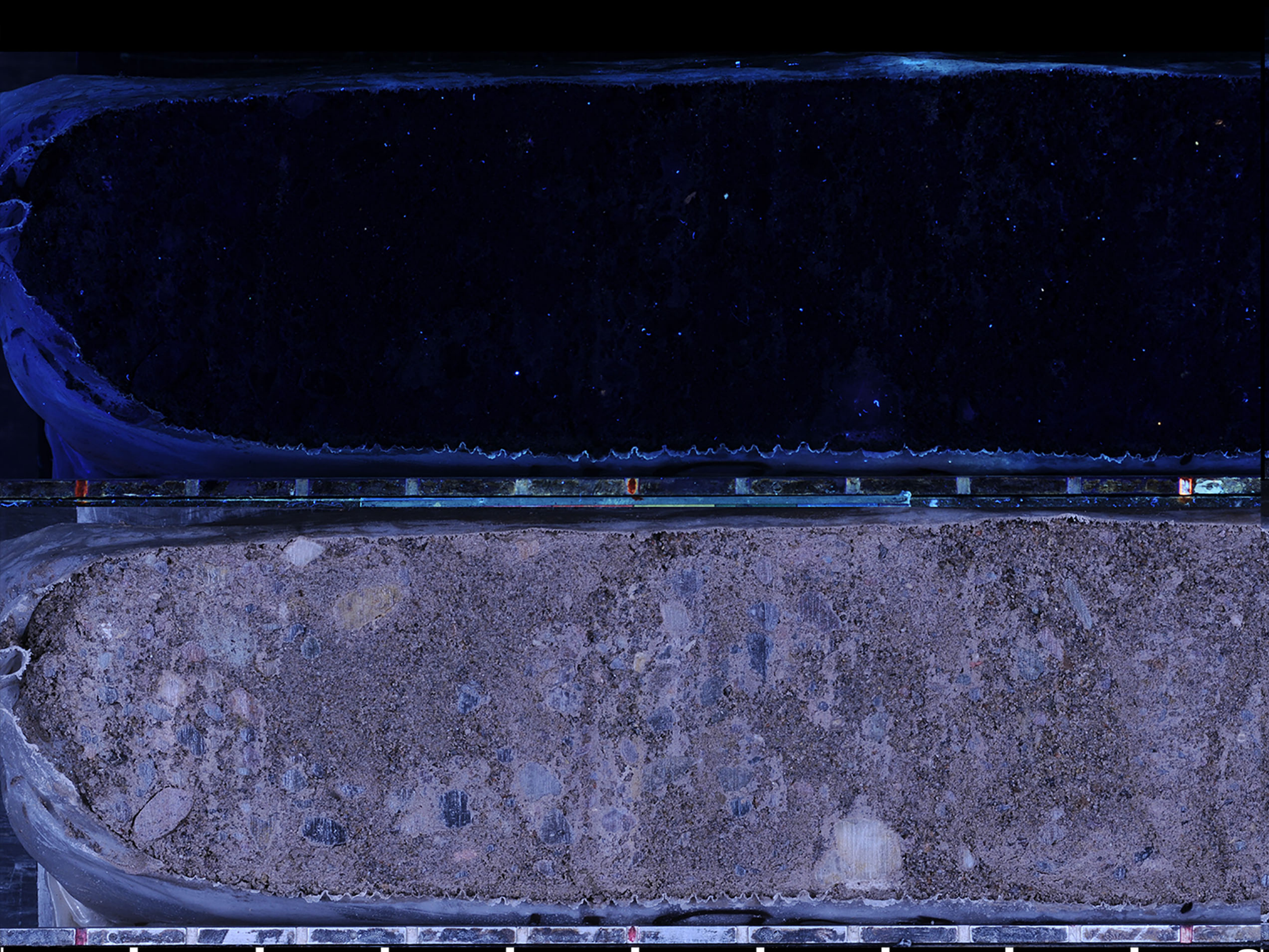
CORE ID	Depth ft.	Core Recovery ft.	Slab and Core Photo		Notes
		CORE	1/4:3/4 UV/WL		Keep core frozen
Date Received:20190124					
GUV-S7-220119-492	492-494	1.7	2.0		Reefer (Core in Freezer)
TOTALS:	1 Bag	1.7	2.0		

Laboratory Test Program Notes

Standard TAT for basic analysis is 10-15 business days.
Samples received cryogenically preserved will be stored frozen at standard core storage rates from sample date of receipt.
Sample locations to be selected by EA Engineering personnel from core photography.
Core Photo: white light and ultraviolet, low and high resolution, strip format.

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48242

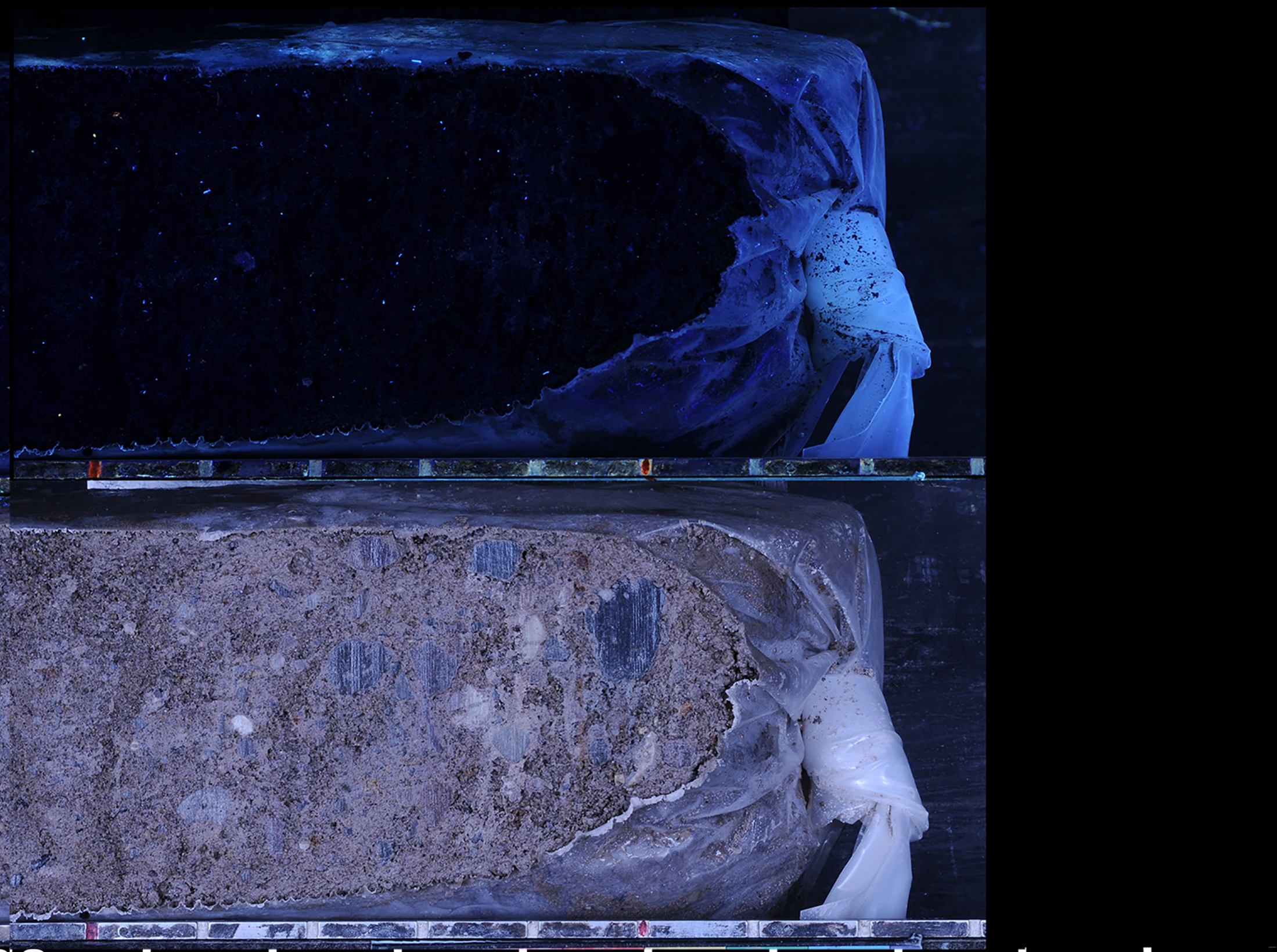


Boring ID.: GUV-S7-220119-492

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

Client Name: EA Engineering, Science and Technology

PTS Laboratories
PTS File No.: 48242



Boring ID.: GUV-S7-220119-492

Project Name: Kirtland Vadose Zone Coring Project No.: 62735DM02.1017

7740 0594 4051 CoC1-S7-PTS-20190123

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: EA Engineering, Science, and Technology

ADDRESS: 320 Gold Ave. Ste 1300, CITY: Albuquerque, ZIP CODE: NM, 87102

PROJECT MANAGER: Bernie Bockisch — email:

PROJECT NAME: Kirtland Vadose Zone Coring — PHONE NUMBER: 505-234-1105

PROJECT NUMBER: 62735DM02.1017 — FAX NUMBER:

SITE LOCATION: Kirtland AFB

SAMPLER SIGNATURE: [signature]

PO# 18265

TURNAROUND TIME
24 HOURS ☐ 5 DAYS ☐
72 HOURS ☐ NORMAL ☐
OTHER: Per PO

SAMPLE INTEGRITY (CHECK):
INTACT X TEMP(F) 23-8

PTS QUOTE NO.

PTS FILE: 49005

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	PORE FLUID SATURATIONS PACKAGE	CAPILLARY PACKAGE; A/W DNG; O/W DNG & IMB	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	GRAIN SIZE DISTRIBUTION, ASTM D422 or 446M	NAPL PERMEABILITY API RP40	RESIDUAL SATURATION BY W. DRIVE	FREE PRODUCT MOBILITY PACKAGE	COMMENTS
GUV-S7-220119-492	01/22/19	1620	492-494	1	—	—	—	X	—	—	—	—	

JRL

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Joshua Livingston	[signature]		
COMPANY: EA	COMPANY: PTS Laboratories, Inc	COMPANY	COMPANY
DATE: 01/23/19 TIME: 1500	DATE: 1/24/19 TIME: 1300	DATE TIME	DATE TIME

PTS Laboratories, Inc. • 5730 Centralcrest St. • Houston, TX 77092 • Phone (713) 316-1290 • Fax (877) 895-9052