



November 15, 2017

Ms. Susan von Gonten, Project Manager
New Mexico Environment Department
Petroleum Storage Tank Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

**RE: MOBILE DUAL-PHASE EXTRACTION REPORT, Santa Fe County Judicial Complex Site,
Santa Fe, New Mexico
Facility #53763 SID #4597 WPID #3901-2**

Dear Ms. von Gonten:

Souder, Miller & Associates (SMA) is submitting this letter report for the Mobile Dual-Phase Extraction (MDPE) event conducted on selected wells at the Santa Fe County Judicial Complex (Judicial Complex). This report was prepared for submittal to the New Mexico Environment Department (NMED), Petroleum Storage Tank Bureau (PSTB) pursuant to the work plan dated September 8, 2016 and approved by the NMED PSTB on December 14, 2016 (WPID #3901-2).

MDPE Events

Three, 48-hour MDPE events were conducted on three areas of the Judicial Complex site between October 3 and 9, 2017. These areas are referred to as Montezuma Avenue, South Plume/Design Center, and DeVargas Condominiums. The MDPE work was conducted by EE&G, Inc. under the supervision of SMA. EE&G's MDPE equipment included: a Rietschle Thomas Zephyr claw pump (VLR 400), a 600 CFM electric catalytic oxidizer, 100-gallon moisture separator, progressive cavity transfer pumps, and bladder storage tanks.

MDPE involves using down-well "stingers" to simultaneously extract soil vapor (air) and contaminated groundwater/non-aqueous phase liquid (NAPL). The purpose is to remove contaminated groundwater and soil vapor from the smear zone. This is conducted by dewatering the smear zone and flushing less contaminated groundwater and soil vapor through the smear zone. MDPE is initiated by installing the stingers immediately above the static water table and starting the vacuum blower. As the applied vacuum begins to mound the water in the well, the water is extracted via the stinger. The stinger is then gradually lowered until the airflow is no longer sufficient to dewater the well. Once steady-state conditions are reached (airflow maintaining particular level of dewatering), the stingers remain at that depth for the remainder of the MDPE event. Discussion of the MDPE events are presented below.

Montezuma Avenue

The MDPE event in the Montezuma Avenue area was conducted from October 3 (9:30 a.m.) to October 5 (12:30 p.m.). MDPE was halted for approximately three hours on October 5, 2017 during transfer of fluids to a transport tanker. The extraction wells were SFCMW-01, SFCMW-10, MW-6, and SVE-3

(Figure 1). The air/soil vapor flow from all wells ranged from 210 to 217 standard cubic feet per minute (scfm) at applied vacuums ranging from 15 to 18 inches of mercury (in Hg). A total of 8,190 gallons of fluids were recovered for an average extraction rate of 2.84 gallons per minute (gpm).

Soil vapor samples were collected at the beginning, middle, and end of the MDPE event and analyzed by EPA Method 8015B for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and GPA 2261 for fixed gas analyses. The TPH GRO concentrations were: 11 µg/L initially, 31 µg/L at the middle, and 21 µg/L at the end (Table 1). The carbon dioxide concentrations were: 0.581 mol % initially, 0.370 mol % at the middle, and 0.361 mol % at the end. Oxygen concentrations were above the typical atmospheric concentration of 20.9 mol % in all samples. The carbon dioxide concentrations were substantially elevated relative to the typical atmospheric concentration (0.035 mol %). The total amount of air/soil vapor recovered was 618,000 cubic feet (Table 3). The total amount of hydrocarbons removed via soil vapor was 1.0 pound.

A composite sample of the fluids recovered was analyzed by EPA Method 8260. A summary of the analytical results are compared to recent groundwater monitoring results in Table 2. The sample contained 25 µg/L toluene, 11 µg/L ethylbenzene, 85 µg/L total xylenes, and 520 µg/L total naphthalenes. Benzene was not detected above the practical quantitation limit (PQL) of 5.0 µg/L. The sample of MDPE extracted fluids had contaminant concentrations that are less than the average of the recent groundwater monitoring results. These lower concentrations are likely the result of air-stripping of the fluids in the MDPE piping and equipment and dilution caused by less contaminated groundwater being drawn into the wells.

At the end of the MDPE event the depth to groundwater was measured and compared to pre-MDPE depth to water measurements. The depths to groundwater in SFCMW-01, MW-6, SFCMW-10, and SVE-3 were 0.75, 1.99, 2.39, and 3.13 feet lower after MDPE, respectively. The measurement was collected by removing the stinger and lowering a well sounder into the well. The removal of the stinger and inserting the stinger took approximately one minute. This results in rebound of the water level in the wells, therefore, the measurements should be considered minimum values.

South Plume / Design Center

The MDPE event in the South Plume / Design Center area was conducted from October 5 (1:00 p.m.) to October 6 (6:00 p.m.) and October 8 (7:15 p.m.) to October 9 (2:15 p.m.). The South Plume / Design Center MDPE event was divided due to time restrictions for the DeVargas Condos area (owners allowed weekend access only). The extraction wells were MW-1R, MW-4R, and TWS-4 (Figure 1). The air/soil vapor flow from all wells ranged from 210 to 217 scfm at applied vacuums ranging from 15 to 18 inches of mercury (in Hg). A total of 3377 gallons of fluids were recovered for an average extraction rate of 1.17 gpm.

The soil vapor TPH GRO concentrations were: 17 µg/L initially, 16 µg/L at the middle, and 42 µg/L at the end (Table 1). The carbon dioxide concentrations were: 0.063 mol % initially, 0.084 mol % at the middle, and 0.081 mol % at the end. Oxygen concentrations were above the typical atmospheric concentration of 20.9 mol % in all samples. The carbon dioxide concentrations were slightly elevated

above typical atmospheric concentration (0.035 mol %) during the MDPE event. The total amount of air/soil vapor recovered was 615,000 cubic feet (Table 3). The total amount of hydrocarbons removed via soil vapor was 1.1 pounds.

The composite sample of recovered fluids contained 16 µg/L benzene, 98 µg/L toluene, 24 µg/L ethylbenzene, 250 µg/L total xylenes, and 194 µg/L total naphthalenes. The sample of MDPE extracted fluids had some contaminant concentrations that are less than the average of the recent groundwater monitoring results (benzene, ethyl-benzene, total xylenes) and some that are more than the recent results (toluene, total naphthalenes). These variable concentrations are likely due to the low concentrations observed in MW-1R and MW-4R during the last groundwater monitoring event. The MDPE extracted fluids are more indicative of the more typical monitoring results along with dilution and air-stripping caused by MDPE.

The depths to groundwater in MW-1R, MW-4R, and TWS-4 were 5.97, 9.72, and 7.57 feet lower following MDPE, respectively. The higher drawdown and lower fluids production rate was expected for this area given the lower hydraulic conductivity observed there.

DeVargas Condominiums

The MDPE event in the DeVargas Condominiums area was conducted from October 6 (7:00 p.m.) to October 8 (7:00 p.m.) The extraction wells were MW-11, MW-14, TWN-2 and TWN-3 (Figure 1). The air/soil vapor flow from all wells ranged from 226 to 244 scfm at applied vacuums ranging from 10 to 15 inches of mercury (in Hg). A total of 5654 gallons of fluids were recovered for an average extraction rate of 1.96 gpm.

The soil vapor TPH GRO concentrations were: 11 µg/L initially, 36 µg/L at the middle, and 16 µg/L at the end (Table 1). The carbon dioxide concentrations were: 0.036 mol % initially, 0.035 mol % at the middle, and 0.040 mol % at the end. Oxygen concentrations were above the typical atmospheric concentration of 20.9 mol % in all samples. The carbon dioxide concentrations were near typical atmospheric concentration (0.035 mol %) during the MDPE event. The total amount of air/soil vapor recovered was 687,000 cubic feet (Table 3). The total amount of hydrocarbons removed via soil vapor was 1.1 pounds.

The composite sample of recovered fluids contained 36 µg/L benzene, 32 µg/L toluene, 7.0 µg/L ethylbenzene, 140 µg/L total xylenes, 6.8 µg/L 1,2-Dibromoethane (EDB) and 279 µg/L total naphthalenes. The sample of MDPE extracted fluids had contaminant concentrations that are less than the average of the recent groundwater monitoring results.

The depths to groundwater in MW-11, MW-14, TWN-2, and TWN-3 were 1.51, 0.38, 1.20, and 0.75 feet lower following MDPE, respectively.

Oxygen Release Compound Sock Installation

Oxygen Release Compound-Advanced (ORC-Advanced) socks were installed in each of the wells treated with MDPE except the two Santa Fe County wells (SFCMW-01 and SFCMW-10) (Figure 2). ORC-Advanced socks were not installed in the Santa Fe County wells due to potential complications with the Volunteer Remediation Program monitoring. SVE wells SVE-1 and SVE-5 had ORC-Advanced socks installed in substitution of the Santa Fe County wells. The ORC-Advanced sock strings consisted of six socks each. The socks installed in two-inch diameter wells contain 0.7 pounds of ORC-Advanced each (4.2 pounds total). The socks installed in four-inch diameter wells contain 2.37 pounds of ORC-Advanced each (14.2 pounds total).

Summary

Three, 48-hour MDPE events were successfully completed at the site. The air/soil vapor flow ranged from 210 to 244 scfm with generally low petroleum concentrations of 11 to 42 µg/L TPH GRO. A total of 17,221 gallons of petroleum contaminated groundwater were extracted and disposed. The groundwater elevation in the wells was modestly depressed in the Montezuma Avenue and DeVargas Condominiums areas (one to three feet), whereas, the South Plume / Design Center area had water level depression of six to nine feet.

The effectiveness of the MDPE treatments will only be apparent following additional groundwater monitoring events. SMA recommends a year of groundwater monitoring be conducted prior to determining if additional remedial action is warranted.

If you have questions, please feel free to contact me at the number above, or via email at alan.eschenbacher@soudermiller.com.

Sincerely,

SOUDER, MILLER & ASSOCIATES



Alan Eschenbacher, P.G.
Senior Geoscientist

Attachments

Figure 1: Site Map with MDPE Extraction Wells and Total Naphthalenes Concentrations

Figure 2: Site Map with ORC Sock Wells and Total Naphthalenes Concentrations

Table 1: Summary of MDPE Air Sample Analyses

Table 2: Summary of MDPE Water Sample Analyses

Table 3: Summary of MDPE Air and Hydrocarbons Recovered

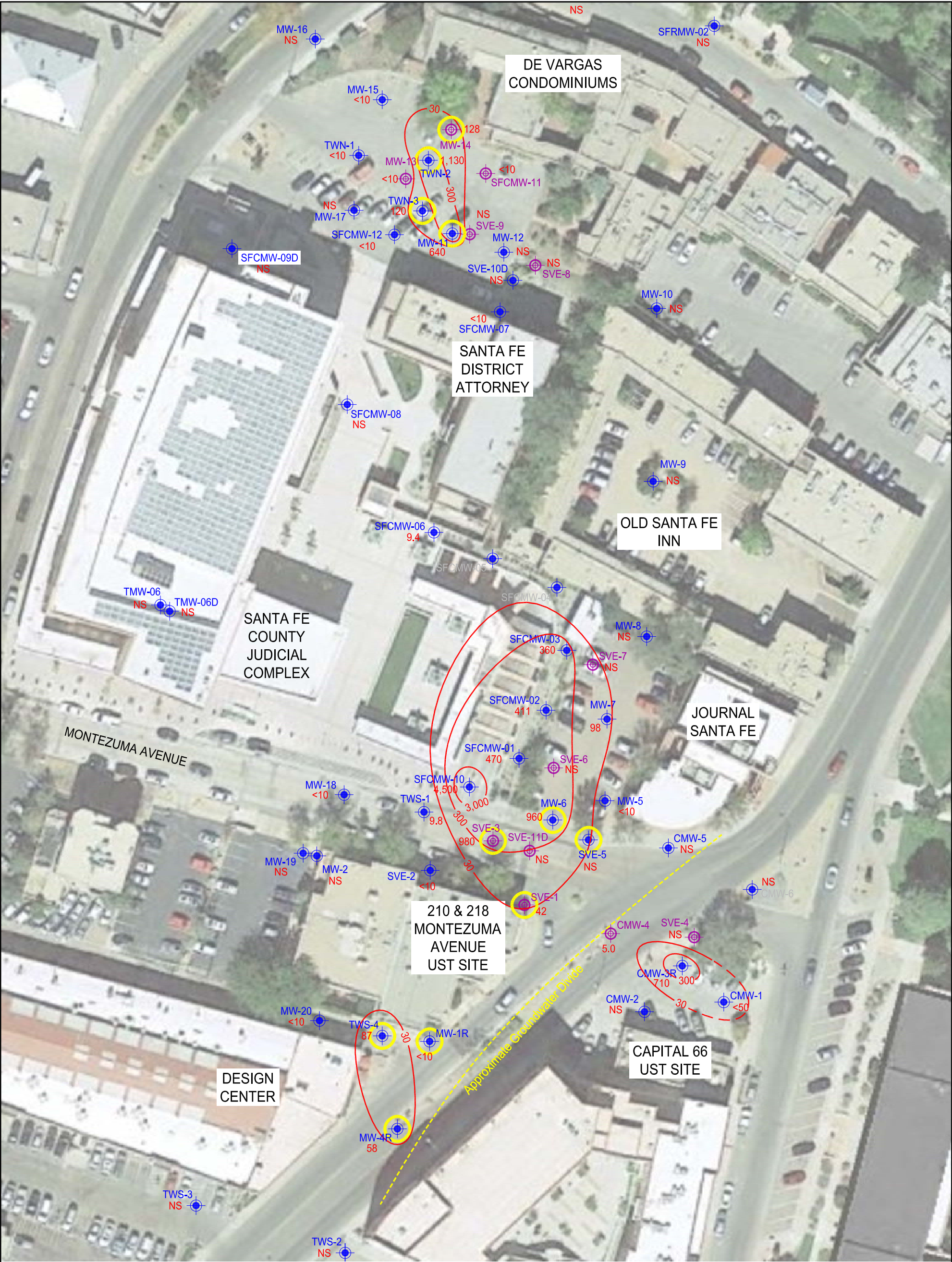
Photolog

EE&G Inc. Report

Laboratory Reports

Field Notes

FIGURES



N

0

30

60

SCALE: 1"= 60 FT.

MONITORING WELL

SOIL VAPOR EXTRACTION WELL

WELLS WITH ORC-ADVANCED SOCKS INSTALLED

147

NS

— 30 —

DISSOLVED PHASE TOTAL NAPHTHALENES CONCENTRATION (ug/L)

NOT SAMPLED

DISSOLVED PHASE TOTAL NAPHTHALENES CONCENTRATION CONTOUR (ug/L)

SITE MAP WITH ORC SOCK WELLS AND TOTAL NAPHTHALENES CONCENTRATIONS (08/2017 DATA)
SANTA FE COUNTY JUDICIAL COMPLEX STATE LEAD SITE
SANTA FE, NEW MEXICO

FIGURE 2

3223767
8/29/17

BY _____ DATE _____
BY _____ DATE _____
COPYRIGHT 2017 SOUDER, MILLER & ASSOCIATES – ALL RIGHTS RESERVED

REVISIONS

DESCR. _____
DESCR. _____

DRAWN

CHECKED

APPROVED

AJE _____
SAM _____
RSA _____

2904 RODEO PARK DRIVE, SUITE 100
SANTA FE, NEW MEXICO, 87505
505-473-9211

TABLES

Table 1: Summary of MDPE Air Sample Analyses
Santa Fe County Judicial Complex

Sample	Date/Time	TPH GRO µg/L	Oxygen mol %	Nitrogen mol %	Carbon Dioxide mol %
Montezuma Avenue					
MDPE-1	10/3/2017 9:45 a.m.	11	21.619	77.800	0.581
MDPE-2	10/4/2017 9:45 a.m.	31	22.310	77.320	0.370
MDPE-3	10/5/2017 12:20 p.m.	21	22.357	77.282	0.361
South Plume / Design Center					
MDPE-4	10/5/2017 2:15 p.m.	17	22.739	77.198	0.063
MDPE-5	10/6/2017 1:00 p.m.	16	22.703	77.213	0.084
MDPE-9	10/9/2017 1:30 p.m.	42	22.707	77.212	0.081
DeVargas Condos					
MDPE-6	10/6/2017 7:00 p.m.	11	22.790	77.174	0.036
MDPE-7	10/7/2017 7:00 p.m.	36	22.789	77.176	0.035
MDPE-8	10/8/2017 7:00 p.m.	16	22.785	77.175	0.040
Typical Atmospheric Conc.		n/a	20.947	78.084	0.035

Notes: Samples analyzed by EPA Method 8015b and GPA 2261

TPH GRO - Total Petroleum Hydrocarbons, Gasoline Range Organics

Table 2: Summary of MDPE Water Sample Analyses
Santa Fe County Judicial Complex

Well	Sampling Date	Concentration (µg/L)							
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	BTEX	EDB	EDC	Naphthalenes
NMWQCC Standard ^b		10	750	750	620	None	0.1	10	30
Montezuma Avenue									
MW-6	08/14/17	<10	<10	70	750	820	0.015	<10	960
SFCMW-1	08/15/17	3.6	<5.0	32	19	54.6	<0.0095	<5.0	470
SFCMW-10	08/15/17	65	20	<20	180	265	0.17	<10	4,500
SVE-3	08/15/17	35	100	150	1,300	1,585.0	0.076	<5.0	980
Average		26	30	63	562	681	0.065	n/a	1,728
MDPE Comp 1	10/04/17	<5.0	25	11	85	121	<5.0	<5.0	520
DeVargas Condominiums									
MW-11	08/14/17	<1.0	<1.0	46	350	396	0.84	1.4	640
MW-14	08/14/17	<1.0	<1.0	<1.0	8.4	8.4	<0.0093	2.6	128
TWN-2	08/14/17	270	210	26	1,600	2106	23	<10	1,130
TWN-3	08/14/17	1,200	400	<20	1,200	2,800	9.1	38	120
Average		368	153	18	790	1328	8.2	10.5	505
MDPE Comp 2	10/07/17	36	32	7.0	140	215	6.8	6.7	279
South Plume / Design Center									
MW-1R	08/14/17	<1.0	<1.0	<1.0	<1.5	<4.5	<0.0092 ^d	<1.0	<10.0
MW-4R	08/14/17	<2.0	<2.0	<2.0	<3.0	<9.0	<0.0094 ^d	<2.0	58
TWS-4	08/14/17	300	220	340	930	1,790	<0.0094 ^d	<10 ^h	87
Average		100	73	113	310	597	n/a	n/a	48
MDPE Comp 3	10/09/17	16	98	24	250	388	<5.0	<5.0	194

**Table 3: Summary of MDPE Air and Hydrocarbons Recovered
Santa Fe County Judicial Complex**

Date / Time	Hours in Period	TPH GRO	Average TPH GRO Over Period	Average Flow Over Period	Total Air Flow Over Period	Mass Recovery Rate (1)	Total Hydrocarbons Removed (2)
		ug/L	ug/L	scfm	cf	lbs/hr	Pounds
Montezuma Avenue							
10/3/17 9:30	0.0	11	0.0	0.0	0.0	0.0	0
10/4/17 9:45	24.2	31	21.0	214.7	312,340	0.025	0.60
10/5/17 12:20	23.8	21	26.0	214.5	305,663	0.017	0.40
TOTALS	48.0				618,002		1.0
South Plume / Design Center							
10/5/17 13:00	0.0	17	0.0	0.0	0.0	0.0	0
10/6/17 13:00	24.0	16	16.5	212.1	305,400	0.013	0.30
10/9/17 14:15	24.0	42	29.0	215.6	310,440	0.034	0.81
TOTALS	48.0				615,840		1.1
Devargas Condominiums							
10/6/17 19:00	0.0	11	0.0	0.0	0.0	0.0	0
10/7/17 19:00	24.0	36	23.5	238.7	343,680	0.032	0.77
10/8/17 19:00	24.0	16	26.0	238.7	343,680	0.014	0.34
TOTALS	48.0				687,360		1.1

Notes:

⁽¹⁾ Mass Recovery Rate:

Lab Data Mass Recovery Rate [lbs/hr] = TPH Gas [ug/L] * Flow Rate [L/min] * 60 [min/hr] * 2.2*10⁻⁹ [lbs/ug]

⁽²⁾ Total Pounds Removed:

Lab Data Total Pounds Removed [lbs]:

Total Emission Conversion [lbs to gallons]> gasoline specific gravity = 0.75 g/cm3 or 6.25 lbs/gallon (from Kuo, 1999)

PHOTOLOG



Photograph 1: MDPE Equipment Trailer



Photograph 2: Fluids flow meter/totalizer



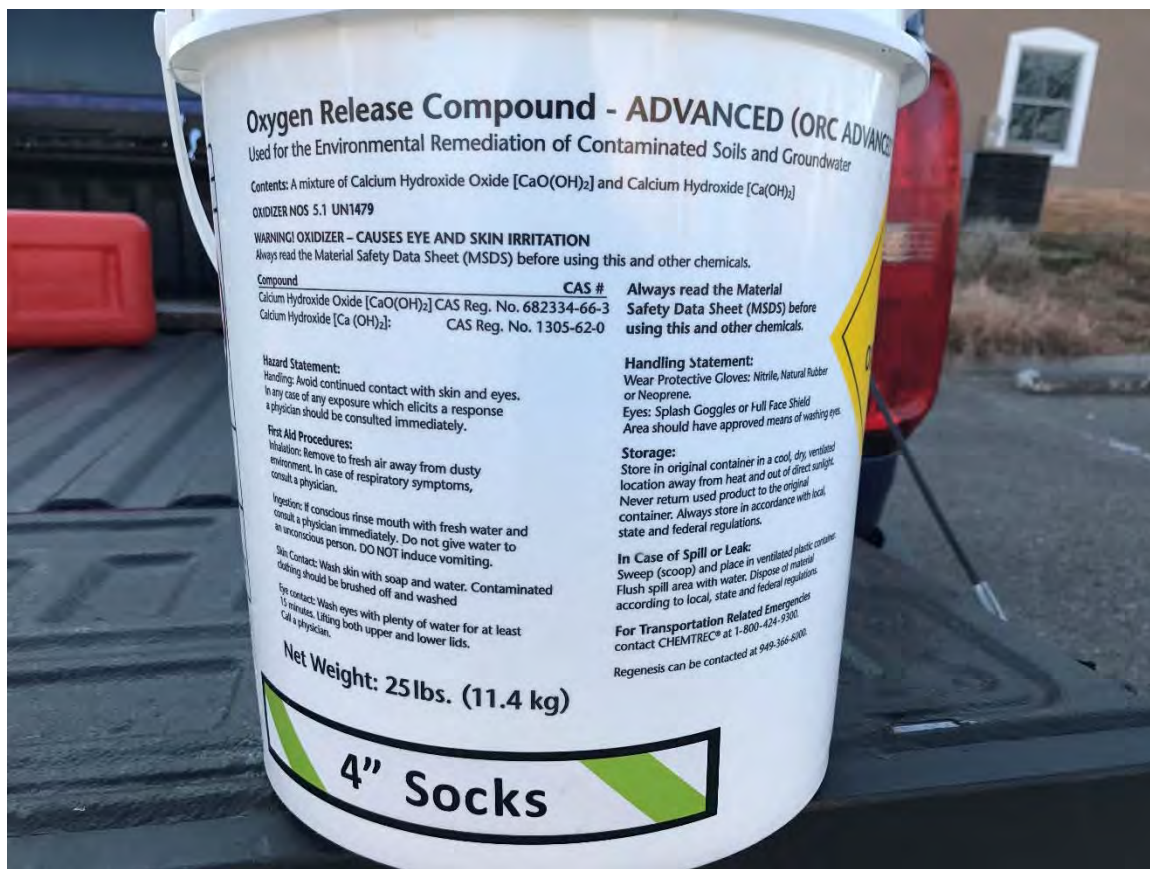
Photograph 3: MDPE piping installed in SFCMW-10



Photograph 4: MDPE piping installed in MW-6



Photograph 5: 2,000 gallon fluids bladder tanks



Photograph 6: ORC-Advanced package label

EE&G INC. MDPE REPORT



EE&G, INC.

MDPE EQUIPMENT DATA

(3) 48-hr MDPE Events

**Santa Fe County Judicial Complex State Lead Site
(Various Locations)
Santa Fe, New Mexico**

October 16, 2017

Report Prepared For:

Souder, Miller & Associates
2904 Rodeo Park Drive, Building 100
Santa Fe, New Mexico 87505
Attn: Alan Eschenbacher, P.G.

Report Prepared By:

EE&G, Inc.
1632 Southeast Parkway
Azle, Texas 76020
EE&G Project #15.1104DT



EE&G, INC. (EE&G)
1632 SOUTHEAST PARKWAY
AZLE, TEXAS 76020
972-383-0001
FAX 972-383-0005
MAIL@EE-G.COM

October 16, 2017

Souder, Miller & Associates
2904 Rodeo Park Drive, Building 100
Santa Fe, New Mexico 87505

Attn: Mr. Alan Eschenbacher, P.G.

RE: (3) 48-hr MDPE Events
Santa Fe County Judicial Complex State Lead Site
(Various Locations)
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

Dear Mr. Eschenbacher:

On October 3-9, 2017, EE&G, Inc. (EE&G) personnel conducted three (3) approved 48-hour events of mobile dual phase extraction (MDPE) for the subject LUST facility. MDPE was performed as follows:

Montezuma Avenue:

- (48 hours): Extraction from monitor wells MW-01, MW-6, MW-10 and SVE-3.

South/Design Center:

- (30 hours): Extraction from monitor wells MW-1R, MW-4R and TWS-4.

Devargas Condos:

- (48 hours): Extraction from monitor wells TWN-2, TWN-3, MW-11 and MW-14.

South/Design Center:

- (18 hours): Extraction from monitor wells MW-1R, MW-4R and TWS-4.

EE&G personnel utilized a company owned ST7000 Mobile Dual Phase Unit with 600 CFM catalytic oxidizer for off-gas control. The MDPE units included the following specifications:

- 460 V, 3 Phase System
- Rietschle Thomas Zephyr Claw VLR 400 (Vacuum Source)
- 600 CFM Electric Catalytic Oxidizer
- Capable of 28.44 inches of mercury
- Steel Modular Extraction Manifold
- Flow Control Valve
- 100 Gallon Moisture Separator
- Control Panel
- Solberg Liquid Filtration System
- 356 Moyno Progressive Cavity Pump
- (2) 2,000-Gallon and (1) 3,000-Gallon Storage Bladders

Santa Fe County Judicial Complex State Lead Site
(Various Locations)
Santa Fe, New Mexico
EE&G Project No.: 15.1104DT
October 16, 2017



EE&G was contracted solely to provide MDPE equipment and field personnel to operate the MDPE equipment. Air sampling, mass removal calculations, negative pressure readings on surrounding monitor wells, etc. were recorded by Souder, Miller & Associates personnel. Please see following pages for MDPE system data recorded by EE&G personnel.

If you have any questions or need additional information please contact EE&G at 972-383-0001.

Sincerely,
(EE&G, Inc.)

A handwritten signature in blue ink, appearing to read 'Justin Heath', written over the printed name.

Justin Heath – LPST PM, GIT
Project Manager

Pre/Post MDPE Event Fluid Levels
 Santa Fe County Judicial Complex State Lead Site
 Santa Fe, New Mexico
 EE&G Project No. 15.1104DT

Montezuma Avenue

Start-up Date [Time]: 10/03/17 [9:30]

Well ID		Date	Depth To Water (Feet)	Depth to NAPL (Feet)	Hydrocarbon Thickness (Feet)
Pre MDPE	MW-01*	10/3/2017	30.15	---	0.00
	MW-6*	10/3/2017	30.14	---	0.00
	MW-10*	10/3/2017	28.31	---	0.00
	SVE-3*	10/3/2017	28.58	---	0.00
Post MDPE	MW-01*	10/5/2017	30.90	---	0.00
	MW-6*	10/5/2017	32.13	---	0.00
	MW-10*	10/5/2017	30.70	---	0.00
	SVE-3*	10/5/2017	31.71	---	0.00

Water Depth Change	
MW-01*	-0.75
MW-6*	-1.99
MW-10*	-2.39
SVE-3*	-3.13

Bold* Denotes Extraction points

MDPE Data Table: System Parameters
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

Montezuma Avenue

Start-up Date [Time]: 10/03/17 [9:30]

Sample Date/Time	Event Duration (Hour)	Extraction Wells: MW-01, MW-6, MW-10 and SVE-3							T1 Temperature (°C)	T2 Temperature (°C)	T3 Temperature (°C)
		Static Pressure (Inch H ₂ O)	Differential Pressure (Inch H ₂ O)	Process Air Temperature ¹ (°F)	Air Flow Rate (SCFM)	Influent PID (ppmv)	Effluent PID (ppmv)	Vacuum Pressure (Inch Hg)			
10/3/2017	11:30	10.0	0.20	113	210	9	0	18.0	330	335	335
	13:30	10.0	0.20	111	211	9	0	18.0	330	335	336
	15:30	10.0	0.20	105	212	12	0	18.0	330	335	336
	17:30	10.0	0.20	101	213	10	0	18.0	330	335	336
	19:30	10.0	0.20	88	215	8	0	18.0	330	335	336
	21:30	10.0	0.20	86	215	7	0	18.0	330	335	336
	23:30	10.0	0.20	80	217	7	0	18.0	330	335	336
10/4/2017	1:30	10.0	0.20	78	217	8	0	18.0	330	335	336
	3:30	10.0	0.20	77	217	6	0	18.0	330	335	336
	5:30	10.0	0.20	80	217	6	0	18.0	330	336	336
	7:30	10.0	0.20	81	216	7	0	18.0	330	336	336
	9:30	10.0	0.20	84	216	10	0	18.0	330	336	335
	11:30	10.0	0.20	87	215	8	0	18.0	330	336	336
	13:30	10.0	0.20	92	214	10	0	18.0	330	336	336
10/5/2017	18:30	10.0	0.20	94	214	9	0	18.0	330	336	336
	20:30	10.0	0.20	101	213	6	0	18.0	330	335	336
	22:30	10.0	0.20	105	212	5	0	18.0	330	336	336
	0:30	10.0	0.20	109	211	5	0	18.0	330	335	336
	2:30	10.0	0.20	104	212	6	0	16.0	330	335	336
	4:30	10.0	0.20	90	215	8	0	18.0	330	335	336
	6:30	10.0	0.20	80	217	8	0	17.0	330	335	336
10/6/2017	8:30	10.0	0.20	80	217	9	0	18.0	330	335	335
	10:30	10.0	0.20	78	217	7	0	15.0	330	337	335
	12:30	10.0	0.20	80	217	6	0	17.0	330	336	336

1 - Influent air temperature is read after claw pump

* - MDPE shut down approximately 3 hours due to having to use the trailer to transfer liquids to a water truck

Summary of Fluids Recovered
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

Montezuma Avenue

DATE	NAPL Recovered (gal.)	Groundwater Recovered (gal.)	Total Fluids (gal.)
10/3-5/2017	0.00	8190.00	8190.00
Total	0.00	8190.00	8190.00

Pre/Post MDPE Event Fluid Levels
 Santa Fe County Judicial Complex State Lead Site
 Santa Fe, New Mexico
 EE&G Project No. 15.1104DT

South/Design Center

Start-up Date [Time]: 10/05/17 [13:00]

Well ID		Date	Depth To Water (Feet)	Depth to NAPL (Feet)	Hydrocarbon Thickness (Feet)
Pre MDPE	MW-1R*	10/5/2017	29.07	---	0.00
	MW-4R*	10/5/2017	30.01	---	0.00
	TWS-4*	10/5/2017	30.05	---	0.00
Post MDPE	MW-1R*	10/9/2017	35.04	---	0.00
	MW-4R*	10/9/2017	39.73	---	0.00
	TWS-4*	10/9/2017	37.62	---	0.00

Water Depth Change	
MW-1R*	-5.97
MW-4R*	-9.72
TWS-4*	-7.57

Bold* Denotes Extraction points

MDPE Data Table: System Parameters
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT
South/Design Center

Start-up Date [Time]: 10/05/17 [13:00]

Sample Date/Time	Event Duration (Hour)	Extraction Wells: MW-1R, MW-4R and TWS-4							T1 Temperature (°C)	T2 Temperature (°C)	T3 Temperature (°C)
		Static Pressure (Inch H ₂ O)	Differential Pressure (Inch H ₂ O)	Process Air Temperature (°F)	Air Flow Rate (SCFM)	Influent PID (ppmv)	Effluent PID (ppmv)	Vacuum Pressure (Inch Hg)			
10/5/2017	15:00	10.0	0.20	108	211	6	0	15.0	330	335	335
	17:00	10.0	0.20	113	210	8	0	15.0	330	335	336
	19:00	10.0	0.20	111	211	12	0	15.0	330	335	336
	21:00	10.0	0.20	101	213	10	0	15.0	330	335	336
	23:00	10.0	0.20	104	212	10	0	15.0	330	335	336
10/6/2017	1:00	10.0	0.20	106	212	8	0	15.0	330	335	336
	3:00	10.0	0.20	102	212	8	0	15.0	330	335	336
	5:00	10.0	0.20	100	213	8	0	15.0	330	335	336
	7:00	10.0	0.20	98	213	10	0	15.0	330	336	335
	9:00	10.0	0.20	99	213	8	0	15.0	330	335	335
	11:00	10.0	0.20	101	213	9	0	15.0	330	336	336
	13:00	10.0	0.20	103	212	9	0	15.0	330	335	334
	15:00	10.0	0.20	100	213	8	0	15.0	330	334	334
	17:00	10.0	0.20	100	213	10	0	15.0	330	334	334
	18:00	10.0	0.20	98	213	10	0	15.0	330	335	334
	21:15	12.0	0.20	84	217	8	0	15.0	330	335	334
	23:15	12.0	0.20	84	217	8	0	18.0	330	335	334
10/8/2017	1:15	12.0	0.20	83	217	9	0	18.0	330	334	335
	3:15	12.0	0.20	80	217	8	0	18.0	330	334	335
	5:15	12.0	0.20	84	217	9	0	18.0	330	334	335
	7:15	12.0	0.20	84	217	9	0	18.0	330	334	334
	9:15	12.0	0.20	85	216	10	0	18.0	330	335	335
	11:15	12.0	0.20	88	216	8	0	18.0	330	335	334
	13:15	12.0	0.20	90	215	8	0	18.0	330	334	334
	14:15	12.0	0.20	87	216	11	0	18.0	330	334	334

1 - Influent air temperature is read after claw pump
 * - MDPE conducted in two separate mobilizations

Summary of Fluids Recovered
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

South/Design Center

DATE	NAPL Recovered (gal.)	Groundwater Recovered (gal.)	Total Fluids (gal.)
10/5-6/2017	0.00	3377.00	3377.00
10/8-9/2017	0.00	3377.00	3377.00
Total	0.00	3377.00	3377.00

Pre/Post MDPE Event Fluid Levels
 Santa Fe County Judicial Complex State Lead Site
 Santa Fe, New Mexico
 EE&G Project No. 15.1104DT

DeVargas Condos

Start-up Date [Time]: 10/6/17 [19:00]

Well ID		Date	Depth To Water (Feet)	Depth to NAPL (Feet)	Hydrocarbon Thickness (Feet)
Pre MDPE	MW-11*	10/6/2017	26.21	---	0.00
	MW-14*	10/6/2017	26.10	---	0.00
	TWN-2*	10/6/2017	25.60	---	0.00
	TWN-3*	10/6/2017	25.15	---	0.00
Post MDPE	MW-11*	10/8/2017	27.72	---	0.00
	MW-14*	10/8/2017	26.48	---	0.00
	TWN-2*	10/8/2017	26.80	---	0.00
	TWN-3*	10/8/2017	25.90	---	0.00

Water Depth Change	
MW-11*	-1.51
MW-14*	-0.38
TWN-2*	-1.20
TWN-3*	-0.75

Bold* Denotes Extraction points

MDPE Data Table: System Parameters
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

DeVargas Condos

Start-up Date [Time]: 10/6/17 [19:00]

Sample Date/Time	Event Duration (Hour)	Extraction Wells: MW-11, MW-14, TWN-2 and TWN-3							T1 Temperature (°C)	T2 Temperature (°C)	T3 Temperature (°C)
		Static Pressure (Inch H ₂ O)	Differential Pressure (Inch H ₂ O)	Process Air Temperature ¹ (°F)	Air Flow Rate (SCFM)	Influent PID (ppmv)	Effluent PID (ppmv)	Vacuum Pressure (Inch Hg)			
10/6	21:00	12.0	0.25	100	239	5	0	10.0	330	335	334
	23:00	12.0	0.25	97	239	5	0	10.0	330	335	334
10/7/2017	1:00	12.0	0.25	93	240	5	0	12.0	330	333	334
	3:00	12.0	0.25	88	241	9	0	15.0	330	334	334
	5:00	12.0	0.25	76	244	9	0	15.0	330	334	334
	7:00	12.0	0.25	78	243	8	0	10.0	330	335	334
	9:00	12.0	0.25	80	243	9	0	10.0	330	334	334
	11:00	11.0	0.22	86	226	10	0	10.0	330	334	335
	13:00	12.0	0.25	104	238	8	0	10.0	330	335	334
	15:00	12.0	0.25	106	237	8	0	10.0	330	334	334
	17:00	12.0	0.25	106	237	8	0	10.0	330	333	334
	19:00	12.0	0.25	108	237	8	0	10.0	330	333	334
10/8/2017	21:00	12.0	0.25	103	238	7	0	10.0	330	333	334
	23:00	12.0	0.25	100	239	7	0	10.0	330	333	334
	1:00	12.0	0.25	99	239	8	0	10.0	330	333	334
	3:00	12.0	0.25	99	239	7	0	10.0	330	333	334
	5:00	12.0	0.25	94	240	4	0	10.0	330	333	334
	7:00	12.0	0.25	94	240	6	0	10.0	330	333	333
	9:00	12.0	0.25	95	240	5	0	10.0	330	334	333
	11:00	12.0	0.25	94	240	9	0	10.0	330	335	333
	13:00	12.0	0.25	103	238	10	0	10.0	330	335	335
	15:00	12.0	0.25	106	237	11	0	10.0	330	336	335
10/6	17:00	12.0	0.25	108	237	13	0	10.0	330	335	334
	19:00	12.0	0.25	109	237	12	0	10.0	330	334	334

1 - Influent air temperature is read after claw pump

Summary of Fluids Recovered
Santa Fe County Judicial Complex State Lead Site
Santa Fe, New Mexico
EE&G Project No. 15.1104DT

Devargas Condos

DATE	NAPL Recovered (gal.)	Groundwater Recovered (gal.)	Total Fluids (gal.)
10/6-8/2017	0.00	5654.00	5654.00
Total	0.00	5654.00	5654.00

LABORATORY REPORTS



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 11, 2017

Alan Eschenbacher
Souder, Miller & Associates
2904 Rodeo Park Drive East
Building 100
Santa Fe, NM 87505
TEL: (505) 473-9211
FAX (505) 471-6675

RE: SFCJC

OrderNo.: 1710304

Dear Alan Eschenbacher:

Hall Environmental Analysis Laboratory received 4 sample(s) on 10/4/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710304

Date Reported: 10/11/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-1

Project: SFCJC

Collection Date: 10/3/2017 9:45:00 AM

Lab ID: 1710304-001

Matrix: AIR

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	10/6/2017 12:29:03 PM	G46174
Surr: BFB	113	40.2-203		%Rec	1	10/6/2017 12:29:03 PM	G46174

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710304**

Date Reported: **10/11/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-2

Project: SFCJC

Collection Date: 10/4/2017 9:45:00 AM

Lab ID: 1710304-002

Matrix: AIR

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	31	5.0		µg/L	1	10/6/2017 12:51:45 PM	G46174
Surr: BFB	117	40.2-203		%Rec	1	10/6/2017 12:51:45 PM	G46174

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710304

Date Reported: 10/11/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 1

Project: SFCJC

Collection Date: 10/4/2017 11:35:00 AM

Lab ID: 1710304-003

Matrix: AQUEOUS

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Toluene	25	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Ethylbenzene	11	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2,4-Trimethylbenzene	46	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,3,5-Trimethylbenzene	9.5	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Naphthalene	240	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1-Methylnaphthalene	130	20	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
2-Methylnaphthalene	150	20	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Acetone	ND	50	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Bromobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Bromodichloromethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Bromoform	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Bromomethane	ND	15	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
2-Butanone	ND	50	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Carbon disulfide	ND	50	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Carbon Tetrachloride	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Chlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Chloroethane	ND	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Chloroform	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Chloromethane	ND	15	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
2-Chlorotoluene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
4-Chlorotoluene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
cis-1,2-DCE	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Dibromochloromethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Dibromomethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2-Dichlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,3-Dichlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,4-Dichlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Dichlorodifluoromethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1-Dichloroethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1-Dichloroethene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2-Dichloropropane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,3-Dichloropropane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
2,2-Dichloropropane	ND	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710304

Date Reported: 10/11/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 1

Project: SFCJC

Collection Date: 10/4/2017 11:35:00 AM

Lab ID: 1710304-003

Matrix: AQUEOUS

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Hexachlorobutadiene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
2-Hexanone	ND	50	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Isopropylbenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
4-Isopropyltoluene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
4-Methyl-2-pentanone	ND	50	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Methylene Chloride	ND	15	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
n-Butylbenzene	ND	15	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
n-Propylbenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
sec-Butylbenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Styrene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
tert-Butylbenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
trans-1,2-DCE	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1,1-Trichloroethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,1,2-Trichloroethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Trichloroethene (TCE)	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Trichlorofluoromethane	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
1,2,3-Trichloropropane	ND	10	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Vinyl chloride	ND	5.0	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Xylenes, Total	85	7.5	D	µg/L	10	10/6/2017 2:49:00 AM	A46146
Surr: 1,2-Dichloroethane-d4	101	70-130	D	%Rec	10	10/6/2017 2:49:00 AM	A46146
Surr: 4-Bromofluorobenzene	97.8	70-130	D	%Rec	10	10/6/2017 2:49:00 AM	A46146
Surr: Dibromofluoromethane	102	70-130	D	%Rec	10	10/6/2017 2:49:00 AM	A46146
Surr: Toluene-d8	98.0	70-130	D	%Rec	10	10/6/2017 2:49:00 AM	A46146

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710304

Date Reported: 10/11/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: Trip Blank

Project: SFCJC

Collection Date:

Lab ID: 1710304-004

Matrix: AQUEOUS

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Toluene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Ethylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Naphthalene	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1-Methylnaphthalene	ND	4.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
2-Methylnaphthalene	ND	4.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Acetone	ND	10		µg/L	1	10/6/2017 4:00:00 AM	A46146
Bromobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Bromodichloromethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Bromoform	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Bromomethane	ND	3.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
2-Butanone	ND	10		µg/L	1	10/6/2017 4:00:00 AM	A46146
Carbon disulfide	ND	10		µg/L	1	10/6/2017 4:00:00 AM	A46146
Carbon Tetrachloride	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Chlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Chloroethane	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Chloroform	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Chloromethane	ND	3.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
2-Chlorotoluene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
4-Chlorotoluene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
cis-1,2-DCE	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Dibromochloromethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Dibromomethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1-Dichloroethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1-Dichloroethene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2-Dichloropropane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,3-Dichloropropane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
2,2-Dichloropropane	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710304

Date Reported: 10/11/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: Trip Blank

Project: SFCJC

Collection Date:

Lab ID: 1710304-004

Matrix: AQUEOUS

Received Date: 10/4/2017 3:00:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Hexachlorobutadiene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
2-Hexanone	ND	10		µg/L	1	10/6/2017 4:00:00 AM	A46146
Isopropylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
4-Isopropyltoluene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
4-Methyl-2-pentanone	ND	10		µg/L	1	10/6/2017 4:00:00 AM	A46146
Methylene Chloride	ND	3.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
n-Butylbenzene	ND	3.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
n-Propylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
sec-Butylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Styrene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
tert-Butylbenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
trans-1,2-DCE	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Trichlorofluoromethane	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Vinyl chloride	ND	1.0		µg/L	1	10/6/2017 4:00:00 AM	A46146
Xylenes, Total	ND	1.5		µg/L	1	10/6/2017 4:00:00 AM	A46146
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	10/6/2017 4:00:00 AM	A46146
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	10/6/2017 4:00:00 AM	A46146
Surr: Dibromofluoromethane	103	70-130		%Rec	1	10/6/2017 4:00:00 AM	A46146
Surr: Toluene-d8	97.2	70-130		%Rec	1	10/6/2017 4:00:00 AM	A46146

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710304-001B; MDPE-1
Location:
Lab ID: G17100146-001

Report Date: 10/10/17
Collection Date: 10/03/17 09:45
Date Received: 10/06/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	21.619	Mol %		GPA 2261	10/10/17 14:07 / djb
Nitrogen	77.800	Mol %		GPA 2261	10/10/17 14:07 / djb
Carbon Dioxide	0.581	Mol %		GPA 2261	10/10/17 14:07 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 14:07 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:07 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:07 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 14:07 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 14:07 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 14:07 / djb
Molecular Weight	28.97	unitless		GPA 2261	10/10/17 14:07 / djb
Pseudo-critical Pressure, psia	549	psia		GPA 2261	10/10/17 14:07 / djb
Pseudo-critical Temperature, deg R	241	deg R		GPA 2261	10/10/17 14:07 / djb
Specific Gravity (air=1.000)	1.003	unitless		GPA 2261	10/10/17 14:07 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:07 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:07 / djb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710304-002B; MDPE-2
Location:
Lab ID: G17100146-002

Report Date: 10/10/17
Collection Date: 10/04/17 09:45
Date Received: 10/06/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.310	Mol %		GPA 2261	10/10/17 14:20 / djb
Nitrogen	77.320	Mol %		GPA 2261	10/10/17 14:20 / djb
Carbon Dioxide	0.370	Mol %		GPA 2261	10/10/17 14:20 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 14:20 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:20 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:20 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 14:20 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 14:20 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 14:20 / djb
Molecular Weight	28.96	unitless		GPA 2261	10/10/17 14:20 / djb
Pseudo-critical Pressure, psia	549	psia		GPA 2261	10/10/17 14:20 / djb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/10/17 14:20 / djb
Specific Gravity (air=1.000)	1.003	unitless		GPA 2261	10/10/17 14:20 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:20 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:20 / djb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 10/10/17

Work Order: G17100146

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Analytical Run: R239170		
Lab ID: ICV-1710100816	Initial Calibration Verification Standard						10/10/17 08:16		
Oxygen	0.397	Mol %	0.001	83	75	110			
Nitrogen	5.075	Mol %	0.001	101	90	110			
Carbon Dioxide	4.911	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.041	Mol %	0.001	100	90	110			
Ethane	5.019	Mol %	0.001	101	90	110			
Propane	5.139	Mol %	0.001	101	90	110			
Isobutane	2.015	Mol %	0.001	100	90	110			
n-Butane	1.993	Mol %	0.001	99	90	110			
Isopentane	0.991	Mol %	0.001	99	90	110			
n-Pentane	0.985	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1710100822	Continuing Calibration Verification Standard						10/10/17 08:22		
Oxygen	0.578	Mol %	0.001	96	90	110			
Nitrogen	1.284	Mol %	0.001	91	85	110			
Carbon Dioxide	0.958	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	13.582	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.014	Mol %	0.001	101	90	110			
Isobutane	0.506	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1710101528	Continuing Calibration Verification Standard						10/10/17 15:29		
Oxygen	0.596	Mol %	0.001	99	90	110			
Nitrogen	1.338	Mol %	0.001	95	85	110			
Carbon Dioxide	0.965	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	13.472	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.016	Mol %	0.001	102	90	110			
Isobutane	0.507	Mol %	0.001	101	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.157	Mol %	0.001	104	90	110			
Method: GPA 2261							Batch: R239170		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Project: Not Indicated

Report Date: 10/10/17

Work Order: G17100146

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Batch: R239170		
Lab ID: G17100146-001ADUP	Sample Duplicate		Run: Varian GC_171010A				10/10/17 14:11		
Oxygen	21.621	Mol %	0.001				0.0	10	
Nitrogen	77.797	Mol %	0.001				0.0	10	
Carbon Dioxide	0.582	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100146-002ADUP	Sample Duplicate		Run: Varian GC_171010A				10/10/17 14:23		
Oxygen	22.311	Mol %	0.001				0.0	10	
Nitrogen	77.319	Mol %	0.001				0.0	10	
Carbon Dioxide	0.370	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710304

11-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC

Sample ID	100ng lcs		SampType:	LCS4		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	BatchQC		Batch ID:	R46146		RunNo:	46146			
Prep Date:			Analysis Date:	10/5/2017		SeqNo:	1468708	Units:	%Rec	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.4	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	rb		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	R46146		RunNo:	46146			
Prep Date:			Analysis Date:	10/5/2017		SeqNo:	1468712	Units:	%Rec	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID	100ng lcs2		SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW		Batch ID:	A46146		RunNo:	46146			
Prep Date:			Analysis Date:	10/5/2017		SeqNo:	1468794	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	19	1.0	20.00	0	97.5	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	105	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		97.8	70	130			

Sample ID	rb2		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	A46146		RunNo:	46146			
Prep Date:			Analysis Date:	10/5/2017		SeqNo:	1468795	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710304

11-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A46146	RunNo:	46146					
Prep Date:		Analysis Date:	10/5/2017	SeqNo:	1468795	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710304

11-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A46146	RunNo:	46146					
Prep Date:		Analysis Date:	10/5/2017	SeqNo:	1468795	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.6	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID	1710304-003ams	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MDPE Composite 1	Batch ID:	A46146	RunNo:	46146					
Prep Date:		Analysis Date:	10/6/2017	SeqNo:	1468815	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	200	10	200.0	2.080	99.0	70	130			D
Toluene	220	10	200.0	24.72	97.4	70	130			D
Chlorobenzene	200	10	200.0	0	100	70	130			D
1,1-Dichloroethene	200	10	200.0	0	102	70	130			D
Trichloroethene (TCE)	190	10	200.0	0	96.8	70	130			D
Surr: 1,2-Dichloroethane-d4	99		100.0		99.3	70	130			D
Surr: 4-Bromofluorobenzene	100		100.0		100	70	130			D
Surr: Dibromofluoromethane	100		100.0		101	70	130			D

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710304

11-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC

Sample ID	1710304-003ams	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MDPE Composite 1	Batch ID:	A46146	RunNo:	46146					
Prep Date:		Analysis Date:	10/6/2017	SeqNo:	1468815	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	98		100.0		97.7	70	130			D

Sample ID	1710304-003amsd	SampType:	MSD		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	MDPE Composite 1	Batch ID:	A46146		RunNo: 46146					
Prep Date:		Analysis Date:	10/6/2017		SeqNo: 1468817		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	200	10	200.0	2.080	96.9	70	130	2.12	20	D
Toluene	210	10	200.0	24.72	94.6	70	130	2.62	20	D
Chlorobenzene	190	10	200.0	0	97.4	70	130	2.97	20	D
1,1-Dichloroethene	200	10	200.0	0	97.6	70	130	4.08	20	D
Trichloroethene (TCE)	190	10	200.0	0	93.9	70	130	3.05	20	D
Surr: 1,2-Dichloroethane-d4	100		100.0		100	70	130	0	0	D
Surr: 4-Bromofluorobenzene	100		100.0		99.9	70	130	0	0	D
Surr: Dibromofluoromethane	100		100.0		103	70	130	0	0	D
Surr: Toluene-d8	98		100.0		98.2	70	130	0	0	D

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-SF

Work Order Number: 1710304

RcptNo: 1

Received By: Erin Melendrez 10/4/2017 3:00:00 PM

Completed By: Anne Thorne 10/5/2017 9:46:10 AM

Reviewed By: ENM 10/5/17

[Handwritten signatures]

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good	Not Present			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 13, 2017

Alan Eschenbacher
Souder, Miller & Associates
2904 Rodeo Park Drive East
Building 100
Santa Fe, NM 87505
TEL: (505) 473-9211
FAX (505) 471-6675

RE: Santa Fe Judicial Complex (SFCJC)

OrderNo.: 1710466

Dear Alan Eschenbacher:

Hall Environmental Analysis Laboratory received 6 sample(s) on 10/9/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued October 11, 2017.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710466**

Date Reported: **10/13/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-3

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/5/2017 12:20:00 PM

Lab ID: 1710466-001

Matrix: AIR

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	21	5.0		µg/L	1	10/10/2017 9:27:18 AM	R46229
Surr: BFB	115	40.2-203		%Rec	1	10/10/2017 9:27:18 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710466**

Date Reported: **10/13/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-4

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/5/2017 2:15:00 PM

Lab ID: 1710466-002

Matrix: AIR

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	17	5.0		µg/L	1	10/10/2017 9:50:00 AM	R46229
Surr: BFB	113	40.2-203		%Rec	1	10/10/2017 9:50:00 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710466**

Date Reported: **10/13/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-5

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/6/2017 1:00:00 PM

Lab ID: 1710466-003

Matrix: AIR

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	16	5.0		µg/L	1	10/10/2017 10:12:42 AM	R46229
Surr: BFB	112	40.2-203		%Rec	1	10/10/2017 10:12:42 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710466**

Date Reported: **10/13/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-6

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/6/2017 7:00:00 PM

Lab ID: 1710466-004

Matrix: AIR

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	10/10/2017 10:35:21 AM	R46229
Surr: BFB	108	40.2-203		%Rec	1	10/10/2017 10:35:21 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710466

Date Reported: 10/13/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 2

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/7/2017 11:00:00 AM

Lab ID: 1710466-005

Matrix: AQUEOUS

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	36	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Toluene	32	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Ethylbenzene	7.0	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2,4-Trimethylbenzene	120	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,3,5-Trimethylbenzene	26	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2-Dichloroethane (EDC)	6.7	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2-Dibromoethane (EDB)	6.8	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Naphthalene	190	10		µg/L	5	10/10/2017 7:00:00 AM	A46199
1-Methylnaphthalene	44	20		µg/L	5	10/10/2017 7:00:00 AM	A46199
2-Methylnaphthalene	45	20		µg/L	5	10/10/2017 7:00:00 AM	A46199
Acetone	310	50		µg/L	5	10/10/2017 7:00:00 AM	A46199
Bromobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Bromodichloromethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Bromoform	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Bromomethane	ND	15		µg/L	5	10/10/2017 7:00:00 AM	A46199
2-Butanone	190	50		µg/L	5	10/10/2017 7:00:00 AM	A46199
Carbon disulfide	ND	50		µg/L	5	10/10/2017 7:00:00 AM	A46199
Carbon Tetrachloride	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Chlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Chloroethane	ND	10		µg/L	5	10/10/2017 7:00:00 AM	A46199
Chloroform	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Chloromethane	ND	15		µg/L	5	10/10/2017 7:00:00 AM	A46199
2-Chlorotoluene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
4-Chlorotoluene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
cis-1,2-DCE	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	10/10/2017 7:00:00 AM	A46199
Dibromochloromethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Dibromomethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,3-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,4-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Dichlorodifluoromethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1-Dichloroethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1-Dichloroethene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2-Dichloropropane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,3-Dichloropropane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
2,2-Dichloropropane	ND	10		µg/L	5	10/10/2017 7:00:00 AM	A46199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710466

Date Reported: 10/13/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 2

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date: 10/7/2017 11:00:00 AM

Lab ID: 1710466-005

Matrix: AQUEOUS

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Hexachlorobutadiene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
2-Hexanone	100	50		µg/L	5	10/10/2017 7:00:00 AM	A46199
Isopropylbenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
4-Isopropyltoluene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
4-Methyl-2-pentanone	ND	50		µg/L	5	10/10/2017 7:00:00 AM	A46199
Methylene Chloride	ND	15		µg/L	5	10/10/2017 7:00:00 AM	A46199
n-Butylbenzene	ND	15		µg/L	5	10/10/2017 7:00:00 AM	A46199
n-Propylbenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
sec-Butylbenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Styrene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
tert-Butylbenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	10/10/2017 7:00:00 AM	A46199
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
trans-1,2-DCE	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1,1-Trichloroethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,1,2-Trichloroethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Trichloroethene (TCE)	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Trichlorofluoromethane	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
1,2,3-Trichloropropane	ND	10		µg/L	5	10/10/2017 7:00:00 AM	A46199
Vinyl chloride	ND	5.0		µg/L	5	10/10/2017 7:00:00 AM	A46199
Xylenes, Total	140	7.5		µg/L	5	10/10/2017 7:00:00 AM	A46199
Surr: 1,2-Dichloroethane-d4	91.8	70-130		%Rec	5	10/10/2017 7:00:00 AM	A46199
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	5	10/10/2017 7:00:00 AM	A46199
Surr: Dibromofluoromethane	100	70-130		%Rec	5	10/10/2017 7:00:00 AM	A46199
Surr: Toluene-d8	96.7	70-130		%Rec	5	10/10/2017 7:00:00 AM	A46199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710466

Date Reported: 10/13/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: Trip Blank

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date:

Lab ID: 1710466-006

Matrix: AQUEOUS

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Toluene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Ethylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Naphthalene	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1-Methylnaphthalene	ND	4.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
2-Methylnaphthalene	ND	4.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Acetone	ND	10		µg/L	1	10/10/2017 7:24:00 AM	A46199
Bromobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Bromodichloromethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Bromoform	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Bromomethane	ND	3.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
2-Butanone	ND	10		µg/L	1	10/10/2017 7:24:00 AM	A46199
Carbon disulfide	ND	10		µg/L	1	10/10/2017 7:24:00 AM	A46199
Carbon Tetrachloride	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Chlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Chloroethane	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Chloroform	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Chloromethane	ND	3.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
2-Chlorotoluene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
4-Chlorotoluene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
cis-1,2-DCE	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Dibromochloromethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Dibromomethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1-Dichloroethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1-Dichloroethene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2-Dichloropropane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,3-Dichloropropane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
2,2-Dichloropropane	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710466

Date Reported: 10/13/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: Trip Blank

Project: Santa Fe Judicial Complex (SFCJC)

Collection Date:

Lab ID: 1710466-006

Matrix: AQUEOUS

Received Date: 10/9/2017 7:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Hexachlorobutadiene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
2-Hexanone	ND	10		µg/L	1	10/10/2017 7:24:00 AM	A46199
Isopropylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
4-Isopropyltoluene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
4-Methyl-2-pentanone	ND	10		µg/L	1	10/10/2017 7:24:00 AM	A46199
Methylene Chloride	ND	3.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
n-Butylbenzene	ND	3.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
n-Propylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
sec-Butylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Styrene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
tert-Butylbenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
trans-1,2-DCE	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Trichlorofluoromethane	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Vinyl chloride	ND	1.0		µg/L	1	10/10/2017 7:24:00 AM	A46199
Xylenes, Total	ND	1.5		µg/L	1	10/10/2017 7:24:00 AM	A46199
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	1	10/10/2017 7:24:00 AM	A46199
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	10/10/2017 7:24:00 AM	A46199
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	10/10/2017 7:24:00 AM	A46199
Surr: Toluene-d8	95.4	70-130		%Rec	1	10/10/2017 7:24:00 AM	A46199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710466-001B; MDPE-3
Location:
Lab ID: G17100192-001

Report Date: 10/10/17
Collection Date: 10/05/17 12:20
Date Received: 10/10/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.357	Mol %		GPA 2261	10/10/17 14:30 / djb
Nitrogen	77.282	Mol %		GPA 2261	10/10/17 14:30 / djb
Carbon Dioxide	0.361	Mol %		GPA 2261	10/10/17 14:30 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 14:30 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:30 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:30 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 14:30 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 14:30 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 14:30 / djb
Molecular Weight	28.96	unitless		GPA 2261	10/10/17 14:30 / djb
Pseudo-critical Pressure, psia	549	psia		GPA 2261	10/10/17 14:30 / djb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/10/17 14:30 / djb
Specific Gravity (air=1.000)	1.003	unitless		GPA 2261	10/10/17 14:30 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:30 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:30 / djb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710466-002B; MDPE-4
Location:
Lab ID: G17100192-002

Report Date: 10/10/17
Collection Date: 10/05/17 14:15
Date Received: 10/10/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.739	Mol %		GPA 2261	10/10/17 14:48 / djb
Nitrogen	77.198	Mol %		GPA 2261	10/10/17 14:48 / djb
Carbon Dioxide	0.063	Mol %		GPA 2261	10/10/17 14:48 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 14:48 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:48 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:48 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 14:48 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 14:48 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 14:48 / djb
Molecular Weight	28.93	unitless		GPA 2261	10/10/17 14:48 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/10/17 14:48 / djb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/10/17 14:48 / djb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/10/17 14:48 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:48 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:48 / djb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710466-003B; MDPE-5
Location:
Lab ID: G17100192-003

Report Date: 10/10/17
Collection Date: 10/06/17 13:00
Date Received: 10/10/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.703	Mol %		GPA 2261	10/10/17 14:57 / djb
Nitrogen	77.213	Mol %		GPA 2261	10/10/17 14:57 / djb
Carbon Dioxide	0.084	Mol %		GPA 2261	10/10/17 14:57 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 14:57 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:57 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 14:57 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 14:57 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 14:57 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 14:57 / djb
Molecular Weight	28.93	unitless		GPA 2261	10/10/17 14:57 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/10/17 14:57 / djb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/10/17 14:57 / djb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/10/17 14:57 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:57 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 14:57 / djb

Report RL - Analyte reporting limit.

Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710466-004B; MDPE-6
Location:
Lab ID: G17100192-004

Report Date: 10/10/17
Collection Date: 10/06/17 19:00
Date Received: 10/10/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.790	Mol %		GPA 2261	10/10/17 15:12 / djb
Nitrogen	77.174	Mol %		GPA 2261	10/10/17 15:12 / djb
Carbon Dioxide	0.036	Mol %		GPA 2261	10/10/17 15:12 / djb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Methane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Ethane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Propane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Isobutane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
n-Butane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Isopentane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
n-Pentane	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/10/17 15:12 / djb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/10/17 15:12 / djb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/10/17 15:12 / djb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/10/17 15:12 / djb
Calculation Temperature Base	60	°F		GPA 2261	10/10/17 15:12 / djb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/10/17 15:12 / djb
Molecular Weight	28.93	unitless		GPA 2261	10/10/17 15:12 / djb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/10/17 15:12 / djb
Pseudo-critical Temperature, deg R	239	deg R		GPA 2261	10/10/17 15:12 / djb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/10/17 15:12 / djb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/10/17 15:12 / djb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/10/17 15:12 / djb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



Trust our People. Trust our Data.

Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Cheyenne, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Report Date: 10/10/17

Project: Not Indicated

Work Order: G17100192

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Analytical Run: R239170		
Lab ID: ICV-1710100816	Initial Calibration Verification Standard							10/10/17 08:16	
Oxygen	0.397	Mol %	0.001	83	75	110			
Nitrogen	5.076	Mol %	0.001	101	90	110			
Carbon Dioxide	4.911	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	126	100	136			
Methane	73.041	Mol %	0.001	100	90	110			
Ethane	5.019	Mol %	0.001	101	90	110			
Propane	5.139	Mol %	0.001	101	90	110			
Isobutane	2.015	Mol %	0.001	100	90	110			
n-Butane	1.993	Mol %	0.001	99	90	110			
Isopentane	0.991	Mol %	0.001	99	90	110			
n-Pentane	0.985	Mol %	0.001	99	90	110			
Hexanes plus	0.306	Mol %	0.001	101	90	110			
Lab ID: CCV-1710100822	Continuing Calibration Verification Standard							10/10/17 08:22	
Oxygen	0.578	Mol %	0.001	96	90	110			
Nitrogen	1.284	Mol %	0.001	91	85	110			
Carbon Dioxide	0.958	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.562	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.014	Mol %	0.001	101	90	110			
Isobutane	0.506	Mol %	0.001	101	90	110			
n-Butane	0.492	Mol %	0.001	98	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.155	Mol %	0.001	102	90	110			
Lab ID: CCV-1710101528	Continuing Calibration Verification Standard							10/10/17 15:29	
Oxygen	0.596	Mol %	0.001	99	90	110			
Nitrogen	1.338	Mol %	0.001	95	85	110			
Carbon Dioxide	0.965	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.026	Mol %	0.001	104	70	130			
Methane	93.472	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.016	Mol %	0.001	102	90	110			
Isobutane	0.507	Mol %	0.001	101	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.202	Mol %	0.001	101	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.157	Mol %	0.001	104	90	110			

Method: GPA 2261

Batch: R239170

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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Dorset, VT 866.686.7175 • Belton, ME 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Report Date: 10/10/17

Project: Not Indicated

Work Order: G17100192

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Batch: R239170		
Lab ID: G17100192-001ADUP	Sample Duplicate				Run: Varian GC_171010A		10/10/17 14:34		
Oxygen	22.359	Mol %	0.001				0.0	10	
Nitrogen	77.281	Mol %	0.001				0.0	10	
Carbon Dioxide	0.360	Mol %	0.001				0.3	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100192-002ADUP	Sample Duplicate				Run: Varian GC_171010A		10/10/17 14:52		
Oxygen	22.739	Mol %	0.001				0.0	10	
Nitrogen	77.198	Mol %	0.001				0.0	10	
Carbon Dioxide	0.063	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100192-003ADUP	Sample Duplicate				Run: Varian GC_171010A		10/10/17 15:02		
Oxygen	22.701	Mol %	0.001				0.0	10	
Nitrogen	77.216	Mol %	0.001				0.0	10	
Carbon Dioxide	0.083	Mol %	0.001				1.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100192-004ADUP	Sample Duplicate				Run: Varian GC_171010A		10/10/17 15:16		
Oxygen	22.789	Mol %	0.001				0.0	10	
Nitrogen	77.175	Mol %	0.001				0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



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800 800 735.4489 • Call Toll Free 888 235.0515

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Report Date: 10/10/17

Project: Not Indicated

Work Order: G17100192

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Batch: R239170		
Lab ID: G17100192-004ADUP		Sample Duplicate		Run: Varian GC_171010A			10/10/17 15:16		
Carbon Dioxide	0.036	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710466

13-Oct-17

Client: Souder, Miller & Associates

Project: Santa Fe Judicial Complex (SFCJC)

Sample ID	1710466-001ADUP	SampType:	DUP	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	MDPE-3	Batch ID:	R46229	RunNo:	46229					
Prep Date:		Analysis Date:	10/10/2017	SeqNo:	1472396	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0						5.06	20	
Surr: BFB	2200		2000		112	40.2	203	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710466

13-Oct-17

Client: Souder, Miller & Associates

Project: Santa Fe Judicial Complex (SFCJC)

Sample ID	100ng lcs2		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: A46199		RunNo: 46199					
Prep Date:			Analysis Date: 10/9/2017		SeqNo: 1471730		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID	rb2	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: A46199		RunNo: 46199						
Prep Date:		Analysis Date: 10/10/2017		SeqNo: 1471733		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710466

13-Oct-17

Client: Souder, Miller & Associates

Project: Santa Fe Judicial Complex (SFCJC)

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A46199	RunNo:	46199					
Prep Date:		Analysis Date:	10/10/2017	SeqNo:	1471733	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710466

13-Oct-17

Client: Souder, Miller & Associates

Project: Santa Fe Judicial Complex (SFCJC)

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A46199	RunNo:	46199					
Prep Date:		Analysis Date:	10/10/2017	SeqNo:	1471733	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-SF

Work Order Number: 1710466

RcptNo: 1

Received By: Anne Thorne 10/9/2017 7:20:00 AM

Completed By: Anne Thorne 10/9/2017 12:49:08 PM

Reviewed By: DDS 10/9/17

Anne Thorne

Anne Thorne

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☒ No ☐ Not Present ☐
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered?

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Not Present			

Chain-of-Custody Record						
Client: <u>Souder, Miller + Assoc.</u>						
Mailing Address: <u>2904 Rodeo Park Dr Santa Fe NM 87505</u>						
Phone #: <u>505-473-9211</u>						
email or Fax#: <u>alan.eschenbacher@sondermiller.com</u>						
QA/QC Package: <u>Soudermiller.com</u>						
☒ Standard ☐ Level 4 (Full Validation)						
Accreditation ☒ NELAP ☐ Other _____						
☐ EDD (Type) _____						
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1710466
10/5/17	12:20	AIR	MDPE-3	2, teller	none	T01
10/5/17	14:15	AIR	MDPE-4	2, teller	none	T02
10/6/17	13:00	Air	MDPE-5	↓	↓	T03
10/6/17	19:00	Air	MDPE-6	↓	↓	T04
10/7/17	11:00	H ₂ O	MDPE composite 2	3 vials	various	T05
			Trip Blank			T06
Date:	Time:	Relinquished by:		Received by:	Date	Time
10/6/17	8:00	<u>[Signature]</u>		Mariyah Kelly	10/6/17	8:00
Date:	Time:	Relinquished by:		Referred by:	Date	Time
10/9/17	7:20	<u>[Signature]</u>		Mariyah Kelly	10/9/17	
10/9/17	7:20	<u>[Signature]</u>				0720

4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107
www.hallenvironmental.com

[illegible]

Remarks:

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/6/17	8:00	<i>[Signature]</i>	<i>[Signature]</i>	10/10/17	8:00
10/9/17	7:20	<i>[Signature]</i>	<i>[Signature]</i>	10/10/17	
10/19/17	7:20	<i>[Signature]</i>	<i>[Signature]</i>	10/19/17	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 17, 2017

Alan Eschenbacher
Souder, Miller & Associates
2904 Rodeo Park Drive East
Building 100
Santa Fe, NM 87505
TEL: (505) 473-9211
FAX (505) 471-6675

RE: SFCJC MDPE

OrderNo.: 1710493

Dear Alan Eschenbacher:

Hall Environmental Analysis Laboratory received 4 sample(s) on 10/9/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710493**

Date Reported: **10/17/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-7

Project: SFCJC MDPE

Collection Date: 10/7/2017 7:00:00 PM

Lab ID: 1710493-001

Matrix: AIR

Received Date: 10/9/2017 4:30:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	36	5.0		µg/L	1	10/10/2017 11:20:46 AM	R46229
Surr: BFB	117	40.2-203		%Rec	1	10/10/2017 11:20:46 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710493**

Date Reported: **10/17/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-8

Project: SFCJC MDPE

Collection Date: 10/8/2017 7:00:00 PM

Lab ID: 1710493-002

Matrix: AIR

Received Date: 10/9/2017 4:30:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	16	5.0		µg/L	1	10/10/2017 11:53:28 AM	R46229
Surr: BFB	123	40.2-203		%Rec	1	10/10/2017 11:53:28 AM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1710493**

Date Reported: **10/17/2017**

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE-9

Project: SFCJC MDPE

Collection Date: 10/9/2017 1:30:00 PM

Lab ID: 1710493-003

Matrix: AIR

Received Date: 10/9/2017 4:30:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	42	5.0		µg/L	1	10/10/2017 12:16:09 PM	R46229
Surr: BFB	112	40.2-203		%Rec	1	10/10/2017 12:16:09 PM	R46229

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710493

Date Reported: 10/17/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 3

Project: SFCJC MDPE

Collection Date: 10/9/2017 11:30:00 AM

Lab ID: 1710493-004

Matrix: AQUEOUS

Received Date: 10/9/2017 4:30:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	16	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Toluene	98	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Ethylbenzene	24	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2,4-Trimethylbenzene	57	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,3,5-Trimethylbenzene	13	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Naphthalene	130	10		µg/L	5	10/10/2017 8:24:00 PM	R46241
1-Methylnaphthalene	30	20		µg/L	5	10/10/2017 8:24:00 PM	R46241
2-Methylnaphthalene	34	20		µg/L	5	10/10/2017 8:24:00 PM	R46241
Acetone	59	50		µg/L	5	10/10/2017 8:24:00 PM	R46241
Bromobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Bromodichloromethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Bromoform	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Bromomethane	ND	15		µg/L	5	10/10/2017 8:24:00 PM	R46241
2-Butanone	50	50		µg/L	5	10/10/2017 8:24:00 PM	R46241
Carbon disulfide	ND	50		µg/L	5	10/10/2017 8:24:00 PM	R46241
Carbon Tetrachloride	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Chlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Chloroethane	ND	10		µg/L	5	10/10/2017 8:24:00 PM	R46241
Chloroform	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Chloromethane	ND	15		µg/L	5	10/10/2017 8:24:00 PM	R46241
2-Chlorotoluene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
4-Chlorotoluene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
cis-1,2-DCE	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	10/10/2017 8:24:00 PM	R46241
Dibromochloromethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Dibromomethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,3-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,4-Dichlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Dichlorodifluoromethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1-Dichloroethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1-Dichloroethene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2-Dichloropropane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,3-Dichloropropane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
2,2-Dichloropropane	ND	10		µg/L	5	10/10/2017 8:24:00 PM	R46241

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1710493

Date Reported: 10/17/2017

CLIENT: Souder, Miller & Associates

Client Sample ID: MDPE Composite 3

Project: SFCJC MDPE

Collection Date: 10/9/2017 11:30:00 AM

Lab ID: 1710493-004

Matrix: AQUEOUS

Received Date: 10/9/2017 4:30:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,1-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Hexachlorobutadiene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
2-Hexanone	ND	50		µg/L	5	10/10/2017 8:24:00 PM	R46241
Isopropylbenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
4-Isopropyltoluene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
4-Methyl-2-pentanone	ND	50		µg/L	5	10/10/2017 8:24:00 PM	R46241
Methylene Chloride	ND	15		µg/L	5	10/10/2017 8:24:00 PM	R46241
n-Butylbenzene	ND	15		µg/L	5	10/10/2017 8:24:00 PM	R46241
n-Propylbenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
sec-Butylbenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Styrene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
tert-Butylbenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	10/10/2017 8:24:00 PM	R46241
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
trans-1,2-DCE	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1,1-Trichloroethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,1,2-Trichloroethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Trichloroethene (TCE)	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Trichlorofluoromethane	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
1,2,3-Trichloropropane	ND	10		µg/L	5	10/10/2017 8:24:00 PM	R46241
Vinyl chloride	ND	5.0		µg/L	5	10/10/2017 8:24:00 PM	R46241
Xylenes, Total	250	7.5		µg/L	5	10/10/2017 8:24:00 PM	R46241
Surr: 1,2-Dichloroethane-d4	99.1	70-130		%Rec	5	10/10/2017 8:24:00 PM	R46241
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	5	10/10/2017 8:24:00 PM	R46241
Surr: Dibromofluoromethane	102	70-130		%Rec	5	10/10/2017 8:24:00 PM	R46241
Surr: Toluene-d8	97.1	70-130		%Rec	5	10/10/2017 8:24:00 PM	R46241

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	Page 5 of 8
	D Sample Diluted Due to Matrix	E Value above quantitation range	
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range	
	PQL Practical Quantitative Limit	RL Reporting Detection Limit	
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified	



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710493-001B; MPDE-7
Location:
Lab ID: G1/100222-001

Report Date: 10/17/17
Collection Date: 10/07/17 10:00
Date Received: 10/11/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.789	Mol %		GPA 2261	10/13/17 09:00 / blb
Nitrogen	77.176	Mol %		GPA 2261	10/13/17 09:00 / blb
Carbon Dioxide	0.035	Mol %		GPA 2261	10/13/17 09:00 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Methane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Ethane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Propane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Isobutane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
n-Butane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Isopentane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
n-Pentane	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/13/17 09:00 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:00 / blb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:00 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/13/17 09:00 / blb
Calculation Temperature Base	60	°F		GPA 2261	10/13/17 09:00 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/13/17 09:00 / blb
Molecular Weight	28.93	unitless		GPA 2261	10/13/17 09:00 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/13/17 09:00 / blb
Pseudo-critical Temperature, deg R	239	deg R		GPA 2261	10/13/17 09:00 / blb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/13/17 09:00 / blb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/13/17 09:00 / blb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/13/17 09:00 / blb

Report RL - Analyte reporting limit
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level
 ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710493-002B; MDPE-8
Location:
Lab ID: G17100222-002

Report Date: 10/17/17
Collection Date: 10/08/17 19:00
Date Received: 10/11/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.785	Mol %	GPA 2261		10/13/17 09:11 / blb
Nitrogen	77.175	Mol %	GPA 2261		10/13/17 09:11 / blb
Carbon Dioxide	0.040	Mol %	GPA 2261		10/13/17 09:11 / blb
Hydrogen Sulfide	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Methane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Ethane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Propane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Isobutane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
n-Butane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Isopentane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
n-Pentane	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
Hexanes plus	< 0.001	Mol %	GPA 2261		10/13/17 09:11 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Propane	< 0.0003	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Isobutane	< 0.0003	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM n-Butane	< 0.0003	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Isopentane	< 0.0004	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM n-Pentane	< 0.0004	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Hexanes plus	< 0.0004	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Pentanes plus	< 0.0004	gal/MCF	GPA 2261		10/13/17 09:11 / blb
GPM Total	< 0.0004	gal/MCF	GPA 2261		10/13/17 09:11 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia	GPA 2261		10/13/17 09:11 / blb
Calculation Temperature Base		°F	GPA 2261		10/13/17 09:11 / blb
Compressibility Factor, Z	1.0000	unitless	GPA 2261		10/13/17 09:11 / blb
Molecular Weight	28.93	unitless	GPA 2261		10/13/17 09:11 / blb
Pseudo-critical Pressure, psia	548	psia	GPA 2261		10/13/17 09:11 / blb
Pseudo-critical Temperature, deg R	239	deg R	GPA 2261		10/13/17 09:11 / blb
Specific Gravity (air=1.000)	1.002	unitless	GPA 2261		10/13/17 09:11 / blb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft	GPA 2261		10/13/17 09:11 / blb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft	GPA 2261		10/13/17 09:11 / blb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1710493-003B; MPDE-B
Location:
Lab ID: G17100222-003

Report Date: 10/17/17
Collection Date: 10/09/17 13:30
Date Received: 10/11/17
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	22.707	Mol %		GPA 2261	10/13/17 09:20 / blb
Nitrogen	77.212	Mol %		GPA 2261	10/13/17 09:20 / blb
Carbon Dioxide	0.081	Mol %		GPA 2261	10/13/17 09:20 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Methane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Ethane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Propane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Isobutane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
n-Butane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Isopentane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
n-Pentane	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
Hexanes plus	< 0.001	Mol %		GPA 2261	10/13/17 09:20 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:20 / blb
GPM Total	< 0.0004	gal/MCF		GPA 2261	10/13/17 09:20 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	10/13/17 09:20 / blb
Calculation Temperature Base	60	°F		GPA 2261	10/13/17 09:20 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	10/13/17 09:20 / blb
Molecular Weight	28.93	unitless		GPA 2261	10/13/17 09:20 / blb
Pseudo-critical Pressure, psia	548	psia		GPA 2261	10/13/17 09:20 / blb
Pseudo-critical Temperature, deg R	240	deg R		GPA 2261	10/13/17 09:20 / blb
Specific Gravity (air=1.000)	1.002	unitless		GPA 2261	10/13/17 09:20 / blb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	10/13/17 09:20 / blb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	10/13/17 09:20 / blb

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
 ND - Not detected at the reporting limit.



Trust our People. Trust our Data.

Hillings, MI 800.735.4489 • Gillette, WY 888.235.0515
Gillette, WY 866.686.7175 • Hillings, MI 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Report Date: 10/17/17

Project: Not Indicated

Work Order: G17100222

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Analytical Run: R239252		
Lab ID: ICV-1710130838	Initial Calibration Verification Standard							10/13/17 08:37	
Oxygen	0.402	Mol %	0.001	84	75	110			
Nitrogen	5.073	Mol %	0.001	101	90	110			
Carbon Dioxide	4.933	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.131	Mol %	0.001	130	100	136			
Methane	72.976	Mol %	0.001	100	90	110			
Ethane	5.025	Mol %	0.001	101	90	110			
Propane	5.147	Mol %	0.001	101	90	110			
Isobutane	2.020	Mol %	0.001	100	90	110			
n-Butane	1.999	Mol %	0.001	99	90	110			
Isopentane	0.995	Mol %	0.001	100	90	110			
n-Pentane	0.991	Mol %	0.001	99	90	110			
Hexanes plus	0.308	Mol %	0.001	102	90	110			
Lab ID: CCV-1710130844	Continuing Calibration Verification Standard							10/13/17 08:43	
Oxygen	0.590	Mol %	0.001	98	90	110			
Nitrogen	1.317	Mol %	0.001	94	85	110			
Carbon Dioxide	0.966	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.027	Mol %	0.001	108	70	130			
Methane	93.501	Mol %	0.001	100	90	110			
Ethane	1.028	Mol %	0.001	102	90	110			
Propane	1.017	Mol %	0.001	102	90	110			
Isobutane	0.506	Mol %	0.001	101	90	110			
n-Butane	0.493	Mol %	0.001	99	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.198	Mol %	0.001	99	90	110			
Hexanes plus	0.156	Mol %	0.001	103	90	110			
Lab ID: CCV-1710131711	Continuing Calibration Verification Standard							10/13/17 17:10	
Oxygen	0.584	Mol %	0.001	97	90	110			
Nitrogen	1.283	Mol %	0.001	91	85	110			
Carbon Dioxide	0.974	Mol %	0.001	97	90	110			
Hydrogen Sulfide	0.028	Mol %	0.001	112	70	130			
Methane	93.532	Mol %	0.001	100	90	110			
Ethane	1.030	Mol %	0.001	102	90	110			
Propane	1.016	Mol %	0.001	102	90	110			
Isobutane	0.503	Mol %	0.001	100	90	110			
n-Butane	0.493	Mol %	0.001	99	90	110			
Isopentane	0.201	Mol %	0.001	100	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.157	Mol %	0.001	104	90	110			
Method: GPA 2261							Batch: R239252		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Trust Our People Trust Our Data.

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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental

Report Date: 10/17/17

Project: Not Indicated

Work Order: G17100222

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261							Batch: R239252		
Lab ID: G17100222-001ADUP	Sample Duplicate		Run: Varian GC_171013A				10/13/17 09:05		
Oxygen	22.782	Mol %	0.001				0.0	10	
Nitrogen	77.183	Mol %	0.001				0.0	10	
Carbon Dioxide	0.035	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100222-002ADUP	Sample Duplicate		Run: Varian GC_171013A				10/13/17 09:15		
Oxygen	22.784	Mol %	0.001				0.0	10	
Nitrogen	77.176	Mol %	0.001				0.0	10	
Carbon Dioxide	0.040	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	
Lab ID: G17100222-003ADUP	Sample Duplicate		Run: Varian GC_171013A				10/13/17 09:25		
Oxygen	22.707	Mol %	0.001				0.0	10	
Nitrogen	77.212	Mol %	0.001				0.0	10	
Carbon Dioxide	0.081	Mol %	0.001				0.0	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710493

17-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC MDPE

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R46241			RunNo: 46241					
Prep Date:	Analysis Date: 10/10/2017			SeqNo: 1472413		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	20	1.0	20.00	0	99.3	70	130			
Chlorobenzene	21	1.0	20.00	0	103	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	105	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R46241			RunNo: 46241					
Prep Date:		Analysis Date: 10/10/2017			SeqNo: 1472415		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710493

17-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC MDPE

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R46241			RunNo: 46241					
Prep Date:		Analysis Date: 10/10/2017			SeqNo: 1472415	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1710493

17-Oct-17

Client: Souder, Miller & Associates

Project: SFCJC MDPE

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R46241			RunNo: 46241					
Prep Date:		Analysis Date: 10/10/2017			SeqNo: 1472415		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.6		10.00		95.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: SMA-SF

Work Order Number: 1710493

RcptNo: 1

Received By: Erin Melendrez 10/9/2017 4:30:00 PM

Completed By: Anne Thorne 10/10/2017 8:19:10 AM

Reviewed By: See 10/10/17

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☒ No ☐ Not Present ☐
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☐ No ☒ NA ☐
Samples were collected the same day and chilled.
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	12.6	Good	Not Present			

Chain-of-Custody Record

Client: SMA

Mailing Address: SFO

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Project Manager:

Alan Eschenbacher

Sampler: Maniah Kelly

On Ice: ☒ Yes ☐ No

Sample Temperature: 13.6-10.00

Container Type and #

Preservative Type

HEAL No.

12.6

716493

201

202

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FIELD NOTES

10/3/17

SFCJL - MDPE

7:00 ABE + EETG arrive site

SVE-3 28.57 DTW

9:20 Begin MDPE warm up Cefox

9:34 Begin applying vacuum
SFCMW-10, SFCMW-1, MW-6, SVE-39:45 collect MDPE-1
2, feedlars

11:30 250 gal removed

12:30 555 gal

13:30 850 gal

14:00 Manah off-site

10/4/17

8:00

~~Manah~~ Manah on-siteSound barrier was blown & broken
by wind over night
4100 gal removed

10/4/17

8:30 Intera on-site

9:00 4320 gal removed

9:45 collect MDPE-2

(SFCMW-10, SFCMW-1, MW-6, SVE-3)

10:20 4490 gal

11:20 4050 gal

11:35 ~~Foot~~ Collect water sample12:30 - string ORC socks
14:00 - stop MDPE for fluids
transfer

17:10 - Resume MDPE

17:30 ABE leave site

Rite in the Rain

10/5/17

9:45 A. E. EISENBACHER on site

Heavy rain

10:00 Susan van Genter
Chris Hamilton w/ PSTB
visit site

Discuss: MDPE process
south plane remediation /
investigation history,
possible PTA of wells
in De Vargas Cerrojos.
Likely will PTA horiz.
wells, MW-12, SVE101D, SVE8

11:30 - Prep. traffic control for
Cerrillos Rd.

12:20 Collect MDPE-3

Composite upper sample
Montezuma Ave.

12:30 Shut down MDPE
move to Cerrillos Rd

13:00 start MDPE
MW-4R, MW-12, TWS-4

14:15 - all three wells operating
+ dewatered
collect AIR SAMPLE
MDPE-4

14:30 - water production rate
~ 50-60 gal/hr

14:50 - Rhino arrive w/ tanker
transfer Montezuma Ave.
water; move bladder tanks

16:00 - leave site

Return to the Rain.

10/6/17

Cerrallos Rd. MDPE

8:58 - 1193 gallons
discuss progress w/ Mike

1000 leave site

10/6/17

1030 maniah on-site & EE 2 1/2 on-site
1498 gal removed

1055 1534 gal removed

1300 1537 gal

collected MDPE-5

1350 1542 gal

1500 1691 gal

1600 1700 gal

1705 1766 g

1730 Stopped transducer, uploaded
data & closed well

1800 Final total at location 2 1911 gal

1830 Transducer installed at SFC MW-07
Start pumping1900 Collected MDPE-10
maniah off-site

Rite in the Rain

10/7/17

830 Maniah on-site

Total removed 1770 gal

1030 2003 gal

1100 Collected water sample

MDPE composite 2

1200 2210 gal

Maniah off-site

10 10/9/17

930 on-site (maniah) (back 2nd loc)

removed ~1100 gal

1130 Collected MDPE composite 3

removed 1160 gal

1330 Collected MDPE -- 9

1345 Pulled pumps out of wells

1400 Start pumping in to tanker