June 27, 2019

Ms. Renee Romero
New Mexico Environment Department
Petroleum Storage Tank Bureau
1914 West Second Street
Roswell, New Mexico 88201-1712

Re: Preliminary Groundwater Monitoring Report
Former Y Station, 721 Commerce Way, Clovis, New Mexico
Facility #53742, Release ID #4746, WPID #4022

Dear Ms. Romero:

Daniel B. Stephens & Associates, Inc. (DBS&A) is pleased to submit the enclosed report summarizing preliminary groundwater monitoring activities conducted at the above-referenced site on May 20 through 23 and 30, 2019. All activities were completed in accordance with the approved work plan and DBS&A standard operating procedures.

This report constitutes the deliverable for Deliverable ID #4022-17. DBS&A plans to invoice the full amount budgeted for this task.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Thomas Golden, P.E.
Project Engineer

Jason J. Raucci, P.G.
Project Manager

TG/ed
Attachment

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Preliminary Groundwater Monitoring
Former Y Station
721 Commerce Way, Clovis, New Mexico
Facility ID #53742, Release ID #4746

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this report documenting results of preliminary groundwater monitoring activities at the Former Y Station State Lead site (the site), located at 721 Commerce Way in Clovis, New Mexico (Figure 1). All field activities were performed in accordance with DBS&A standard operating procedures (SOPs) and work plan identification (WPID) #4022 (NMED, 2019a), as modified by the Change Order Letter approved by the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) on May 8, 2019 (NMED, 2019b). The report was prepared in accordance with applicable sections of Part 119 of the Petroleum Storage Tank Regulations (PSTR).

1.1.1 Site Background

Initial site investigation activities completed by the previous consultant in 2011 were driven by the discovery of a release during a tank pull at the Allsup's No. 320 site (Allsup's), located at the corner of Prince and 21st Streets. Subsequent investigations from 2012 to 2016 revealed a large dissolved-phase hydrocarbon plume south of the Allsup's, centered near the intersection of Prince Street and Commerce Way. Interviews with local residents and inspection of public records by the previous consultant revealed that a Shamrock-brand fueling station was formerly present on the southwest corner of this intersection, locally referred to as "the Y". Former Y Shamrock was reportedly active from the late 1950s through approximately 1981. The site is currently an optical retail center and is surrounded by a variety of other commercial land uses, such as big box retails stores, fast food restaurants, and existing gasoline service stations. Residential neighborhoods are adjacent to the commercial corridor to the west and east.

The previous consultant oversaw installation of 10 groundwater monitor wells (BW-1 through BW-10) in the vicinity of the Former Y station, including 3 wells on the Allsup's property (Figure 2). As of July 2016, the extent of groundwater contamination remained undefined to the

south and east. Benzene was the constituent found at the highest concentrations and across the greatest areal extent. Concentrations of other contaminants of concern above applicable regulatory standards were typically localized near the center of the benzene plume.

On October 24, 2017, DBS&A submitted a proposal in response to the request for proposals (RFP) for State Lead remediation services for the site. DBS&A was deemed to be the most responsive bidder and entered into a contract with NMED executed on May 15, 2018. No corrective action has been implemented at the site as of yet, pending completion of characterization efforts. Existing well BW-7 was reported to have been damaged during groundwater sampling activities in September 2015. This well was included in the proposed corrective action and will need to be replaced.

On May 30, 2019, DBS&A initiated an additional investigation program that will result in the installation of up to 8 new monitor and/or remediation wells at the site. One of the primary goals will be to characterize soil and groundwater conditions directly under the site of the Former Y station, which is presumed to be the site of the primary release. Historical aerial photographs show an aboveground tank farm and convenience store north of the current Optical Source building, within what is currently right-of-way (ROW) for Commerce Way (Figure 2). Light nonaqueous-phase liquid (LNAPL) was first observed by DBS&A in monitor well BW-5 on March 6, 2019, during a well check at a thickness of 1.92 feet. Based on the prominent groundwater flow direction to the south-southeast, it is reasonable to assume that LNAPL in BW-5 could have emanated from a source area associated with the former tank farm.

This report documents field activities and results of the preliminary monitoring event. A baseline groundwater monitoring event will be conducted following completion of the current additional investigation program.

1.2 Scope of Work

The scope of work consisted of preliminary groundwater monitoring and report preparation. At the request of the PSTB, the sampling event was conducted prior to initiation of the drilling program at the site. Site activities included gauging water levels in and collecting groundwater samples from up to ten existing site wells. LNAPL was recovered and sampled from any wells

containing LNAPL at a thickness of greater than ⅛ inch (0.01 foot). Groundwater wells without measurable LNAPL were sampled for laboratory analysis. The groundwater monitoring event was conducted by DBS&A staff in accordance with the approved work plan and DBS&A SOPs. The sampling protocol is provided in Appendix A.

2. Groundwater Monitoring

DBS&A personnel conducted the preliminary groundwater monitoring event at the site on May 20 through 23 and 30, 2019. Activities conducted during the monitoring event are summarized below. Field notes recorded during sampling activities are included in Appendix B.

2.1 Fluid Level Gauging

On May 20, 2019, DBS&A personnel used an electronic interface probe to gauge the depth to water (and LNAPL where present) in all existing monitor wells. A summary of fluid level measurements from this and previous groundwater monitoring event are summarized in Table 1. Based on information collected during the monitoring event, gasoline was shown to be the predominant LNAPL. Therefore, the potentiometric surface elevation for any well containing LNAPL was corrected using a specific gravity of 0.75. Fluid level data were used to prepare a potentiometric surface elevation map (Figure 3).

2.2 LNAPL Recovery

LNAPL was present in monitor well BW-5 at a thickness of 1.77 feet on May 23, 2019. LNAPL was recovered by hand bailing for approximately 90 minutes using a new, dedicated, disposable 3-inch polyethylene bailer. A total of 1.95 gallons of LNAPL were recovered, with a final LNAPL thickness of 0.26 foot. LNAPL recovery is summarized in Table 2. LNAPL samples from BW-5 were submitted for petroleum fingerprinting and forensics. LNAPL analysis was performed by Pace Analytical Laboratory and included PIANO (Paraffins, Isoparaffins, Aromatics, Naphthenes, and Olenfins), Oxygenates, and Organic Lead analyses. The PIANO analysis is a full scan, quantitative molecular characterization by gas chromatography–mass spectrometry (GC-MS) that is used to determine individual hydrocarbon components. An LNAPL sample was also submitted to Hall Environmental Analysis Laboratory, Inc. (HEAL) for a generic analysis of

total petroleum hydrocarbons (TPH) using U.S. Environmental Protection Agency (EPA) method 8015D. The complete laboratory analytical reports, including chain of custody documentation, are provided in Appendix C.

2.3 Groundwater Sampling

Monitor wells BW-1 through BW-4 and BW-6 through BW-10 were sampled following gauging on May 21 and 22, 2019. The initial BW-8 sample was misplaced prior to being analyzed at the laboratory, so an additional sample was collected on May 30, 2019. A DBS&A-owned Bennett pump was used for purging and groundwater sampling. The Bennett pump is a piston fluid pump with two motor pistons capable of lifts up to 1,000 feet. Nitrogen gas is conveyed to the pump to operate the piston, which returns groundwater to the surface. The pump and associated tubing coils on and off a reel operated by a 50-amp motor. The tubing bundle, reel, and motor are all mounted on a flatbed trailer.

During purging, extracted groundwater water was pumped into a calibrated, 5-gallon bucket to assess the presence of LNAPL and measure purge volume. Purge water was handled in accordance with the sampling protocol (Appendix A). Groundwater field parameters, including dissolved oxygen (DO), oxygen/reduction potential (ORP), electrical conductivity (EC), pH, and temperature, were measured in the field during purging and recorded in the field notes (Appendix B).

DBS&A personnel followed SOPs during collection of all groundwater samples, with the exception of purge volumes. Notice to proceed for the sampling event was provided only one business day before mobilizing to the field. Nitrogen, which is required to operate the Bennett pump, was only available in limited quantities in Clovis, so DBS&A brought as many nitrogen canisters as would fit on the pump trailer. Depending on the well, purge volumes ranged from 1.5 to 3 casing volumes. For future sampling events, nitrogen will be pre-ordered and delivered directly to suppliers in Clovis.

Groundwater samples collected from the wells were transferred from the pump tubing directly into laboratory-prepared sample containers containing mercuric chloride as preservatives. The samples were labeled and preserved on ice in an insulated cooler for delivery to HEAL for

analysis; samples were accompanied by full chain of custody documentation at all times. Groundwater samples were analyzed for volatile organic compounds (VOCs) using EPA method 8260B (full list) and for 1,2-dibromoethane (EDB) using EPA method 504.1. The complete laboratory analytical reports for collected groundwater samples are included in Appendix C.

3. Results

Results from groundwater monitoring activities during the preliminary groundwater monitoring event are discussed below.

3.1 Fluid Level Measurements

Fluid levels measured on May 20, 2019, are summarized in Table 1 and were used to construct the potentiometric surface map provided in Figure 3. Groundwater is encountered under the site at an average depth of approximately 328 feet bgs and generally flows to the south-southeast with an approximate gradient of 0.003 foot per foot. The overall flow direction and gradient are similar to that noted during previous monitoring events. Since 2014, groundwater elevations have decreased approximately 2.4 feet, resulting in an average annual decrease of 0.5 foot per year (Appendix D)

3.2 LNAPL Analysis

LNAPL samples from BW-5 were submitted to Pace Analytical and HEAL for analysis as described in Section 2.2. Full laboratory analytical reports are provided in Appendix C. Based on TPH results from HEAL, the BW-5 sample was reported as being 83 percent gasoline range organics (GRO) and 21 percent diesel range organics (DRO). However, the HEAL laboratory manager indicated that while the sample contains some hydrocarbons in the diesel range, the overall chemistry of the sample is consistent with slightly weathered gasoline and is not indicative of a diesel source.

The laboratory report from Pace Analytical includes results from individual hydrocarbon constituents, as well as a series of diagnostic ratios and parameters used to characterize the LNAPL. Oxygenates such as methyl tert-butyl ether (MTBE), which replaced lead additives in

the 1980s, were below laboratory reporting limits (i.e., not present in the LANPL sample). Lead alkyls and lead scavengers are among the most important for assessing the age of a fuel release (Kaplan et al, 1997). The results of organic lead speciation showed EDB and methyltriethyl lead (MTEL) to be present in the LNAPL sample at concentrations of 268.3 and 38.6 milligrams per kilogram (mg/kg), respectively. MTEL is a reaction byproduct of tetraethyl lead (TEL) and tetramethyl lead (TML) that was produced after 1960 (Oudjik, 2010).

Diagnostic ratios are used to assess a variety of factors, such as the type of the release, environmental weathering, refining characteristics, and regulatory compliance. Evaporation ratios from the BW-5 LNAPL sample are below established ranges for fresh gasoline, suggesting that the LNAPL is "more evaporated", consistent with a source from an aboveground tank. Waterwashing (or dissolution) and biodegradation ratios from the BW-5 LNAPL sample are generally at the low end of established ranges for fresh gasoline. This implies that historical gasoline degradation has been minimal, which is similar to the interpretation from the HEAL laboratory manager. Dissolved oxygen in monitor well BW-8, which is the closest well to the LNAPL plume, was generally below 0.5 milligrams per liter (mg/L) during the groundwater monitoring event, and oxygen exchange with the surface at this depth may be minimal without the aid of a corrective action system. Therefore, it is reasonable to assume that anaerobic conditions currently exist in the vicinity of the LNAPL plume, and natural biodegradation is minimal.

3.3 Groundwater Analysis

Groundwater samples from the nine existing monitor wells were submitted to HEAL for analysis as described in Section 2.3. The full laboratory analytical report is provided in Appendix C; results are summarized in Table 3 and on Figure 4. Graphs showing historical trends in monitor well contaminant concentrations are provided in Appendix D. A preliminary sample was also collected from monitor well MW-11, which was completed on June 7, 2019. The well has not been developed, and proper purge volumes were not removed prior to sampling, but the benzene concentration was used for an initial assessment of the downgradient boundary of the benzene plume, as shown on Figure 4. The laboratory report is provided in Appendix C. MW-11 will be included in a future baseline groundwater monitoring event.

Concentrations of COCs were below laboratory reporting limits or applicable New Mexico Water Quality Control Commission (NMWQCC) standards in groundwater samples collected from monitor wells BW-1 through BW-4, BW-6, BW-9, and BW-10. The samples collected from BW-7, and BW-8 exceeded NMWQCC standards for multiple constituents of concern (COCs). BW-5 has been reported to have LNAPL since February 2019, but DBS&A first measured LNAPL with an interface probe in March 2019. Notable changes or trends include:

- BW-4: Concentrations of COCs have significant fluctuations in the historic record, but were below applicable groundwater standards for the first time since the initial groundwater sampling event in April 2014. Benzene has previously been detected as high as 1,100 micrograms per liter (µg/L) in this well, but was detected at only 1.8 µg/L during the current monitoring event. DBS&A will monitor trends associated with this well closely, as it is upgradient from the presumed release at the Former Y Station.

- BW-7: Concentrations of COCs were present at values similar to the April 2014 monitoring event, which are approximately an order of magnitude lower than concentrations reported during monitoring events in 2015 and 2016. During the current monitoring event, benzene (1,400 µg/L), EDB (0.24 µg/L), and EDC (180 µg/L) were detected at concentrations exceeding the respective NMWQCC standards.

- BW-8: COC concentrations have not varied significantly since the well was installed in 2016. During the current monitoring event, benzene (4,600 µg/L), toluene (4,200 µg/L), total xylenes (1,200 µg/L), EDB (9.1 µg/L), EDC (290 µg/L), and total naphthalenes (67 µg/L) were detected at concentrations exceeding the respective NMWQCC standards.

4. Conclusions and Recommendations

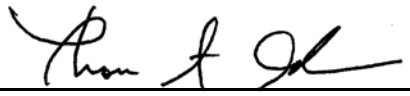
Results from the current monitoring event are largely consistent with previous investigations. Based on the data collected during the current monitoring event, concentrations of dissolved-phase COCs in excess of NMWQCC standards extend approximately 1,000 feet downgradient from the presumed release. Data collected during and shortly after well installation suggests that monitor well MW-11 is located near the downgradient extent of contamination. In addition to potential use as dissolved-phase plume containment wells, future monitor wells MW-12 and MW-13 are expected to help define the cross-gradient extent of contamination to the east and west.

LNAPL has been consistently present in monitor well BW-5 since at least February 2019. Analysis of the LNAPL sample suggests that it is mildly weathered gasoline, released from an aboveground storage tank system around 1960. Aboveground tanks are visible in a 1954 aerial photograph, but not in a 1962 aerial photograph; although in 1962, the intersection and convenience store appear to either be under construction or recently renovated. It is unclear whether underground tanks were in use in 1962, but DBS&A will continue to look for historical information about the site. Based on the location of BW-5 relative to the release point, a significant volume of LNAPL is believed to exist under North Prince Street and Commerce Way. Future remediation wells RW-1 through RW-4 should assist with defining the lateral extent of LNAPL and are expected to be critical remediation wells for removing LNAPL present under the site, the City of Clovis ROW, and the large parking lot.

Based on these findings, DBS&A recommends that corrective action proceed as detailed in the DBS&A proposal for State Lead remediation services. The remediation system should prioritize removal of source area mass (LNAPL and hydrocarbons in the vadose zone) using multi-zone remediation wells located near the known extent of LNAPL. Single-zone wells can be used for dissolved-phase plume containment and to clean up the downgradient smear zone. Quarterly groundwater monitoring should be established at the site following implementation of a corrective action system to establish trends in contaminant concentrations as remediation progresses.

Statement of Familiarity

I, the undersigned, am personally familiar with the information submitted in this report and the attached documents and attest that it is true and complete.

Signature: 

Authorized Representative: Thomas Golden, P.E.

Affiliation: Daniel B. Stephens & Associates, Inc.

Title: Project Engineer

Date: June 27, 2019

References

Brown Environmental, Inc. (BEI). 2014. *4th quarterly groundwater sampling report 8-16, Prince and Commerce Site, Clovis, New Mexico.* Submitted to the New Mexico Environment Department Petroleum Storage Tank Bureau and Allsup's Petroleum, Inc. August 2016.

BEI. 2019. *Groundwater quality report, 5-19 sampling event, Allsup's #320 Site, Clovis, New Mexico*. Submitted to the New Mexico Environment Department Petroleum Storage Tank Bureau and Allsup's Petroleum, Inc. June 2019.

Daniel B. Stephens & Associates, Inc. (DBS&A). 2018. *Work plan for additional site investigation, Former Y Station, 721 Commerce Way, Clovis, New Mexico.* Submitted to the New Mexico Environment Department Petroleum Storage Tank Bureau. September 17, 2018.

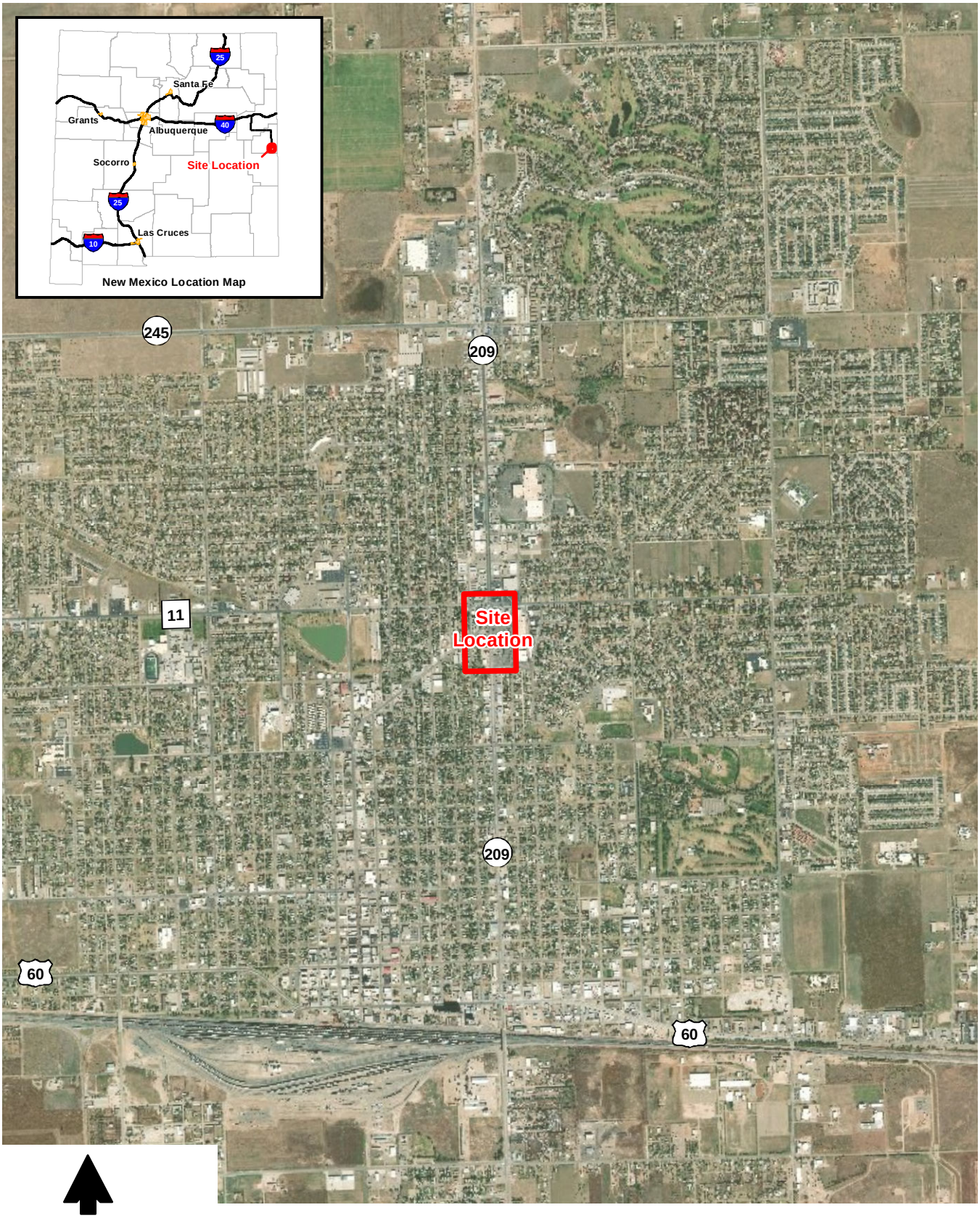
Kaplan I, Galperin Y, Lu S, and Lee, R., et al. 1997. Forensic Environmental Geochemistry: differentiation of fuel-types, their sources and release time. *Organic Chemistry*. 27(5/6):289-317. November 1997.

NMED. 2019a. Letter from Dana Bahar to Thomas Golden, DBS&A, regarding Phase 3 fixed-price workplan approval for Former Y Station, 721 Commerce Way, Clovis, New Mexico. February 21, 2019.

NMED. 2019b. Letter from Dana Bahar to Thomas Golden, DBS&A, regarding approval of Phase 5 fixed-price workplan change order for Former Y Station, 721 Commerce Way, Clovis, New Mexico. May 8, 2019.

Oudijk, G. 2010. The Rise and Fall of Organometallic Additives in Automotive Gasoline. *Environmental Forensics*. 11(1-2) 17-49. March 17, 2010.

Figures



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FORMER Y STATION STATE LEAD SITE
CLOVIS, NEW MEXICO

Area Map

Daniel B. Stephens & Associates, Inc.
6/3/2019
JN DB18.1157.00

Figure 1

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Figure 2

FORMER Y STATION STATE LEAD SITE
CLOVIS, NEW MEXICO
Site Map

Daniel B. Stephens & Associates, Inc.
6/24/2019 JN DB18.1157.00

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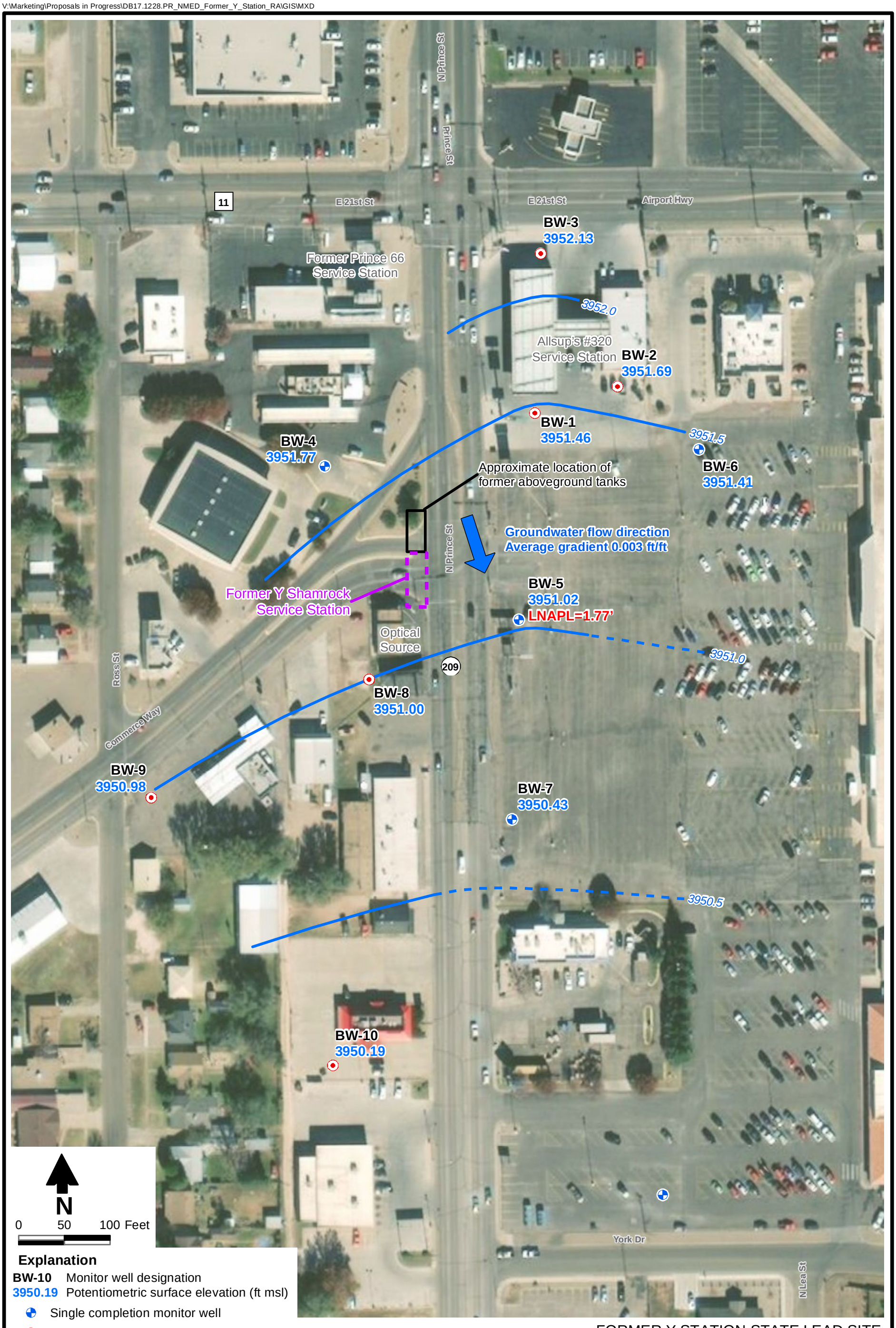

Explanation

BW-10 Monitor well designation
3950.19 Potentiometric surface elevation (ft msl)
Single completion monitor well
Nested monitor well
Potentiometric surface elevation contour (ft msl)
(dashed where inferred)

FORMER Y STATION STATE LEAD SITE
CLOVIS, NEW MEXICO

Potentiometric Surface Elevations
May 20, 2019

Figure 3

Daniel B. Stephens & Associates, Inc.
6/26/2019 JN DB18.1157.00

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BW-3			5/21/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0094	<1.0	<10
<1.0			

BW-2			5/21/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0095	<1.0	<10
<1.0			

BW-1			5/22/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0094	<1.0	<10
<1.0			

BW-4			5/22/2019
1.8	<1.0	<1.0	<1.5
1.8	<0.0094	2.1	<10
<1.0			

BW-6			5/21/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0094	<1.0	<10
<1.0			

BW-8			5/30/2019
4,600	**4,200**	390	**1,200**
10,390	**9.1**	**290**	**67**
<5.0			

BW-7			5/22/2019
1,400	140	100	230
1,870	**0.24**	**180**	22
<5.0			

BW-9			5/21/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0093	<1.0	<10
<1.0			

BW-10			5/21/2019
<1.0	<1.0	<1.0	<1.5
<4.5	<0.0093	<1.0	<10
<1.0			

Prince St
E 21st St
Airport Hwy
11
Commerce Way
Ross St
209
N Prince St
York Dr
N Lea St
5
50
500
Approximate location of former aboveground tanks
Approximate extent of LNAPL
RW-1
RW-2
RW-3
RW-4
BW-5
LNAPL=1.77'
BW-7R
MW-11
64 (6/7/19)
MW-12
MW-13
?

N

0 50 100 Feet

Explanation

- **MW-11** Monitor well designation
- 64 (6/7/19) Benzene concentration, µg/L (date)
- Benzene isocontour (µg/L), dashed where inferred
- Groundwater flow direction
- Monitor well installed June 2019
- Single completion monitor well
- Nested monitor well
- Proposed multi-zone remediation well
- Proposed single-zone monitor well

Location designation			Sample Date
Benzene	Toluene	Ethylbenzene	Total Xylenes
BTEX	EDB	EDC	Total Naphthalenes
MTBE			

Notes: 1. All concentrations reported in µg/L
2. **RED** indicates concentration that exceeds NMWQCC standard

Figure 4

Daniel B. Stephens & Associates, Inc.
6/26/2019 JN DB18.1157.00

FORMER Y STATION STATE LEAD SITE
CLOVIS, NEW MEXICO

Distribution of Dissolved-Phase Contaminants - May 2019

Tables

Table 1. Summary of Historical Fluid Level Measurements
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Screened Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured [b]	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness (feet)	Groundwater Elevation [c] (ft msl)
BW-1	295–345	4279.88 [d]	04/13/12	322.49	—	0.00	3957.39
			07/27/12	322.69	—	0.00	3957.19
			09/24/12	322.75	—	0.00	3957.13
		4279.66	04/29/14	325.75	—	0.00	3953.91
			05/08/15	326.60	—	0.00	3953.06
			09/10/15	326.96	—	0.00	3952.70
			03/29/16	327.12	—	0.00	3952.54
			07/26/16	327.34	—	0.00	3952.32
			07/10/18 [e]	327.93	—	0.00	3951.73
			02/14/19 [e]	328.18	—	0.00	3951.48
			03/06/19	328.11	—	0.00	3951.55
			05/02/19 [e]	328.41	—	0.00	3951.25
			05/20/19	328.20	—	0.00	3951.46
BW-2	287–347	4280.53 [d]	10/26/09	323.12	—	0.00	3957.41
			09/24/12	323.21	—	0.00	3957.32
		4280.30	04/29/14	326.14	—	0.00	3954.16
			05/08/15	327.00	—	0.00	3953.30
			09/10/15	327.33	—	0.00	3952.97
			03/29/16	327.52	—	0.00	3952.78
			07/26/16	327.78	—	0.00	3952.52
			07/10/18 [e]	328.38	—	0.00	3951.92
			02/14/19 [e]	328.60	—	0.00	3951.70
			03/06/19	328.53	—	0.00	3951.77
			05/02/19 [e]	328.97	—	0.00	3951.33
			05/20/19	328.61	—	0.00	3951.69

Table 1. Summary of Historical Fluid Level Measurements
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Screened Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured [b]	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness (feet)	Groundwater Elevation [c] (ft msl)
BW-3	287–347	4280.17 [d]	10/26/09	322.36	—	0.00	3957.81
			09/24/12	322.44	—	0.00	3957.73
		4279.92	04/29/14	325.38	—	0.00	3954.54
			05/08/15	326.20	—	0.00	3953.72
			09/10/15	326.56	—	0.00	3953.36
			03/29/16	326.71	—	0.00	3953.21
			07/26/16	326.94	—	0.00	3952.98
			07/10/18 [e]	327.52	—	0.00	3952.40
			02/14/19 [e]	327.76	—	0.00	3952.16
			03/06/19	327.75	—	0.00	3952.17
			05/02/19 [e]	328.00	—	0.00	3951.92
			05/20/19	327.79	—	0.00	3952.13
BW-4	275–345	4280.13	04/29/14	326.04	—	0.00	3954.09
			05/08/15	326.80	—	0.00	3953.33
			09/10/15	327.23	—	0.00	3952.90
			03/29/16	327.27	—	0.00	3952.86
			07/26/16	327.52	—	0.00	3952.61
			07/10/18 [e]	327.95	—	0.00	3952.18
			02/14/19 [e]	328.29	—	0.00	3951.84
			03/06/19	328.20	—	0.00	3951.93
			05/02/19 [e]	328.59	—	0.00	3951.54
			05/20/19	328.36	—	0.00	3951.77
BW-5	273.5–348.5	4279.04	04/29/14	325.53	—	0.00	3953.51
			05/08/15	326.27	—	0.00	3952.77
			09/10/15	326.73	—	0.00	3952.31

Table 1. Summary of Historical Fluid Level Measurements
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Screened Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured [b]	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness (feet)	Groundwater Elevation [c] (ft msl)
BW-5 (cont.)	273.5–348.5	4279.04	03/29/16	326.87	—	0.00	3952.17
			07/26/16	326.98	—	0.00	3952.06
			07/10/18 [e]	327.53	—	0.00	3951.51
			02/14/19 [e]	329.46	NA	NA	NA
			03/06/19	329.28	327.36	1.92	3951.20
			05/02/19 [e]	329.70	NA	NA	NA
			05/20/19	329.35	327.58	1.77	3951.02
BW-6	275–345	4280.32	04/29/14	326.46	—	0.00	3953.86
			05/08/15	327.27	—	0.00	3953.05
			09/10/15	327.60	—	0.00	3952.72
			03/29/16	327.70	—	0.00	3952.62
			07/26/16	328.08	—	0.00	3952.24
			07/10/18 [e]	328.72	—	0.00	3951.60
			02/14/19 [e]	328.91	—	0.00	3951.41
			03/06/19	328.82	—	0.00	3951.50
			05/02/19 [e]	329.23	—	0.00	3951.09
			05/20/19	328.91	—	0.00	3951.41
BW-7	284–349	4277.54	04/29/14	324.63	—	0.00	3952.91
			05/08/15	325.42	—	0.00	3952.12
			09/10/15	325.84	—	0.00	3951.70
			03/29/16	326.01	—	0.00	3951.53
			07/26/16	326.14	—	0.00	3951.40
			03/06/19	326.88	—	0.00	3950.66
			05/20/19	327.11	—	0.00	3950.43
BW-8	287–347	4278.72	03/29/16	326.61	—	0.00	3952.11

Table 1. Summary of Historical Fluid Level Measurements
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Screened Interval (ft bgs)	Top of Casing Elevation [a] (ft msl)	Date Measured [b]	Depth to Water (ft btoc)	Depth to LNAPL (ft btoc)	LNAPL Thickness (feet)	Groundwater Elevation [c] (ft msl)
BW-8 (cont.)	287–347	4278.72	07/26/16	326.75	—	0.00	3951.97
			07/10/18 [e]	327.33	—	0.00	3951.39
			02/14/19 [e]	327.73	—	0.00	3950.99
			03/06/19	327.55	—	0.00	3951.17
			05/20/19	327.72	—	0.00	3951.00
BW-9	287–347	4278.42	03/29/16	326.30	—	0.00	3952.12
			07/26/16	326.60	—	0.00	3951.82
			03/06/19	327.33	—	0.00	3951.09
			05/02/19 [e]	327.67	—	0.00	3950.75
			05/20/19	327.44	—	0.00	3950.98
BW-10	306–346	4275.18	03/29/16	323.92	—	0.00	3951.26
			07/26/16	324.21	—	0.00	3950.97
			03/06/19	324.96	—	0.00	3950.22
			05/20/19	324.99	—	0.00	3950.19

[a] Surveyed by Lydick Engineers & Surveyors, May 2017. For consistency, historical groundwater elevations reference current survey data.

[b] Pre-2017 data reported by Brown Environmental, Inc. (BEI, 2016).

[c] Groundwater elevation (GWE) corrected for LNAPL thickness using the following equation:
GWE = TOC Elevation - (DTW - [LNAPL thickness x 0.75]).

[d] Well survey data reported by BEI following well installation.

[e] Data reported by Brown Environmental, Inc. (BEI, 2019).

ft bgs = Feet below ground surface
ft msl = Feet above mean sea level
ft btoc = Feet below top of casing
DTW = Depth to water
LNAPL = Light nonaqueous-phase liquid
NA = Not measured or not available

Table 2. Summary of LNAPL Recovery From Site Wells
Former Y Station State Lead Site, Clovis, New Mexico

Date Bailed	Depth to Water [a] (ft btoc)	Depth to LNAPL (ft btoc)	Initial LNAPL Thickness (feet)	Depth to Water [b] (ft btoc)	Total Volume of Fluids Removed (gallons)	Volume of LNAPL Removed (gallons)	Cumulative Volume of LNAPL Removed (gallons)	Final Thickness of LNAPL (feet)
Cumulative volume of LNAPL recovered by DBS&A is approximately 2 gallons, as tabulated below.								
BW-5								
5/23/2019	329.35	327.58	1.77	328.02	7.16	1.95	1.95	0.26

[a] Depth to water (DTW) before correction for LNAPL thickness.

[b] DTW corrected for LNAPL thickness using the following equation:
DTW = DTW - (LNAPL thickness x 0.75).

LNAPL = Nonaqueous-phase liquid
ft btoc = Feet below top of casing
NM = Not measured

Table 3. Summary of Analytical Organic Chemistry Data for Groundwater
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Date Sampled	Concentration [a] (µg/L)								
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	BTEX	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standard [b]		*5*	*1,000*	*700*	*620*	*None*	*100*	*0.05*	*5*	*30*
BW-1	04/13/12	**240**	61	4.5	20	325.5	1.6	<1.0 [c]	3.5	<10
	09/25/12	**290**	29	4.9	34	357.9	<1.0	<1.0 [c]	**5.2**	<10
(duplicate)	09/25/12	**200**	46	7.8	45	298.8	<1.0	<1.0 [c]	**6.2**	<10
	04/30/14	**50**	6.0	<1.0	1.6	57.6	<1.0	<1.0 [c]	1.4	<10
	05/07/15	**130**	5.5	<1.0	5.6	141.1	1.1	<1.0 [c]	2.6	<10
	09/11/15	**13**	55	<1.0	<1.5	68	<1.0	<1.0 [c]	<1.0	<10
	03/30/16	**40**	130	<1.0	<1.5	170	<1.0	<1.0 [c]	1.3	<10
	07/27/16	**18**	15	<1.0	<1.5	33	1.2	<1.0 [c]	1.9	<10
	07/10/18	<1.0	2.9	<1.0	<1.5	2.9	<1.0	<1.0 [c]	<1.0	<10
(duplicate)	07/10/18	<1.0	2.9	<1.0	<1.5	2.9	<1.0	<1.0 [c]	<1.0	<10
	02/15/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
(duplicate)	02/15/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
	05/03/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<1.0 [c]	<1.0	<10
(duplicate)	05/03/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<1.0 [c]	<1.0	<10
	05/22/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
BW-2	09/25/12	**21**	15	<1.0	6.2	42.2	<1.0	<1.0 [c]	1.0	<10
	04/29/14	<1.0	5.6	<1.0	<1.5	5.6	<1.0	<1.0 [c]	<1.0	<10
	05/07/15	<1.0	18	<1.0	<1.5	18	<1.0	<1.0 [c]	<1.0	<10
	09/10/15	**7.2**	21	<1.0	<1.5	28.2	<1.0	<1.0 [c]	<1.0	<10
	03/29/16	<1.0	97	<1.0	<1.5	97	<1.0	<1.0 [c]	<1.0	<10
	07/26/16	<1.0	2.5	<1.0	<1.5	2.5	<1.0	<1.0 [c]	<1.0	<10
	07/10/18	<1.0	1.7	<1.0	<1.5	1.7	<1.0	<1.0 [c]	<1.0	<10
	02/14/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0095 [d]	<1.0	<10
	05/02/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<1.0 [c]	<1.0	<10

Table 3. Summary of Analytical Organic Chemistry Data for Groundwater
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Date Sampled	Concentration [a] (µg/L)								
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	BTEX	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standard [b]		*5*	*1,000*	*700*	*620*	*None*	*100*	*0.05*	*5*	*30*
BW-2 (cont.)	05/21/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0095 [d]	<1.0	<10
BW-3	09/25/12	1.4	56	<1.0	6.1	63.5	<1.0	<1.0 [c]	<1.0	<10
	04/29/14	<1.0	14	<1.0	<1.5	14	<1.0	<1.0 [c]	<1.0	<10
	05/07/15	2.6	5.0	<1.0	3.5	11.1	<1.0	<1.0 [c]	<1.0	<10
	09/10/15	<1.0	46	<1.0	<1.5	46	<1.0	<1.0 [c]	<1.0	<10
	03/29/16	<1.0	180	<1.0	2.2	182.2	<1.0	<1.0 [c]	<1.0	<10
	07/26/16	<1.0	4.0	<1.0	<1.5	4.0	<1.0	<1.0 [c]	<1.0	<10
	07/10/18	<1.0	4.3	<1.0	<1.5	4.3	<1.0	<1.0 [c]	<1.0	<10
	02/15/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
	05/03/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<1.0 [c]	<1.0	<10
	05/21/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
BW-4	04/30/14	<1.0	11	<1.0	<1.5	11	<1.0	<1.0 [c]	1.8	<10
	05/07/15	**1,100**	**1,100**	61	600	2,861	<1.0	<1.0 [c]	**32**	<10
	09/10/15	1.9	43	<1.0	<1.5	44.9	<1.0	<1.0 [c]	<1.0	<10
	03/30/16	**200**	200	5.1	33	438.1	<1.0	<1.0 [c]	**6.9**	<10
	07/27/16	**140**	85	1.2	15	241.2	<1.0	<1.0 [c]	**6.9**	<10
	05/22/19	1.8	<1.0	<1.0	<1.5	1.8	<1.0	<0.0094 [d]	2.1	<10
BW-5	04/29/14	**2,100**	**1,800**	200	**990**	5,090	<1.0	**29**	**100**	**59.9**
	05/08/15	**3,700**	**2,800**	300	**1,700**	8,500	<5.0	**51**	**180**	**83**
	09/11/15	**2,000**	**1,400**	220	**900**	4,520	<5.0	**18**	**100**	**80**
(duplicate)	09/11/15	**1,900**	**1,300**	230	**960**	4,390	<5.0	**20**	**100**	**64**
	03/30/16	**5,000**	**4,200**	500	**2,000**	11,700	<5.0	**54**	**230**	<500 [c]
	07/28/16	**2,000**	**2,400**	270	**1,300**	5,970	<10	**29**	**110**	**141**
	05/20/18	Well not sampled due to presence of LNAPL								

Table 3. Summary of Analytical Organic Chemistry Data for Groundwater
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Date Sampled	Concentration [a] (µg/L)								
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	BTEX	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standard [b]		*5*	*1,000*	*700*	*620*	*None*	*100*	*0.05*	*5*	*30*
BW-6	04/29/14	<1.0	10	<1.0	<1.5	10	<1.0	<1.0 [c]	<1.0	<10
	05/07/15	<1.0	8.4	<1.0	<1.5	8.4	<1.0	<1.0 [c]	<1.0	<10
	09/10/15	<1.0	36	<1.0	<1.5	36	<1.0	<1.0 [c]	<1.0	<10
	03/29/16	<1.0	130	<1.0	<1.5	130	<1.0	<1.0 [c]	<1.0	<10
	07/26/16	<1.0	3.8	<1.0	<1.5	3.8	<1.0	<1.0 [c]	<1.0	<10
	07/11/18	<1.0	10	<1.0	<1.5	10	<1.0	<1.0 [c]	<1.0	<10
	02/15/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0095 [d]	<1.0	<10
	05/02/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<1.0 [c]	<1.0	<10
	05/21/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0094 [d]	<1.0	<10
BW-7	04/30/14	**990**	3.4	67	260	1,320	<1.0	**2.6**	**75**	21.1
(duplicate)	04/30/14	**1,100**	4.4	74	300	1,478	<1.0	**2.9**	**75**	20.1
	05/08/15	**3,200**	**1,200**	210	**920**	5,530	<1.0	**9.6**	**230**	**45.5**
	09/11/15	**9,400**	**5,000**	**750**	**2,600**	17,750	<1.0	**36**	**590**	**204**
	03/31/16	**8,800**	**2,900**	650	**2,100**	14,450	<1.0	<50 [c]	**580**	**120**
	07/28/16	**8,000**	**1,100**	630	**1,200**	10,930	<50	<50 [c]	**500**	**120**
	05/22/19	**1,400**	140	100	230	1,870	<5.0	**0.24**	**180**	22
BW-8	03/31/16	**3,900**	**5,400**	440	**2,400**	12,140	<1.0	**95**	**210**	<500 [c]
(duplicate)	03/31/16	**4,300**	**5,900**	500	**2,700**	13,400	<1.0	**110**	**230**	**100**
	07/28/16	**3,600**	**4,800**	380	**2,500**	11,280	<50	**100**	**180**	**120**
(duplicate)	07/28/16	**3,400**	**4,700**	380	**2,500**	10,980	<50	**100**	**180**	**120**
	05/30/19	**4,600**	**4,200**	390	**1,200**	10,390	<5.0	**9.1** [d]	**290**	**67**
BW-9	03/30/16	<1.0	190	<1.0	<1.5	190	<1.0	<1.0 [c]	<1.0	<10
	07/27/16	<1.0	6.1	<1.0	<1.5	6.1	<1.0	<1.0 [c]	<1.0	<10
	05/21/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0093 [d]	<1.0	<10

Table 3. Summary of Analytical Organic Chemistry Data for Groundwater
Former Y Station State Lead Site, Clovis, New Mexico

Well Name	Date Sampled	Concentration [a] (µg/L)								
		Benzene	Toluene	Ethyl-benzene	Total Xylenes	BTEX	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standard [b]		*5*	*1,000*	*700*	*620*	*None*	*100*	*0.05*	*5*	*30*
BW-10	03/29/16	<1.0	280	<1.0	<1.5	280	<1.0	<1.0 [c]	<1.0	<10
	07/27/16	<1.0	33	<1.0	<1.5	33	<1.0	<1.0 [c]	<1.0	<10
	05/21/19	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<0.0093 [d]	<1.0	<10

Bold indicates values that exceed applicable standards.

Pre-May 2, 2019 data reported by Brown Environmental, Inc. (BEI, 2016).

[a] Samples analyzed in accordance with EPA method 8260B, unless otherwise noted.

[b] New Mexico Water Quality Control Commission groundwater standard

[c] Laboratory reporting limit is equal or greater than the NMWQCC standard.

[d] Samples analyzed in accordance with EPA method 504.1.

µg/L = Micrograms per liter
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
MTBE = Methyl tertiary-butyl ether
EDB = 1,2-Dibromoethane
EDC = 1,2-Dichloroethane
NA = Not analyzed
LNAPL = Light nonaqueous-phase liquid

Appendix A

Sampling Protocol

Appendix A. Sampling Protocol

Fluid Level and Parameter Measurements

Prior to collection of groundwater samples, a Solinst interface probe or equivalent device will be used to determine depths to water and nonaqueous-phase liquid (NAPL), if present. Water level data will be used to construct a site potentiometric surface map. A YSI 556 Multi-Probe System (MPS) water quality meter or equivalent device will be used to measure specific conductivity, pH, temperature, dissolved oxygen (DO), and oxidation/reduction potential (ORP). Field parameters will be measured at intervals of no less than once per casing volume during purging of a well for sampling. The interface probe will be decontaminated before each measurement using a solution of deionized water and Liquinox (or equivalent) soap.

Groundwater Monitor Well Sampling

DBS&A will attempt to sample wells from the least contaminated to the most contaminated well using data from the previous sampling event. After collecting fluid levels and prior to sampling, each well will be purged. To ensure a fresh flow of groundwater into the well bore, a minimum of three casing volumes will be removed from each well. If a well is purged dry, it will be sampled when the well has recharged. Wells will be purged and sampled using a trailer-mounted Bennett pump in accordance with DBS&A standard operating procedures (SOPs). Water will be disposed on the ground within the site boundaries, preferably on an impervious surface and near the well of origin. Purge water must not contain NAPL, must not endanger public health or safety, and must not enter a surface water body or tributary, including an arroyo. Any purged fluids containing NAPL will be containerized for future disposal at a licensed facility.

Samples analyzed for volatile organic analytes (VOAs) will be collected in 40-milliliter (mL) glass bottles containing the appropriate preservative and capped with Teflon septa caps. VOA containers will be filled in a manner that prevents headspace in the vials. Samples analyzed for dissolved iron, lead, and manganese will be field-filtered with 0.45-micron disposable filters, collected in 250-mL plastic containers, and preserved with nitric acid to a pH of less than 2. Samples analyzed for nitrate and sulfate will be collected in 500-mL plastic containers containing no preservative.

Immediately after collection, the sample containers will be labeled and placed on ice in an insulated cooler for delivery to the laboratory for analyses. Groundwater samples will be accompanied by full chain of custody documentation at all times.

Appendix B

Field Notes

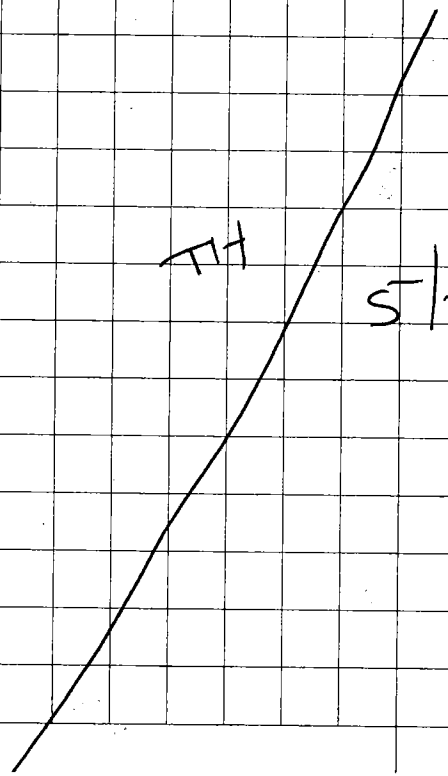
1545 Larry Kolic meeting @ Harbor Freight parking lot

TH 17 water Levels/sampling 5/20/19

6:50 onsite BW-9, windy 80°F

BW-9	327.44'	BTOC
BW-10	324.99'	BTOC
BW-2	328.61'	BTOC
BW-3	327.79'	BTOC
BW-6	328.91'	BTOC
BW-1	328.20'	BTOC
BW-4	328.36'	BTOC
BW-8	327.72'	BTOC
BW-7	327.11'	BTOC
BW-5	327.58'	Npl 329.35' WL

20:20 offsite



5/21/19 — Water Sampling — TH — 40°F

6:15	onsite BW-2, Storm wind
6:50	YSI-556 Calibrated
	SSN #: 13 K100128
	at 13.5°C
	pH 4 ~ 4.00
	pH 7 ~ 7.05
	pH 10 ~ 10.14
	SpC 1413 ~ 1,413
	ORP 220mV ~ 219.6
	DO ~ 9.60 mg/L
7:30	started pumping
8:25	Sampled at 32 gallons.
	Filled 5 glass bottles
8:50	Draw string on generator Broken
10:00	Fixed Draw string / started generator, Decon 5 gal. of DI, well Secure
10:25	at BW-3
10:35	Pump set at 335' BTOC
10:45	started pumping
11:52	Tank #1 empty at ~ 70 gallons Total
12:00	Sampled BW-3
12:05	Pump off

TH — Cont'D — 5/21/19

12:15	Decon with 5 gal. DI
12:20	well secure
13:00	onsite BW-6
13:20	Pump at 335' BTOC
13:25	Started pump.
14:30	Due to N_2 limitation Sampled at 47 gal.
14:35	pump off
14:45	Decon with 5 gal. of DI
14:55	BW-6 well secure / offsite
15:05	onsite at BW-10
15:40	pump set at 335' BTOC On advice from Tom, to Conserve N_2, only 1.5 CV will be purged.
16:05	Switched to 3rd Tank
16:30	Sampled BW-10
16:35	Stopped Pump
16:45	Decon w/ 5 gal. of DI
16:55	BW-10 secure / offsite
17:05	onsite BW-9
17:20	Started pump
17:55	Sampled BW-9
18:00	Stopped pump

5/21/14 Cont'D TH

18:15 Generator will not start to extract pump

18:35 It Finally started.

18:45 Decon 5 gal. of DI

18:55 well secure / offsite

All Samples on Ice

TH 5/21/14

TH Water Samplings 5/22/14

6:50 onsite BW-4

6:55 Calibrated YSI 14.08 °C

pH4 ~ 4.00

pH7 ~ 7.04

pH ion 10.17

SpCond ~ 1.412 mS/Cm

Orp ~ 219.9 mV

DO ~ 8.61 mg/L

7:35 Pump at 335' BTOC

8:00 No odor in H_2O.

8:20 3rd Tank out / switched to 4th

8:30 Sampled BW-4

8:35 pump off

8:45 5 gal. DI Decon

8:55 well secure / offsite

9:05 onsite BW-1

9:22 pump at 335' BTOC

9:25 start pumping

9:40 no odor in GW

9:55 BW-1 Sampled

9:57 Pump off

10:07 5 gal. DI Decon

10:15 well secure offsite

5/22/19 Cont'D TH

10:35 Onsite BW-8
Most challenging approach
water in well vault
Below Top of Casing
Hydro Carbon odor
10:55 Pump at 330'
Bottomed out at 335'
10:56 Started pump
GW has odor Blackish
Low DO, -186mvORP
11:40 Sampled BW-8
11:43 pump stopped
11:55 5 gal. DI decon
12:10 well secure / offsite
13:25 onsite BW-7
13:50 pump set at 330'
14:15 4th tank empty at 6 gal,
14:30 offsite to get another N2 Tank,
15:05 Back onsite
generator won't start
15:30 Bailed Once, generator started

TH Cont'D 5/22/19

15:45 Bennet pump deployed not producing water
16:00 brought to surface
pumps DI
16:15 Bennet pump lowered down hole, seems caught at ~220' ± 10, will not produce water. Sounder not working.
16:30 Bailed again, Sand on Bottom of Bailer
17:15 Sampled BW-7 with Bailer at 9.5 gallons.
17:30 well secure offsite

Summary: There seems now to be an obstruction just above the water table that the Bennet pump cannot pass. I was able to fill Full 3' Bailers.

16:20 10 gal DI w/ Liquinox decon

TH

5/23/19 NAPL bailing/sampling TH

5:30 onsite MW-5

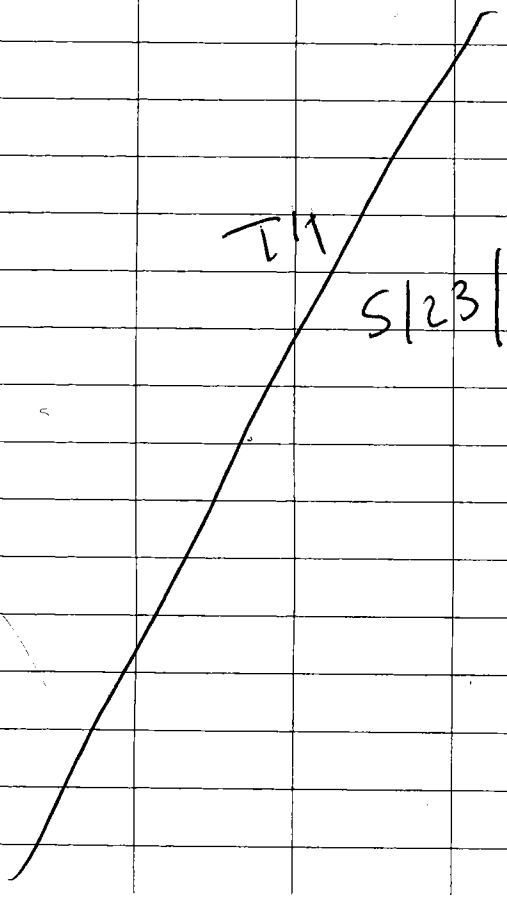
5:45 Started Bailing

7:25 stopped, 1.95 gal. of NAPL removed

7:40 ~~well~~

DTL NAPL = 327.71', DTW = 327.87' BTOC

7:45 well secure, offsite all samples on ice



BW-1 Groundwater Sampling Data Sheet

Well identification **BW-1**	Date: 5/22/19
Sample identification **BW-1**	Sample time: 9:55
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hoskins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 328.20'
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 13.5 x 0.653 gallons/foot = 8.8 gal x 1.5 CV = 13.2 gallons	
Equip Type : Bennett	
Pump placement (feet bgs): 335'	
Pump Start time: 9:25	Pump Stop time: 9:57

No odor

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
9:29	0		20.42	7.14	1127	4.06	221.7
9:35	5		20.52	7.23	1124	3.89	221.3
9:42	10		20.53	7.23	1115	3.62	221.4
9:47	13		20.33	7.23	1119	3.66	221.1
9:50	15		20.26	7.22	1117	3.71	221.3
	Sampled at 15 gal.						

BW-2 Groundwater Sampling Data Sheet

Well identification **BW-2**	Date: 5/21/19
Sample identification **BW-2**	Sample time: 8:25
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 32.8.61
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 16.39 x 0.653 gallons/foot = 10.7 gal x 3 CV = 32 gallons	
Equip Type : Bennet	
Pump placement (feet bgs): 335	
Pump Start time: 7:30	Pump Stop time: 8:25

345

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
7:32	0		10.84	6.73	75	7.93	177.1
7:41	5		14.80	7.26	897	4.33	173.7
7:47	10		16.45	7.43	914	3.69	177.1
7:55	15		17.34	7.40	927	3.31	183.6
8:02	20		17.38	7.43	936	3.06	188.0
8:10	25		17.31	7.44	932	3.04	190.3
8:17	30		17.28	7.48	928	3.10	193
8:21	32		17.34	7.47	927		
	Sampled at 8:25						

BW-3 Groundwater Sampling Data Sheet

Well identification **BW-3**	Date: 5/21/19
Sample identification **BW-3**	Sample time: 12:00
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 327.79'
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 17.01 x 0.653 gallons/foot = 11.1 gal x 3 CV = 33.3 gallons	
Equip Type : Bennet	
Pump placement (feet bgs): 335'	
Pump Start time: ~~10:00~~ 10:45	Pump Stop time: 12:05

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
11:04	0		17.32	7.16	873	6.62	175.2
11:11	5		18.76	7.41	892	5.27	190.0
11:19	10		18.83	7.39	894	5.15	196.8
11:26	15		19.00	7.40	903	4.84	198.4
11:33	20		~~18~~ 19.03	7.36	906	5.06	202.0
11:40	25		19.23	7.39	912	5.10	203.6
11:48	30		19.26	7.38	904	5.11	205.4
11:55	34		19.45	7.37	907	4.87	206.8
		Sample 1	at 34 gal				

tank #1 empty

BW-4 Groundwater Sampling Data Sheet

Well identification **BW-4**	Date: 5/22/19
Sample identification **BW-4**	Sample time: 8:30
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 5" SCH 80 PVC	Initial DTW @ TOC: 328.36'
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 21.04 x 1.02 gallons/foot = 21.5 gal x 3 CV (1.5 CV) = 32.2 gallons	
Equip Type : Bennet	
Pump placement (feet bgs): 335'	
Pump Start time: 7:35	Pump Stop time: 8:35

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
7:38	0		14.17	7.51	935	6.76	175.9
7:44	5		17.59	7.06	1378	3.67	183.1
7:52	10		18.63	7.10	1247	3.27	184.8
7:58	15		18.89	7.19	1121	3.65	184.2
8:04	20		19.19	7.20	1074	3.79	188.4
8:10	25		19.46	7.23	1051	3.75	191.0
8:18	30		19.58	7.23	1035	4.06	196.0
8:29	32		19.52	7.27	1028	3.7	203.7
		Sampled At 33 gallons					

End of 3rd / 4th

BW-6 Groundwater Sampling Data Sheet

Well identification **BW-6**	Date: 5/21/14
Sample identification **BW-6**	Sample time: 14:30
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 5" SCH 80 PVC	Initial DTW @ TOC: 328.91
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 21.59 x 1.02 gallons/foot = 22 gal x 3 CV = 66 gallons	
Equip Type : Bennet	
Pump placement (feet bgs): 335'	
Pump Start time: 13:25	Pump Stop time: 14:35

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
13:27	0		20.12	7.09	862	5.30	231.0
13:36	5		19.87	7.23	897	4.57	235.1
13:42	10		19.73	7.21	878	4.67	235.9
13:49	15		19.92	7.25	871	4.42	233.8
13:56	20		19.94	7.24	874	3.89	232.2
14:02	25		19.76	7.28	862	4.26	233.6
14:10	30		19.87	7.25	867	4.51	235.2
14:17	35		19.90	7.24	846	4.44	234.3
14:28	47		20.05	7.27	859	4.28	233.2
		Sampled	at 49	gallons			

BW-7 Groundwater Sampling Data Sheet

Well identification **BW-7**	Date: 5/22/19
Sample identification **BW-7**	Sample time: 16:15
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 5" SCH 80 PVC	Initial DTW @ TOC: 327.11
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 5.59 x 1.02 gallons/foot = 5.7 gal x 2 CV = 11.4 gallons	
Equip Type : Bennett	
Pump placement (feet bgs): 330'	
Pump Start time: 14:00	Pump Stop time: NA

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
14:04	0		25.73	7.07	786	2.67	-35.1
14:08	2.5		24.24	7.23	940	1.30	-53.5
14:12	5.0		23.23	7.27	928	0.83	-76.5
16:50	7.0		21.56	7.27	953	1.68	-79.4
16:01	8.0		19.96	7.22	930	1.66	-82.0
16:15	9.5		20.07	7	939	1.76	-85.0
	Sampled At 9.5 gal.						

4th tank Empty

Buried

BW-8 Groundwater Sampling Data Sheet

Well identification **BW-8**	Date: 5/22/2019
Sample identification **BW-8**	Sample time: 11:40
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 327.72'
Water Level Indicator: InterFace	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 24.58 x 0.653 gallons/foot = 16.05 gal x 1.5 CV = 24.1 gallons	
Equip Type : Bennet	
Pump placement (feet bgs): 330'	
Pump Start time: 10:56	Pump Stop time: 11:43

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
11:03	0		23.61	7.23	682	1.35	-178.9
11:10	5		21.36	7.26	878	0.69	-186.1
11:16	10		20.94	7.26	952	0.75	-183.8
11:24	15		20.93	7.22	1014	0.36	-169.9
11:29	20		20.71	7.22	1071	0.32	-161.9
11:36	25		20.79	7.23	1138	0.26	-142.8
		Sampled	At 25 gallons				

water Black Odor

BW-9 Groundwater Sampling Data Sheet

Well identification **BW-9**	Date: 5/21/19
Sample identification **BW-9**	Sample time: 17:55
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 327.44'
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 20.16 x 0.653 gallons/foot = 13.2 gal x 1.5 CV = 19.7 gallons	purging 1.5 CV Limited N2
Equip Type : Bennet	
Pump placement (feet bgs): 335'	
Pump Start time: 17:20	Pump Stop time: 18:00

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
17:28	0		22.00	7.34	860	5.89	224.2
17:33	5		20.27	7.45	864	5.45	228.8
17:39	10		19.98	7.48	852	5.78	228.2
17:46	15		19.68	7.46	852	5.56	230.1
17:52	20		19.75	7.50	850	5.25	227.9
	Sampled At 20 gallons						

BW-10 Groundwater Sampling Data Sheet

Well identification **BW-10**	Date: 5/21/19
Sample identification **BW-10**	Sample time: 16:30
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 324.99
Water Level Indicator: Interface	Water quality meter: YSI-556
Purge Volume (3CV) : Water Column = 26.21 x 0.653 gallons/foot = 17.1 gal x 3 CV = 51.3 gallons ~~x 1.5CV = 25.65~~ purging 1.5 CV	
Equip Type : Bennet	
Pump placement (feet bgs): 335'	
Pump Start time: 15:45	Pump Stop time:

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
15:50	0		21.99	6.38	81	7.68	200.4
End of 2nd cv 15:56	5		21.35	7.23	1002	4.64	247.2
16:02	10		20.83	7.26	1025	3.56	236.4
16:13	15		21.07	7.30	1008	3.31	235.8
16:19	20		20.46	7.32	991	3.30	~~830.3~~
16:25	25		20.47	7.31	980	3.45	230.7
	Sampled At 26 gallons				~~995~~	~~3.15~~	~~223.6~~ TH

BW-8 Groundwater Sampling Data Sheet

Well identification **BW-8**	Date: 5/30/19
Sample identification **BW-8**	Sample time: 14:00
Project: **Former Y Station Remedial Action**	Project # **DB18.1157.00**
Field personnel: T. Hopkins	Field book #: 1
Casing diameter/type: 4" SCH 80 PVC	Initial DTW @ TOC: 328.26
Water Level Indicator: 500	Water quality meter: YSI -556 Temp -9.99°C
Purge Volume (3CV) : Water Column = 26.74 x 0.653 gallons/foot = 17.5 gal x 3 CV = 52.4 gallons (probably over estimated)	
Equip Type : Bennet	
Pump placement (feet bgs): 335	
Pump Start time: 12:45	Pump Stop time: 14:05

Not working

Not working

Time	Total Q (gallons)	Q Rate (gpm)	Temp (°C)	pH	Specific Conductance (µS/cm)	DO (mg/L)	ORP (mV)
12:51	0		—	6.97	1270	—	-107.7
12:56	5		—	7.20	1232	—	-120.3
13:03	10		—	7.19	1211	7.4%	-138.1
13:10	15		—	7.18	1201	7.3%	-136.1
13:15	20		—	7.19	1194	6.5%	-152.9
13:21	25		—	7.17	1197	7.6%	-120.4
13:27	30		—	7.17	1206	6.7%	-91.8
13:33	35		—	7.20	1201	6.8%	-85.4
13:39	40		—	7.19	1192	5.2%	-78.9
13:46	45		—	7.17	1188	5.8%	-67.7
13:53	50		—	7.17	1189	6.1%	-64.4
13:58	~~53~~ 53			7.20	1172	6.3%	-59.4

Sampled at 53 gallons

Daniel B. Stephens & Associates, Inc.

NAPL RECOVERY DATA SHEET

Project Name: Former Y
Project #: DB18.1157
Project Manager: T. Golden
Well #: BW-5
Initial Depth to NAPL: 327.58 (feet btoc)
Initial Depth to Water: 329.35 (feet btoc)
Initial NAPL Thickness: 1.77 (feet)

Sampler: T. Hopkins
Date: 5/23/19
Time: 5:40
Well Diameter: 5 (inches)
Bailer Diameter: 3 (inches)
Start Time: 5:45
End Time: 7:25

Note:
Bailer volume (SCH 40 PVC): 1.5" ID bailer = 0.09 gal/ft; 3.0" = 0.37 gal/ft

Bailer #	NAPL Thickness in Bailer (feet)	Water Thickness in Bailer (feet)	Remarks / Time
1	0.56	2.40	5:55
2	0.81	2.15	6:16
3	1.23	1.82	6:32
4	0.71	1.27	6:41
5	0.54	1.43	6:49
6	0.38	0.91	6:57
7	0.35	1.34	7:04
8	0.17	1.15	7:12
9	0.27	0.55	7:18
10	0.26	1.05	7:24
11			
12			
13			
14			
15			

Bailer #	NAPL Thickness in Bailer (feet)	Water Thickness in Bailer (feet)	Remarks / Time
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Totals:

NAPL Thickness: 5.20 (feet)
Volume of NAPL: 1.15 (gal)
Final Depth to Water: 327.87 (feet btoc)

Water Thickness: 14.07 (feet)
Volume of Water: 5.2 (gal)
Final Depth to NAPL: 327.71 (feet btoc)

Appendix C

Laboratory Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 24, 2019

Tom Golden

Daniel B. Stephens & Assoc.
6020 Academy NE Suite 100
Albuquerque, NM 87109
TEL: (505) 822-9400
FAX: (505) 822-8877

RE: Former Y Station OrderNo.: 1905C20

Dear Tom Golden:

Hall Environmental Analysis Laboratory received 11 sample(s) on 5/23/2019 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 #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-2
Project: Former Y Station
Collection Date: 5/21/2019 8:25:00 AM
Lab ID: 1905C20-001 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0095		µg/L	1	5/31/2019 11:00:33 PM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 7:07:49 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 7:07:49 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 7:07:49 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-2
Project: Former Y Station
Collection Date: 5/21/2019 8:25:00 AM
Lab ID: 1905C20-001 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 7:07:49 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 7:07:49 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 7:07:49 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 7:07:49 PM	R60275
Surr: 1,2-Dichloroethane-d4	80.1	70-130		%Rec	1	5/30/2019 7:07:49 PM	R60275
Surr: 4-Bromofluorobenzene	86.7	70-130		%Rec	1	5/30/2019 7:07:49 PM	R60275
Surr: Dibromofluoromethane	93.3	70-130		%Rec	1	5/30/2019 7:07:49 PM	R60275
Surr: Toluene-d8	82.6	70-130		%Rec	1	5/30/2019 7:07:49 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-3
Project: Former Y Station
Collection Date: 5/21/2019 12:00:00 PM
Lab ID: 1905C20-002 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	5/31/2019 11:15:51 PM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 8:33:42 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 8:33:42 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 8:33:42 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-3
Project: Former Y Station
Collection Date: 5/21/2019 12:00:00 PM
Lab ID: 1905C20-002 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 8:33:42 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 8:33:42 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 8:33:42 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 8:33:42 PM	R60275
Surr: 1,2-Dichloroethane-d4	80.0	70-130		%Rec	1	5/30/2019 8:33:42 PM	R60275
Surr: 4-Bromofluorobenzene	91.1	70-130		%Rec	1	5/30/2019 8:33:42 PM	R60275
Surr: Dibromofluoromethane	94.0	70-130		%Rec	1	5/30/2019 8:33:42 PM	R60275
Surr: Toluene-d8	85.6	70-130		%Rec	1	5/30/2019 8:33:42 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** BW-6
Project: Former Y Station **Collection Date:** 5/21/2019 2:30:00 PM
Lab ID: 1905C20-003 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	5/31/2019 11:31:11 PM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 9:02:17 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 9:02:17 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 9:02:17 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-6
Project: Former Y Station
Collection Date: 5/21/2019 2:30:00 PM
Lab ID: 1905C20-003 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 9:02:17 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 9:02:17 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 9:02:17 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 9:02:17 PM	R60275
Surr: 1,2-Dichloroethane-d4	79.0	70-130		%Rec	1	5/30/2019 9:02:17 PM	R60275
Surr: 4-Bromofluorobenzene	86.4	70-130		%Rec	1	5/30/2019 9:02:17 PM	R60275
Surr: Dibromofluoromethane	91.9	70-130		%Rec	1	5/30/2019 9:02:17 PM	R60275
Surr: Toluene-d8	83.4	70-130		%Rec	1	5/30/2019 9:02:17 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-10
Project: Former Y Station
Collection Date: 5/21/2019 4:30:00 PM
Lab ID: 1905C20-004
Matrix: AQUEOUS
Received Date: 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0093		µg/L	1	6/1/2019 12:01:43 AM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 10:56:47 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 10:56:47 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 10:56:47 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-10
Project: Former Y Station
Collection Date: 5/21/2019 4:30:00 PM
Lab ID: 1905C20-004
Matrix: AQUEOUS
Received Date: 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 10:56:47 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 10:56:47 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 10:56:47 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 10:56:47 PM	R60275
Surr: 1,2-Dichloroethane-d4	83.8	70-130		%Rec	1	5/30/2019 10:56:47 PM	R60275
Surr: 4-Bromofluorobenzene	85.8	70-130		%Rec	1	5/30/2019 10:56:47 PM	R60275
Surr: Dibromofluoromethane	93.7	70-130		%Rec	1	5/30/2019 10:56:47 PM	R60275
Surr: Toluene-d8	83.4	70-130		%Rec	1	5/30/2019 10:56:47 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-9
Project: Former Y Station
Collection Date: 5/21/2019 5:55:00 PM
Lab ID: 1905C20-005 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0093		µg/L	1	6/1/2019 12:16:55 AM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 11:25:21 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 11:25:21 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 11:25:21 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-9
Project: Former Y Station
Collection Date: 5/21/2019 5:55:00 PM
Lab ID: 1905C20-005 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 11:25:21 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 11:25:21 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 11:25:21 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 11:25:21 PM	R60275
Surr: 1,2-Dichloroethane-d4	78.8	70-130		%Rec	1	5/30/2019 11:25:21 PM	R60275
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	1	5/30/2019 11:25:21 PM	R60275
Surr: Dibromofluoromethane	91.0	70-130		%Rec	1	5/30/2019 11:25:21 PM	R60275
Surr: Toluene-d8	85.7	70-130		%Rec	1	5/30/2019 11:25:21 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-4
Project: Former Y Station
Collection Date: 5/22/2019 8:30:00 AM
Lab ID: 1905C20-006 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	6/1/2019 12:32:10 AM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	1.8	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Toluene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2-Dichloroethane (EDC)	2.1	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Naphthalene	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Acetone	ND	10		µg/L	1	5/30/2019 11:53:53 PM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Bromoform	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Bromomethane	ND	3.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
2-Butanone	ND	10		µg/L	1	5/30/2019 11:53:53 PM	R60275
Carbon disulfide	ND	10		µg/L	1	5/30/2019 11:53:53 PM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Chloroethane	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Chloroform	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Chloromethane	ND	3.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-4
Project: Former Y Station
Collection Date: 5/22/2019 8:30:00 AM
Lab ID: 1905C20-006 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
2-Hexanone	ND	10		µg/L	1	5/30/2019 11:53:53 PM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/30/2019 11:53:53 PM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Styrene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/30/2019 11:53:53 PM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/30/2019 11:53:53 PM	R60275
Surr: 1,2-Dichloroethane-d4	78.6	70-130		%Rec	1	5/30/2019 11:53:53 PM	R60275
Surr: 4-Bromofluorobenzene	86.7	70-130		%Rec	1	5/30/2019 11:53:53 PM	R60275
Surr: Dibromofluoromethane	93.9	70-130		%Rec	1	5/30/2019 11:53:53 PM	R60275
Surr: Toluene-d8	85.1	70-130		%Rec	1	5/30/2019 11:53:53 PM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** BW-1
Project: Former Y Station **Collection Date:** 5/22/2019 9:55:00 AM
Lab ID: 1905C20-007 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	6/1/2019 12:47:24 AM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Toluene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Naphthalene	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Acetone	ND	10		µg/L	1	5/31/2019 12:22:34 AM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Bromoform	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Bromomethane	ND	3.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
2-Butanone	ND	10		µg/L	1	5/31/2019 12:22:34 AM	R60275
Carbon disulfide	ND	10		µg/L	1	5/31/2019 12:22:34 AM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Chloroethane	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Chloroform	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Chloromethane	ND	3.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275

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

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 Quanitative 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 Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-1
Project: Former Y Station
Collection Date: 5/22/2019 9:55:00 AM
Lab ID: 1905C20-007 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
2-Hexanone	ND	10		µg/L	1	5/31/2019 12:22:34 AM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/31/2019 12:22:34 AM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Styrene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/31/2019 12:22:34 AM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/31/2019 12:22:34 AM	R60275
Surr: 1,2-Dichloroethane-d4	83.4	70-130		%Rec	1	5/31/2019 12:22:34 AM	R60275
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	1	5/31/2019 12:22:34 AM	R60275
Surr: Dibromofluoromethane	94.9	70-130		%Rec	1	5/31/2019 12:22:34 AM	R60275
Surr: Toluene-d8	83.6	70-130		%Rec	1	5/31/2019 12:22:34 AM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-7
Project: Former Y Station
Collection Date: 5/22/2019 5:15:00 PM
Lab ID: 1905C20-009 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	0.24	0.094		µg/L	10	6/3/2019 10:27:26 PM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	1400	50		µg/L	50	5/31/2019 3:48:34 PM	R60301
Toluene	140	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Ethylbenzene	100	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2,4-Trimethylbenzene	62	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,3,5-Trimethylbenzene	18	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2-Dichloroethane (EDC)	180	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Naphthalene	22	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
1-Methylnaphthalene	ND	20		µg/L	5	5/31/2019 12:51:08 AM	R60275
2-Methylnaphthalene	ND	20		µg/L	5	5/31/2019 12:51:08 AM	R60275
Acetone	ND	50		µg/L	5	5/31/2019 12:51:08 AM	R60275
Bromobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Bromodichloromethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Bromoform	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Bromomethane	ND	15		µg/L	5	5/31/2019 12:51:08 AM	R60275
2-Butanone	ND	50		µg/L	5	5/31/2019 12:51:08 AM	R60275
Carbon disulfide	ND	50		µg/L	5	5/31/2019 12:51:08 AM	R60275
Carbon Tetrachloride	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Chlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Chloroethane	ND	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
Chloroform	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Chloromethane	ND	15		µg/L	5	5/31/2019 12:51:08 AM	R60275
2-Chlorotoluene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
4-Chlorotoluene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
cis-1,2-DCE	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
Dibromochloromethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Dibromomethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2-Dichlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,3-Dichlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,4-Dichlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Dichlorodifluoromethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1-Dichloroethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1-Dichloroethene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2-Dichloropropane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-7
Project: Former Y Station
Collection Date: 5/22/2019 5:15:00 PM
Lab ID: 1905C20-009 **Matrix:** AQUEOUS **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
2,2-Dichloropropane	ND	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1-Dichloropropene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Hexachlorobutadiene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
2-Hexanone	ND	50		µg/L	5	5/31/2019 12:51:08 AM	R60275
Isopropylbenzene	6.1	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
4-Isopropyltoluene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
4-Methyl-2-pentanone	ND	50		µg/L	5	5/31/2019 12:51:08 AM	R60275
Methylene Chloride	ND	15		µg/L	5	5/31/2019 12:51:08 AM	R60275
n-Butylbenzene	ND	15		µg/L	5	5/31/2019 12:51:08 AM	R60275
n-Propylbenzene	11	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
sec-Butylbenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Styrene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
tert-Butylbenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
trans-1,2-DCE	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1,1-Trichloroethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,1,2-Trichloroethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Trichloroethene (TCE)	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Trichlorofluoromethane	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
1,2,3-Trichloropropane	ND	10		µg/L	5	5/31/2019 12:51:08 AM	R60275
Vinyl chloride	ND	5.0		µg/L	5	5/31/2019 12:51:08 AM	R60275
Xylenes, Total	230	7.5		µg/L	5	5/31/2019 12:51:08 AM	R60275
Surr: 1,2-Dichloroethane-d4	83.4	70-130		%Rec	5	5/31/2019 12:51:08 AM	R60275
Surr: 4-Bromofluorobenzene	90.7	70-130		%Rec	5	5/31/2019 12:51:08 AM	R60275
Surr: Dibromofluoromethane	97.2	70-130		%Rec	5	5/31/2019 12:51:08 AM	R60275
Surr: Toluene-d8	84.1	70-130		%Rec	5	5/31/2019 12:51:08 AM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-5
Project: Former Y Station
Collection Date: 5/23/2019 6:05:00 AM
Lab ID: 1905C20-010 **Matrix:** OIL
Received Date: 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
DRO BY 8015D						Analyst: **TOM**	
Diesel Range Organics (DRO)	21	0.85		wt%	20	6/11/2019 6:29:07 AM	45476
Motor Oil Range Organics (MRO)	ND	4.2	D	wt%	20	6/11/2019 6:29:07 AM	45476
Surr: DNOP	0	57.9-125	S	%Rec	20	6/11/2019 6:29:07 AM	45476
GRO BY 8015D						Analyst: **NSB**	
Gasoline Range Organics (GRO)	83	2.5		wt%	1	5/28/2019 12:01:17 PM	45182
Surr: BFB	134	79.7-123	S	%Rec	1	5/28/2019 12:01:17 PM	45182

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Trip Blank
Project: Former Y Station **Collection Date:**
Lab ID: 1905C20-011 **Matrix:** TRIP BLANK **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	6/1/2019 1:17:44 AM	45261
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Toluene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Ethylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Naphthalene	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1-Methylnaphthalene	ND	4.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
2-Methylnaphthalene	ND	4.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Acetone	ND	10		µg/L	1	5/31/2019 1:19:36 AM	R60275
Bromobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Bromodichloromethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Bromoform	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Bromomethane	ND	3.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
2-Butanone	ND	10		µg/L	1	5/31/2019 1:19:36 AM	R60275
Carbon disulfide	ND	10		µg/L	1	5/31/2019 1:19:36 AM	R60275
Carbon Tetrachloride	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Chlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Chloroethane	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Chloroform	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Chloromethane	ND	3.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
2-Chlorotoluene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
4-Chlorotoluene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
cis-1,2-DCE	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Dibromochloromethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Dibromomethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1-Dichloroethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1-Dichloroethene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2-Dichloropropane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Trip Blank
Project: Former Y Station **Collection Date:**
Lab ID: 1905C20-011 **Matrix:** TRIP BLANK **Received Date:** 5/23/2019 2:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
2,2-Dichloropropane	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Hexachlorobutadiene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
2-Hexanone	ND	10		µg/L	1	5/31/2019 1:19:36 AM	R60275
Isopropylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
4-Isopropyltoluene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
4-Methyl-2-pentanone	ND	10		µg/L	1	5/31/2019 1:19:36 AM	R60275
Methylene Chloride	ND	3.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
n-Butylbenzene	ND	3.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
n-Propylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
sec-Butylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Styrene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
tert-Butylbenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
trans-1,2-DCE	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Trichlorofluoromethane	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Vinyl chloride	ND	1.0		µg/L	1	5/31/2019 1:19:36 AM	R60275
Xylenes, Total	ND	1.5		µg/L	1	5/31/2019 1:19:36 AM	R60275
Surr: 1,2-Dichloroethane-d4	82.4	70-130		%Rec	1	5/31/2019 1:19:36 AM	R60275
Surr: 4-Bromofluorobenzene	88.5	70-130		%Rec	1	5/31/2019 1:19:36 AM	R60275
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	5/31/2019 1:19:36 AM	R60275
Surr: Toluene-d8	82.3	70-130		%Rec	1	5/31/2019 1:19:36 AM	R60275

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

June 24, 2019

Jackie Bolte
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

RE: Foensics Analyses

Pace Analytical received 1 sample on May 30, 2019 for analysis labeled 1905C20-010B BW-5. Per client request, the following analyses were performed:

(C3-C12) Quantitative Molecular Characterization by GC/MS - full scan mode
Oxygenated Gasoline Blending Agents by GC/MS - SIM mode
Organic Lead Speciation by GC/ECD

The sample analysis was performed under laboratory number **30486**.

Please call the lab at 412-826-5245, or you may email any questions or concerns to ruth.welsh@pacelabs.com regarding any analytical data reports.

Respectfully submitted,

Ruth Welsh

Ruth Welsh
Customer Service

(C3-C12) Quantitative Molecular Characterization by GC/MS - full scan mode

PIANO, Oxygenated Blending Agents, Lead Scavengers, MMT & Thiophenes

Hall Environmental Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 30486-1
Collected: 5/23/2019
Received: 5/30/2019
Matrix: Product

Client ID: BW-5

Project:
Project #:
Collected by:

Analyzed: 6/11/2019
Q Method: 060419.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
Isopentane (2-Methylbutane)	I	IP	87.3	909.0	
1-Pentene	O	1P	87.0	87.0	U
2-Methyl-1-butene	O	2M1B	87.0	144.2	
Pentane (nC5)	P	C5	130.5	2312.9	
trans-2-pentene	O	T2P	87.3	125.9	J
cis-2-pentene	O	C2P	130.5	130.5	U
2-Methyl-2-butene	O	2M2B	87.0	512.5	
2,2-Dimethylbutane	I	22DMB	43.4	188.5	
Cyclopentane	N	CYP	43.6	1241.5	
2,3-Dimethylbutane	I	23DMB	43.4	1293.5	
2-Methylpentane	I	2MP	1736.8	10745.1	D
Methyl-tert-butyl ether (MTBE)	ADD	MTBE	43.3	43.3	U
3-Methylpentane	I	3MP	130.8	6559.7	
1-Hexene	O	1HX	129.8	283.4	
Hexane (nC6)	P	C6	2597.9	18732.4	D
Di-isopropyl ether (DIPE)	ADD	DIPE	86.8	86.8	U
trans-2-hexene	O	T2HE	129.8	1320.5	
2-Methyl-2-pentene	O	2M2P	87.0	389.8	
cis-2-hexene	O	C2HE	129.8	839.7	
cis-3-Methyl-2-pentene	O	C3M2P	87.0	703.6	
Ethyl-tert-butyl ether (ETBE)	ADD	ETBE	43.6	43.6	U
2,2-Dimethylpentane	I	22DMP	130.6	439.0	
Methylcyclopentane	N	MCYP	1731.5	12254.8	D
2,4-Dimethylpentane	I	24DMP	130.6	3995.9	
1,2-Dichloroethane (EDC)	ADD	EDC	130.2	130.2	U
Benzene	A	B	1730.8	10805.0	D
3,3-Dimethylpentane	I	33DMP	130.6	1045.4	
Thiophene	S	THIO	130.2	130.2	U
Cyclohexane	N	CYH	2602.2	8394.9	D
2-Methylhexane	I	2MH	2607.1	13123.3	D
2,3-Dimethylpentane	I	23DMP	2618.7	6635.2	D

Hall Environmental Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 30486-1
Collected: 5/23/2019
Received: 5/30/2019
Matrix: Product

Client ID: BW-5

Project:
Project #:
Collected by:

Analyzed: 6/11/2019
Q Method: 060419.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
Tert-amyl methyl ether (TAME)	ADD	TAME	232.6	232.6	U
3-Methylhexane	I	3MH	2587.5	10118.4	D
trans-1,3-Dimethylcyclopentane	N	T13DMCYP	130.5	1927.5	
cis-1,3-Dimethylcyclopentane	N	C13DMCYP	130.5	753.5	
trans-1,2-Dimethylcyclopentane	N	T12DMCYP	130.5	2188.0	
2,2,4-Trimethylpentane (isooctane)	I	224TMP	2604.8	7030.7	D
1-Heptene	O	1HP	260.8	260.8	U
Heptane (nC7)	P	C7	721.2	13481.7	D
trans-2-heptene	O	T2HP	130.4	1030.0	
Methylcyclohexane	N	MCYH	2610.4	7771.8	D
2,5-Dimethylhexane	I	25DMH	348.2	2786.7	
2,2,3-Trimethylpentane	I	233TMP	43.4	697.2	
2,4-Dimethylhexane	I	24DMH	130.4	3906.8	
2,3,4-Trimethylpentane	I	234TMP	130.2	5154.2	
2,3,3-Trimethylpentane	I	233TMP	130.6	4980.2	
Toluene	A	T	870.6	83363.5	D
2-Methylthiophene	S	2MTHIO	130.5	130.5	U
2,3-Dimethylhexane	I	23DMH	129.7	3982.6	
3-Methylthiophene	S	3MTHIO	130.1	130.1	U
2-Methylheptane	I	2MHP	2608.3	5058.0	D
4-Methylheptane	I	4MHP	130.4	4237.7	
3-Methylheptane	I	3MHP	2610.0	6112.3	D
3-Ethylhexane	I	3EHX	130.1	3419.1	
1,2-Dibromoethane (EDB)	ADD	EDB	173.7	244.7	J
1-Octene	O	1O	347.5	793.4	
Octane (nC8)	P	C8	3480.0	6296.5	D
2,4-Dimethylheptane	I	24DMHP	173.5	4547.0	
2,5-Dimethylheptane	I	25DMHP	173.5	5413.0	
Ethylbenzene	A	EB	1158.5	19580.6	D
2-Ethylthiophene	S	2ETHIO	116.4	116.4	U
2,3-Dimethylheptane	I	23DMHP	173.5	5232.4	

Hall Environmental Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 30486-1
Collected: 5/23/2019
Received: 5/30/2019
Matrix: Product

Client ID: BW-5

Project:
Project #:
Collected by:

Analyzed: 6/11/2019
Q Method: 060419.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
m-Xylene	A	MX	1156.2	65701.7	D
p-Xylene	A	PX	1163.1	20726.2	D
4-Methyloctane	I	4MO	174.0	7268.9	
2-Methyloctane	I	2MO	174.0	7251.3	
3-Methyloctane	I	3MO	3480.0	6513.6	D
Styrene	A	STRE	57.9	57.9	U
o-Xylene	A	OX	1160.8	32300.5	D
1-Nonene	O	1N	173.9	518.7	
Nonane (nC9)	P	C9	3475.4	6106.0	D
Isopropylbenzene (cumene)	A	IPROPB	58.2	2169.0	
n-Propylbenzene	A	NPRPPB	1156.2	5965.5	D
1-Methyl-3-ethylbenzene	A	1M3EB	1158.5	19090.5	D
1-Methyl-4-ethylbenzene	A	1M4EB	1155.0	7661.0	D
1,3,5-Trimethylbenzene (mesitylene)	A	135TMB	1153.9	7665.4	D
1-Methyl-2-ethylbenzene	A	1M2EB	1153.9	5843.6	D
1,2,4-Trimethylbenzene	A	124TMB	1158.0	40362.1	D
1-Decene	O	1D	173.3	1080.5	
Decane (nC10)	P	C10	173.8	3788.9	
sec-Butylbenzene	A	SBUB	57.9	831.7	
1-Methyl-3-isopropylbenzene (m-cymene)	A	1M3IPROPB	57.9	1819.3	
1-Methyl-4-isopropylbenzene (p-cymene)	A	1M4IPROPB	57.9	576.8	
Indane	A	IA	1156.2	2161.0	D
Indene	A	IE	57.9	57.9	U
1-Methyl-2-isopropybenzene (o-cymene)	A	1M2IPROPB	48.1	133.6	
1-Methyl-3-propylbenzene	A	1M3PROPB	961.5	5683.7	D
1-Methyl-4-propylbenzene	A	1M4PROPB	1159.6	2398.8	D
n-Butylbenzene	A	NBB	1156.2	1960.1	D
1,3-Dimethyl-5-ethylbenzene	A	13DM5EB	1153.9	4756.0	D
1,2,diethylbenzene	A	12DEB	57.9	544.2	
1-Methyl-2-propylbenzene	A	1M2PROPB	1163.1	2067.9	D
1,4-Dimethyl-2-ethylbenzene	A	14DM2EB	1158.7	3029.3	D

Hall Environmental Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 30486-1
Collected: 5/23/2019
Received: 5/30/2019
Matrix: Product

Client ID: BW-5

Project:
Project #:
Collected by:

Analyzed: 6/11/2019
Q Method: 060419.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
1,3-Dimethyl-4-ethylbenzene	A	13DM4EB	1151.9	2831.2	D
1,2-Dimethyl-4-ethylbenzene	A	12DM4EB	1160.6	4945.8	D
1,2-Dimethyl-3-ethylbenzene	A	12DM3EB	58.2	919.6	
Undecane (nC11)	P	C11	116.0	1446.7	
1,2,4,5-Tetramethylbenzene	A	1245TMB	1158.5	2241.4	D
1,2,3,5-Tetramethylbenzene	A	1235TMB	1158.5	3549.5	D
n-Pentylbenzene	A	NPYB	145.1	602.1	
Naphthalene	A	N	2907.7	4405.7	D
Benzothiophene	S	BTHIO	144.5	144.5	U
Dodecane (nC12)	P	C12	290.8	871.4	
1,2,3,4-Tetramethylbenzene	A	1234TMB	144.8	1746.7	
MMT	ADD	MMT	238.9	238.9	U
2-Methylnaphthalene	A	2MN	2891.8	4638.7	D
1-Methylnaphthalene	A	1MN	145.0	3497.9	

Benzene d-6 (RS)	102.50	%
Toluene-d8 (RS)	88.38	%
Ethylbenzene d10 (RS)	105.37	%

ssRL - Sample Specific Reporting Limit
Results listed as U would have been reported if present at or above the listed ssRL
J - Values greater than the ssRL but less than the PQL (3 x ssRL).
D - Secondary dilution perfomed
Q - Surrogate recovery limit exceedance
I - Matrix Interference
NC - Not calibrated
Note: Extracted by EPA 5030 (Purge and Trap).

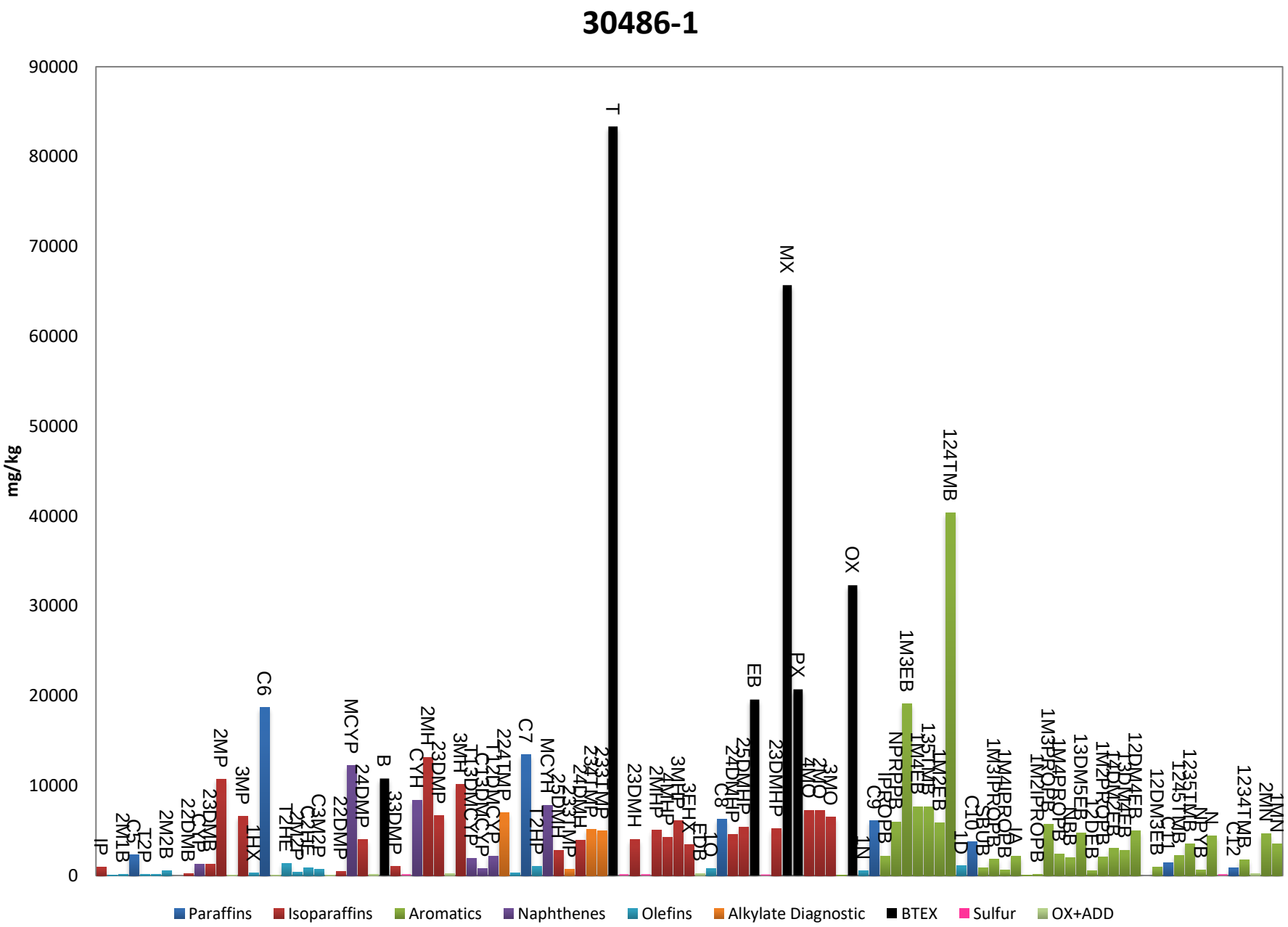
US631

061019-PROD10.D & dilution 061019-PROD4.D

Submitted by,
Pace Energy Services, LLC

PAES ID	**30486-1**
Sample ID	**BW-5**
Evaporation	
n-Pentane / (n-Pentane+n-Heptane)	0.15
2-Methylpentane / (2-Methylpentane+2-Methylheptane)	0.68
Waterwashing	
Benzene / (Benzene+Cyclohexane)	0.56
Toluene / (Toluene+Methylcyclohexane)	0.91
Aromatics / Total Paraffins (n+iso+cyc)	1.66
Aromatics / Naphthenes	10.91
wt% < o-xylene	68.86
Biodegradation	
(C4-C8 Para +Isopara) / C4-C8 Olefins	29.22
3-Methylhexane / n-Heptane	0.75
Methylcyclohexane / n-Heptane	0.58
Isoparaffins + Naphthenes / Paraffins	3.27
Diagnostic Ratios (Refining Properties)	
2,2,4-Trimethylpentane / (2,2,4-Trimethylpentane+Methylcyclohexane)	0.5
2,2,4-Trimethylpentane / Total TMPs	0.39
nC9 / Isopropylbenzene	2.82
nC10 / 1-Methyl-2-ethylbenzene	0.65
nC11 / 1,4-Dimethyl-2-ethylbenzene	0.48
iC5 / (iC5+nC5)	0.28
(2-methylhexane + 2,3dimethylpentane) / (3-methylhexane + 2,4 dimethylpentane)	1.40
Naphthalene / (Naphthalene+nC12)	0.83
Methylcyclohexane/(Methylcyclohexane+Toluene)	0.09
Toluene/n-Octane	13.24
Oxygenates & Other (mg/kg)	
Methyl-tert-butyl ether (MTBE)	U
Di-isopropyl ether (DIPE)	U
Ethyl-tert-butyl ether (ETBE)	U
Tert-amyl methyl ether (TAME)	U
MMT	U
Lead Scavengers (mg/kg)	
1,2-Dichloroethane (EDC)	U
1,2-Dibromoethane (EDB)	244.74
Sulfur containing HCs (mg/kg)	
Thiophene	U
2-Methylthiophene	U
3-Methylthiophene	U
2-Ethylthiophene	U
Benzothiophene	U
Relative Percentages	
% Paraffinic	8.7
% Isoparaffinic	22.7
% Aromatic	61.7
% Naphthenic	5.7
% Olefinic	1.3

SAMPLE HISTOGRAM



Supporting Quality Control Results

	Lab ID:	**061019-BLK.D**
Hall Environmental Analysis Laborator	**Collected:**	
4901 Hawkins NE	**Received:**	
Albuquerque, NM 87109	**Matrix:**	
Project:	**QC type:**	**Method Blank**
Project #:	**Analyzed:**	**6/10/2019**
Collected by:	**Q Method:**	**060419.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
Isopentane (2-Methylbutane)	0.9	0.9	U
1-Pentene	0.9	0.9	U
2-Methyl-1-butene	0.9	0.9	U
Pentane (nC5)	1.4	1.4	U
trans-2-pentene	0.9	0.9	U
cis-2-pentene	1.4	1.4	U
2-Methyl-2-butene	0.9	0.9	U
2,2-Dimethylbutane	0.5	0.5	U
Cyclopentane	0.5	0.5	U
2,3-Dimethylbutane	0.5	0.5	U
2-Methylpentane	0.9	0.9	U
Methyl-tert-butyl ether (MTBE)	0.5	0.5	U
3-Methylpentane	1.4	1.4	U
1-Hexene	1.4	1.4	U
Hexane (nC6)	1.4	1.4	U
Di-isopropyl ether (DIPE)	0.9	0.9	U
trans-2-hexene	1.4	1.4	U
2-Methyl-2-pentene	0.9	0.9	U
cis-2-hexene	1.4	1.4	U
cis-3-Methyl-2-pentene	0.9	0.9	U
Ethyl-tert-butyl ether (ETBE)	0.5	0.5	U
2,2-Dimethylpentane	1.4	1.4	U
Methylcyclopentane	0.9	0.9	U
2,4-Dimethylpentane	1.4	1.4	U
1,2-Dichloroethane (EDC)	1.4	1.4	U
Benzene	0.9	0.9	U
3,3-Dimethylpentane	1.4	1.4	U
Thiophene	1.4	1.4	U
Cyclohexane	1.4	1.4	U
2-Methylhexane	1.4	1.4	U
2,3-Dimethylpentane	1.4	1.4	U

	Lab ID:	**061019-BLK.D**
Hall Environmental Analysis Laborator	**Collected:**	
4901 Hawkins NE	**Received:**	
Albuquerque, NM 87109	**Matrix:**	
Project:	**QC type:**	**Method Blank**
Project #:	**Analyzed:**	**6/10/2019**
Collected by:	**Q Method:**	**060419.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
Tert-amyl methyl ether (TAME)	2.4	2.4	U
3-Methylhexane	1.4	1.4	U
trans-1,3-Dimethylcyclopentane	1.4	1.4	U
cis-1,3-Dimethylcyclopentane	1.4	1.4	U
trans-1,2-Dimethylcyclopentane	1.4	1.4	U
2,2,4-Trimethylpentane (isooctane)	1.4	1.4	U
1-Heptene	2.7	2.7	U
Heptane (nC7)	0.4	0.4	U
trans-2-heptene	1.4	1.4	U
Methylcyclohexane	1.4	1.4	U
2,5-Dimethylhexane	3.6	3.6	U
2,2,3-Trimethylpentane	0.5	0.5	U
2,4-Dimethylhexane	1.4	1.4	U
2,3,4-Trimethylpentane	1.4	1.4	U
2,3,3-Trimethylpentane	1.4	1.4	U
Toluene	0.5	0.5	U
2-Methylthiophene	1.4	1.4	U
2,3-Dimethylhexane	1.4	1.4	U
3-Methylthiophene	1.4	1.4	U
2-Methylheptane	1.4	1.4	U
4-Methylheptane	1.4	1.4	U
3-Methylheptane	1.4	1.4	U
3-Ethylhexane	1.4	1.4	U
1,2-Dibromoethane (EDB)	1.8	1.8	U
1-Octene	3.6	3.6	U
Octane (nC8)	1.8	1.8	U
2,4-Dimethylheptane	1.8	1.8	U
2,5-Dimethylheptane	1.8	1.8	U
Ethylbenzene	0.6	0.6	U
2-Ethylthiophene	1.2	1.2	U
2,3-Dimethylheptane	1.8	1.8	U

	Lab ID:	**061019-BLK.D**
Hall Environmental Analysis Laborator	**Collected:**	
4901 Hawkins NE	**Received:**	
Albuquerque, NM 87109	**Matrix:**	
Project:	**QC type:**	**Method Blank**
Project #:	**Analyzed:**	**6/10/2019**
Collected by:	**Q Method:**	**060419.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
m-Xylene	0.6	0.6	U
p-Xylene	0.6	0.6	U
4-Methyloctane	1.8	1.8	U
2-Methyloctane	1.8	1.8	U
3-Methyloctane	1.8	1.8	U
Styrene	0.6	0.6	U
o-Xylene	0.6	0.6	U
1-Nonene	1.8	1.8	U
Nonane (nC9)	1.8	1.8	U
Isopropylbenzene (cumene)	0.6	0.6	U
n-Propylbenzene	0.6	0.6	U
1-Methyl-3-ethylbenzene	0.6	0.6	U
1-Methyl-4-ethylbenzene	0.6	0.6	U
1,3,5-Trimethylbenzene (mesitylene)	0.6	0.6	U
1-Methyl-2-ethylbenzene	0.6	0.6	U
1,2,4-Trimethylbenzene	0.6	0.6	U
1-Decene	1.8	1.8	U
Decane (nC10)	1.8	1.8	U
sec-Butylbenzene	0.6	0.6	U
1-Methyl-3-isopropylbenzene (m-cymene)	0.6	0.6	U
1-Methyl-4-isopropylbenzene (p-cymene)	0.6	0.6	U
Indane	0.6	0.6	U
Indene	0.6	0.6	U
1-Methyl-2-isopropybenzene (o-cymene)	0.5	0.5	U
1-Methyl-3-propylbenzene	0.5	0.5	U
1-Methyl-4-propylbenzene	0.6	0.6	U
n-Butylbenzene	0.6	0.6	U
1,3-Dimethyl-5-ethylbenzene	0.6	0.6	U
1,2,diethylbenzene	0.6	0.6	U
1-Methyl-2-propylbenzene	0.6	0.6	U
1,4-Dimethyl-2-ethylbenzene	0.6	0.6	U

	Lab ID:	**061019-BLK.D**
Hall Environmental Analysis Laborator	**Collected:**	
4901 Hawkins NE	**Received:**	
Albuquerque, NM 87109	**Matrix:**	
Project:	**QC type:**	**Method Blank**
Project #:	**Analyzed:**	**6/10/2019**
Collected by:	**Q Method:**	**060419.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
1,3-Dimethyl-4-ethylbenzene	0.6	0.6	U
1,2-Dimethyl-4-ethylbenzene	0.6	0.6	U
1,2-Dimethyl-3-ethylbenzene	0.6	0.6	U
Undecane (nC11)	1.2	1.2	U
1,2,4,5-Tetramethylbenzene	0.6	0.6	U
1,2,3,5-Tetramethylbenzene	0.6	0.6	U
n-Pentylbenzene	1.5	1.5	U
Naphthalene	1.5	1.5	U
Benzothiophene	1.5	1.5	U
Dodecane (nC12)	3.0	3.0	U
1,2,3,4-Tetramethylbenzene	1.5	1.5	U
2-Methylnaphthalene	1.5	1.5	U
1-Methylnaphthalene	1.5	1.5	U
Benzene d-6 (RS)		102	
Toluene-d8 (RS)		84	
Ethylbenzene d10 (RS)		101	

ssRL - Sample Specific Reporting Limit
Results listed as U would have been reported if present at or above the listed ssRL
B - Exceeds PQL - 3 x ssRL
Q - Surrogate recovery limit exceedance
NC - Not calibrated
J - Values greater than the ssRL but less than the PQL.
Note: Extracted by EPA 5030 (Purge and Trap).

US631
061019-BLK.D

Submitted by,
Pace Energy Services, LLC

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 061019-LCS.D
Collected:
Received:
Matrix:

Project:
Project #:
Collected by:

QC type: LCS
Analyzed: 6/10/2019
Q Method: 060419.M

CONSTITUENTS	RESULT ug/L	Recovery %	Spike Conc. ug/L	QUAL
1-Pentene	44.8	88.9	50.4	
Pentane (nC5)	52.7	104.3	50.5	
Cyclopentane	36.0	71.8	50.1	
1-Hexene	40.9	81.7	50.1	
Hexane (nC6)	50.2	100.2	50.1	
Di-isopropyl ether (DIPE)	51.6	205.4	25.1	LQ
Ethyl-tert-butyl ether (ETBE)	23.1	92.0	25.1	
2,4-Dimethylpentane	49.7	99.3	50.0	
Benzene	23.5	93.3	25.2	
Cyclohexane	47.0	93.5	50.3	
Tert-amyl methyl ether (TAME)	20.0	79.3	25.2	
2,2,4-Trimethylpentane (isooctane)	39.3	78.3	50.1	
Heptane (nC7)	35.4	70.2	50.4	
Toluene	23.8	95.5	25.0	
Octane (nC8)	32.5	64.8	50.1	
Ethylbenzene	27.7	110.3	25.1	
m-Xylene	27.1	107.7	25.2	
p-Xylene	28.0	110.9	25.2	
o-Xylene	26.8	106.7	25.1	
Nonane (nC9)	74.9	99.8	75.0	
n-Propylbenzene	23.8	95.0	25.1	
1,3,5-Trimethylbenzene (mesitylene)	19.1	75.8	25.3	
1-Decene	75.6	100.8	75.0	
Decane (nC10)	92.0	122.2	75.3	
n-Butylbenzene	18.6	74.5	25.0	
n-Pentylbenzene	19.1	75.9	25.2	
Dodecane (nC12)	99.6	197.7	50.4	LQ
Benzene d-6 (RS)		96		
Toluene-d8 (RS)		86		
Ethylbenzene d10 (RS)		103		

ssRL - Sample Specific Reporting Limit
Q - Surrogate recovery limit exceedance
I - Matrix Interference
NC - Not calibrated
LQ - Percent difference exceedance (50 - 160)
Note: Extracted by EPA 5030 (Purge and Trap).

US631
061019-LCS.D

Submitted by,
Pace Energy Services, LLC

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: 061019-LCSD.D
Collected:
Received:
Matrix:

Project:
Project #:
Collected by:

QC type: LCSD
Analyzed: 6/10/2019
Q Method: 060419.M

CONSTITUENTS	RESULT ug/L	Recovery %	Spike Conc. ug/L	RPD %	QUAL
1-Pentene	41.6	82.6	50.4	7.3	
Pentane (nC5)	79.3	156.9	50.5	40.3	LQ
Cyclopentane	33.2	66.2	50.1	8.2	
1-Hexene	39.5	78.9	50.1	3.5	
Hexane (nC6)	46.1	91.9	50.1	8.6	
Di-isopropyl ether (DIPE)	50.2	199.6	25.1	2.9	
Ethyl-tert-butyl ether (ETBE)	22.5	89.8	25.1	2.4	
2,4-Dimethylpentane	47.4	94.7	50.0	4.8	
Benzene	22.6	89.5	25.2	4.1	
Cyclohexane	45.0	89.6	50.3	4.2	
Tert-amyl methyl ether (TAME)	19.5	77.3	25.2	2.6	
2,2,4-Trimethylpentane (isooctane)	36.9	73.6	50.1	6.3	
Heptane (nC7)	31.4	62.4	50.4	11.8	
Toluene	22.8	91.4	25.0	4.4	
Octane (nC8)	28.5	56.9	50.1	12.9	
Ethylbenzene	26.8	106.7	25.1	3.3	
m-Xylene	25.7	102.1	25.2	5.4	
p-Xylene	27.5	109.1	25.2	1.6	
o-Xylene	25.8	102.7	25.1	3.8	
Nonane (nC9)	69.3	92.4	75.0	7.7	
n-Propylbenzene	23.2	92.6	25.1	2.5	
1,3,5-Trimethylbenzene (mesitylene)	18.8	74.5	25.3	1.7	
1-Decene	71.3	95.1	75.0	5.8	
Decane (nC10)	86.0	114.3	75.3	6.7	
n-Butylbenzene	17.9	71.7	25.0	3.9	
n-Pentylbenzene	18.2	72.2	25.2	4.9	
Dodecane (nC12)	100.6	199.7	50.4	1.0	
Benzene d-6 (RS)		95			
Toluene-d8 (RS)		85			
Ethylbenzene d10 (RS)		103			

ssRL - Sample Specific Reporting Limit
Q - Surrogate recovery limit exceedance
I - Matrix Interference

NC - Not calibrated
RQ - Percent difference exceeded (15)
LQ - Percent difference exceedance (50 - 160)
Note: Extracted by EPA 5030 (Purge and Trap).

US631
061019-LCSD.D

Submitted by,
Pace Energy Services, LLC

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **061019-SRM.D**
Collected:
Received:
Matrix: **Product/Soil**

Project:
Project #:
Collected by:

QC type: **NIST SRM 2295**

Q Method: **060419.M**

CONSTITUENTS	RESULT mg/kg	ssRL mg/kg	D Flag	NIST Result mg/kg	Passing Diff. %	Actual Diff. %	QUAL
1-Pentene	3998.3	601.0		7400.0	45	59.7	SQ
Pentane (nC5)	29453.9	601.0		35700.0	45	19.2	
Methyl-tert-butyl ether (MTBE)	145410.7	4807.7	D	145400.0	45	0.0	
Hexane (nC6)	35178.6	601.0		37000.0	45	5.0	
2,4-Dimethylpentane	77188.9	601.0		79000.0	45	2.3	
Benzene	9807.2	601.0		9900.0	45	0.9	
Thiophene	250.1	601.0		260.0	45	3.9	
Cyclohexane	79078.7	601.0		88400.0	45	11.1	
2,2,4-Trimethylpentane (isooctane)	76146.5	4807.7	D	118000.0	45	43.1	
1-Heptene	13684.4	601.0		15000.0	45	9.2	
Heptane (nC7)	59254.1	601.0		77700.0	45	26.9	
Toluene	80092.3	4807.7	D	78900.0	45	1.5	
3-Methylthiophene	269.0	601.0		300.0	45	10.9	
Octane (nC8)	58959.0	601.0		79800.0	45	30.0	
Ethylbenzene	25279.4	601.0		19600.0	45	25.3	
m,p-Xylenes	46103.9	4807.7	D	58700.0	45	24.0	
o-Xylene	26438.5	601.0		19700.0	45	29.2	
1,3,5-Trimethylbenzene (mesitylene)	17171.0	601.0		19700.0	45	13.7	
1,2,4-Trimethylbenzene	21763.7	601.0		20010.0	45	8.4	
Decane (nC10)	63486.8	601.0		41400.0	45	42.1	
1,2,4,5-Tetramethylbenzene	9026.7	601.0		9600.0	45	6.2	
Naphthalene	10713.7	601.0		11500.0	45	7.1	
Benzothiophene	361.0	601.0		440.0	45	19.7	
Benzene d-6 (RS)	94						
Toluene-d8 (RS)	86						
Ethylbenzene d10 (RS)	104						

ssRL - Sample Specific Reporting Limit
D - Secondary dilution perfomed
Q - Surrogate recovery limit exceedance
SQ - SRM percent difference exceeded
I - Matrix Interference
NC - Not calibrated
Note: Extracted by EPA 5030 (Purge and Trap).

US631
061019-SRM.D

Submitted by,
Pace Energy Services, LLC

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **10ppb C3-C12 CCV**
Collected:
Received:
Matrix: **Water**

Project:
Project #:
Collected by:

QC type: **CCV**

Q Method: **060419.M**

CONSTITUENTS	AMOUNT ng/ml	Calc. ng/ml	Dev. %	RRF Q
Isopentane (2-Methylbutane)	24.2	28.3	14.4	
1-Pentene	24.1	26.6	9.5	
2-Methyl-1-butene	24.1	40.7	40.8	
Pentane (nC5)	36.2	62.9	42.4	
trans-2-pentene	24.2	51.5	52.9	CQ
cis-2-pentene	36.3	80.5	54.9	CQ
Cyclopentane	12.1	17.2	29.8	
2,3-Dimethylbutane	12.0	17.2	30.1	
2-Methylpentane	24.1	34.1	29.4	
Methyl-tert-butyl ether (MTBE)	12.0	15.5	22.7	
3-Methylpentane	36.3	46.0	21.2	
1-Hexene	36.0	33.5	7.5	
Hexane (nC6)	36.0	36.6	1.5	
Di-isopropyl ether (DIPE)	24.1	24.2	0.5	
Ethyl-tert-butyl ether (ETBE)	12.1	11.4	6.3	
Methylcyclopentane	24.0	24.0	0.3	
2,4-Dimethylpentane	36.2	37.2	2.5	
1,2-Dichloroethane (EDC)	36.2	36.7	1.4	
Benzene	24.0	23.4	2.8	
Thiophene	36.1	36.6	1.4	
Cyclohexane	36.1	36.4	0.8	
2-Methylhexane	36.2	36.4	0.6	
2,3-Dimethylpentane	36.3	27.2	33.7	
Tert-amyl methyl ether (TAME)	24.2	21.5	12.5	
3-Methylhexane	35.9	26.9	33.3	
2,2,4-Trimethylpentane (isooctane)	36.1	30.7	17.6	
1-Heptene	36.2	25.7	40.8	
Heptane (nC7)	36.1	26.2	38.2	
Methylcyclohexane	36.2	33.1	9.5	
2,5-Dimethylhexane	36.2	27.7	30.7	
2,2,3-Trimethylpentane	12.0	11.3	6.8	
2,4-Dimethylhexane	36.2	28.4	27.2	
2,3,4-Trimethylpentane	36.1	31.2	15.8	

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **10ppb C3-C12 CCV**
Collected:
Received:
Matrix: **Water**

Project:
Project #:
Collected by:

QC type: **CCV**

Q Method: **060419.M**

CONSTITUENTS	AMOUNT ng/ml	Calc. ng/ml	Dev. %	RRF Q
2,3,3-Trimethylpentane	36.2	31.3	15.6	
Toluene	12.1	12.5	3.0	
2-Methylthiophene	36.2	38.7	6.5	
2,3-Dimethylhexane	37.0	27.4	35.1	
3-Methylthiophene	36.1	39.3	8.2	
2-Methylheptane	36.2	26.2	38.2	
3-Methylheptane	36.2	27.7	30.8	
3-Ethylhexane	36.1	41.2	12.5	
1,2-Dibromoethane (EDB)	36.1	36.3	0.4	
1-Octene	36.1	26.1	38.7	
Octane (nC8)	36.2	25.8	40.4	
Ethylbenzene	12.0	13.1	8.0	
2-Ethylthiophene	24.2	27.8	13.0	
m-Xylene	12.0	12.1	0.2	
p-Xylene	12.1	12.9	5.9	
Styrene	12.0	9.4	28.9	
o-Xylene	12.1	13.2	8.3	
1-Nonene	36.2	30.4	19.0	
Nonane (nC9)	36.1	40.5	10.7	
Isopropylbenzene (cumene)	12.1	13.0	6.7	
n-Propylbenzene	12.0	10.3	17.3	
1-Methyl-3-ethylbenzene	12.0	9.7	24.8	
1-Methyl-4-ethylbenzene	12.0	9.9	21.3	
1,3,5-Trimethylbenzene (mesitylene)	12.0	8.6	38.9	
1-Methyl-2-ethylbenzene	12.0	9.1	31.4	
1,2,4-Trimethylbenzene	12.0	11.8	2.0	
1-Decene	36.1	42.4	15.1	
Decane (nC10)	36.1	39.1	7.7	
sec-Butylbenzene	12.0	13.2	8.7	
1-Methyl-3-isopropylbenzene (m-cymene)	12.0	12.9	6.7	
1-Methyl-4-isopropylbenzene (p-cymene)	12.0	13.4	9.8	

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **10ppb C3-C12 CCV**
Collected:
Received:
Matrix: **Water**

Project:
Project #:
Collected by:

QC type: **CCV**
Q Method: **060419.M**

CONSTITUENTS	AMOUNT ng/ml	Calc. ng/ml	Dev. %	RRF Q
Indane	12.0	13.3	9.4	
Indene	12.0	10.1	19.1	
1-Methyl-2-isopropybenzene (o-cymene)	12.0	13.1	8.3	
1-Methyl-3-propylbenzene	12.0	12.0	0.1	
1-Methyl-4-propylbenzene	12.1	12.5	3.8	
n-Butylbenzene	12.0	11.4	5.6	
1,3-Dimethyl-5-ethylbenzene	12.0	12.9	6.9	
1,2,diethylbenzene	12.0	12.4	2.8	
1-Methyl-2-propylbenzene	12.1	13.5	10.7	
1,4-Dimethyl-2-ethylbenzene	12.1	11.8	2.2	
1,3-Dimethyl-4-ethylbenzene	12.0	12.4	3.5	
1,2-Dimethyl-4-ethylbenzene	12.1	12.2	0.7	
1,2-Dimethyl-3-ethylbenzene	12.1	11.7	3.3	
Undecane (nC11)	24.1	43.0	43.9	
1,2,4,5-Tetramethylbenzene	12.0	11.8	1.9	
n-Pentylbenzene	12.1	10.1	19.3	
Naphthalene	12.1	11.2	8.0	
Benzothiophene	12.0	10.3	17.2	
Dodecane (nC12)	24.2	55.6	56.5	CQ
2-Methylnaphthalene	12.0	10.1	19.1	
1-Methylnaphthalene	12.1	10.7	13.3	
Benzene d-6 (RS)	10.0	10.2	1.7	
Toluene-d8 (RS)	10.0	10.0	0.1	
Ethylbenzene d10 (RS)	10.0	10.1	0.9	

CQ - Continuing calibration % difference exceeded
Note: Extracted by EPA 5030 (Purge and Trap).

US631
061019-CCV.D

Submitted by,
Pace Energy Services, LLC

Oxygenated Gasoline Blending Agents
by GC/MS - SIM mode

MtBE, DIPE, EtBE, tAME, tBA, and ethanol

Jackie Bolte
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **30486-1**
Collected: **5/23/2019**
Received: **5/30/2019**
Matrix: **Product**

Project:

Client ID: **1905C20-010B BW-5**

Project #:
Collected by: 0

Analyzed: **6/14/2019**
Q Method: **EPA 1624 GC/MS**

CONSTITUENT	ssRL mg/Kg	RESULT mg/Kg
Diisopropyl Ether (DIPE)	20.0	U
Methyl-t-Butyl Ether (MTBE)	20.0	<20
Ethyl-t-Butyl Ether (ETBE)	20.0	U
t-Amyl Methyl Ether (TAME)	20.0	U
t-Butyl Alcohol (TBA)	20.0	U
Diethyl ether	20.0	U
Ethanol	20.0	<20
MTBE-d3 (Surr)		96.54%

ssRL - Sample Specific Reporting Limit
U: Not Detected
J: value below ssRL

061419-01
CJS

Organic Lead Speciation
by GC/ECD

EDB, TML, TMEL, DMDEL, MTEL, TEL

Jackie Bolte
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Lab ID: **30486-1**
Collected: **5/23/19**
Received: **5/30/19**
Matrix: **Product**

Project: **Forensics Analysis**
Client ID: **BW-5**

Project #: **1905C20**
Collected b
Analyzed: **6/18/2019**
Q Method: **GC/ECD**

Constituents	ssRL mg/kg	PQL mg/kg	Result mg/kg	Blank mg/L
Ethylene Dibromide	0.6	1.9	268.3	<0.1
Tetramethyl Lead	6.4	19.3	U	<1.0
Trimethylethyl Lead	6.4	19.3	U	<1.0
Dimethyldiethyl Lead	6.4	19.3	U	<1.0
Methyltriethyl Lead	6.4	19.3	38.6	<1.0
Tetraethyl Lead	6.4	19.3	U	<1.0
Methylcyclopentadienyl Manganese Tricarbonyl	0.6	1.9	U	<1.0

ssRL - Sample Specific Reporting Limit
U: Not detected
J: value greater than the ssRL but less than the PQL (3xssRL)
Trace detection: If analyte detected below ssRL then < ssRL will be shown

30486-1e.xls
DR

QUALITY ASSURANCE REPORT

Jackie Bolte
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109

Project # **1905C20**
Analyzed: **6/18/2019**
Method: **GC/ECD**

QA DATA FOR EDB, TEL and MMT

ANALYTES	RRF	RRF_D	RPD	ACCEPTANCE LIMIT %
Ethylene Dibromide	0.529085	0.529085	0.00	±15
Tetraethyl Lead	0.015639	0.015639	0.00	±15
MMT	0.055502	0.055502	0.00	±15

RRF = Mean relative response factor from 6 point calibration
RRF_D= Daily calibration standard relative response factor
RPD = Relative Percent Difference
QPB061819DR.M

30486-1e.xls
DR

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR: **Pace Analytical-PA**	COMPANY: **Pace Analytical Services, Inc.**		PHONE: **(724) 850-5600**	FAX: **(724) 850-5601**	
ADDRESS: **1638 Roseytown Rd Ste 2,3,4**			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: **Greensburg, PA 15601**					

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1905C20-010B	BW-5	VOAU	Oil	5/23/2019 6:05:00 AM	4	See Attached List

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **5/23/2019**	Time: **3:39 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Tiered Petroleum Forensics Information and Cost - 2017

	ANALYSIS	MATRIX	METHOD	Reporting Features	PURPOSE	COST
Tier I Petro Screen	C3-C36 Whole Oil Molecular Characterization Gas Chromatography "Fingerprint" by GC/FID	Product	Modified ASTM D3328 (GC/FID)	Semi-quantitative screen of: • Gasoline range PIANO; • Semi-quant screen of kerosene range to residual range hydrocarbons (select n-paraffins and isoparaffins); GC/FID chromatogram	Assists in general identification of a) refined petroleum or crude oil types present and b) general weathering attributes of the gasoline range to residual range petroleum (whole oil). Subsequent tiers of investigation will likely be needed to conduct more detailed and conclusive source and age determinations.	$300
	8015 Nonhalogenated Organics	Water, Soil, Sediment	Modified EPA 8015C (GC/FID)	Quantitative determination of: • C8-C40 n-paraffins; • Select isoprenoids -Farnesane, 2,6,10-trimethyltridecane, pristane, phytane; • GC/FID chromatogram	Assists in general identification of types of refined petroleum or crude oils present and general weathering attributes of the semi-volatile range petroleum. Subsequent tiers of investigation will likely be needed to conduct more detailed and conclusive source and age determinations.	$210
Tier II (VOC)	C3-C12 PIANO Quantitative Molecular Characterization by GC/MS	Water, Soil, Product	EPA 8260 Mod. (GC/MS full scan)	Concentrations of: • 108 PIANO compounds; • 4 oxygenate additives –MTBE, ETBE, TAME, and DIPE; • 2 Lead scavengers – EDC, EDB; • 6 thiophene isomers; • MMT; General panel of diagnostic ratios and percentages; Histogram bar chart	Assists in the detailed characterization of gasoline range petroleum types – gasoline, refinery feedstocks, or condensate. These data are essential for gasoline source and age investigations.	$450
	Oxygenated Gasoline Blending Agents	Product	EPA 1624 Mod. (GC/MS SIM)	Concentrations of oxygenated blending agents: • MTBE, DIPE, ETBE, TAME, TBA, ethanol	Quantifies oxygenated additives in gasoline. Produces data that may be critical for age constraining and source investigations of gasoline.	$250
	EDB and Organic Lead Concentrations	Product	EPA 8080 Mod. (GC/ECD)	Concentrations of 5 alkyl lead compounds & lead scavenger: • TEL, MTEL, DEDML, TMEL, TML, EDB	Quantifies the five alkyl lead compounds added to gasoline as well as the lead scavenger, EDB. Produces data that may be critical for age constraining and source investigations of gasoline.	$250

Cooler Receipt Form

Client Name: _____ Project: _____ Lab Work Order: _____

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other:_____ Air bill Present: Yes No

Tracking Number:_____

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other:_____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature:_____ Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments:_____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags			✓	
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used			✓	
Are containers properly preserved for the requested testing? (as labeled)			✓	
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?			✓	

Comments:_____

_____

Cooler contents examined/received by :_____ Date:_____

Project Manager Review : JW Date: 6.30.19

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**
24-Jun-19

Client: Daniel B. Stephens & Assoc.
Project: Former Y Station

Sample ID: **MB-45261**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **45261**	RunNo: **60333**
Prep Date: **5/31/2019**	Analysis Date: **5/31/2019**	SeqNo: **2039707** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID: **LCS-45261**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **45261**	RunNo: **60333**
Prep Date: **5/31/2019**	Analysis Date: **5/31/2019**	SeqNo: **2039708** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.088	0.010	0.1000	0	88.2	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 Quanitative 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 Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**
24-Jun-19

Client: Daniel B. Stephens & Assoc.
Project: Former Y Station

Sample ID: **LCS-45476** SampType: **LCS** TestCode: **DRO by 8015D**
Client ID: **LCSW** Batch ID: **45476** RunNo: **60512**
Prep Date: **6/10/2019** Analysis Date: **6/11/2019** SeqNo: **2047840** Units: **wt%**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.51	0.10	0.5000	0	102	70	130			
Surr: DNOP	0.038		0.05000		75.7	57.9	125			

Sample ID: **LCSD-45476** SampType: **LCSD** TestCode: **DRO by 8015D**
Client ID: **LCSS02** Batch ID: **45476** RunNo: **60512**
Prep Date: **6/10/2019** Analysis Date: **6/11/2019** SeqNo: **2047841** Units: **wt%**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.50	0.10	0.5000	0	101	70	130	1.07	20	
Surr: DNOP	0.037		0.05000		74.8	57.9	125	0	0	

Sample ID: **MB-45476** SampType: **MBLK** TestCode: **DRO by 8015D**
Client ID: **PBW** Batch ID: **45476** RunNo: **60512**
Prep Date: **6/10/2019** Analysis Date: **6/11/2019** SeqNo: **2047842** Units: **wt%**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.10								
Motor Oil Range Organics (MRO)	ND	0.50								
Surr: DNOP	0.080		0.1000		80.1	57.9	125			

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 Quanitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**

24-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y Station

Sample ID: **MB-45182**	SampType: **MBLK**	TestCode: **GRO by 8015D**							
Client ID: **PBW**	Batch ID: **45182**	RunNo: **60215**							
Prep Date: **5/24/2019**	Analysis Date: **5/28/2019**	SeqNo: **2034099**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	2.5								
Surr: BFB	910		1000		90.7	79.7	123			

Sample ID: **LCS-45182**	SampType: **LCS**	TestCode: **GRO by 8015D**							
Client ID: **LCSW**	Batch ID: **45182**	RunNo: **60215**							
Prep Date: **5/24/2019**	Analysis Date: **5/28/2019**	SeqNo: **2034100**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	2.5	25.00	0	89.6	80.4	125			
Surr: BFB	1000		1000		99.8	79.7	123			

Sample ID: **LCSD-45182**	SampType: **LCSD**	TestCode: **GRO by 8015D**							
Client ID: **LCSS02**	Batch ID: **45182**	RunNo: **60215**							
Prep Date: **5/24/2019**	Analysis Date: **5/28/2019**	SeqNo: **2034102**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	2.5	25.00	0	95.8	80.4	125	6.77	20	
Surr: BFB	1000		1000		103	79.7	123	0	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 Quanitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**

24-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y Station

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **LCSW** Batch ID: **R60275** RunNo: **60275**

Prep Date: Analysis Date: **5/30/2019** SeqNo: **2038342** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.7	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Chlorobenzene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	94.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	87.0	70	130			
Surr: 1,2-Dichloroethane-d4	8.1		10.00		81.0	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.4	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130			
Surr: Toluene-d8	8.6		10.00		85.8	70	130			

Sample ID: **1905c20-001a ms** SampType: **MS** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **BW-2** Batch ID: **R60275** RunNo: **60275**

Prep Date: Analysis Date: **5/30/2019** SeqNo: **2038348** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.1	70	130			
Toluene	18	1.0	20.00	0.4812	89.9	70	130			
Chlorobenzene	18	1.0	20.00	0	90.9	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	91.4	67.6	130			
Trichloroethene (TCE)	17	1.0	20.00	0	84.8	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		83.5	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.2	70	130			
Surr: Toluene-d8	8.3		10.00		83.4	70	130			

Sample ID: **1905c20-001a msd** SampType: **MSD** TestCode: **EPA Method 8260B: VOLATILES**

Client ID: **BW-2** Batch ID: **R60275** RunNo: **60275**

Prep Date: Analysis Date: **5/30/2019** SeqNo: **2038349** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.4	70	130	1.89	20	
Toluene	18	1.0	20.00	0.4812	89.8	70	130	0.0564	20	
Chlorobenzene	18	1.0	20.00	0	91.3	70	130	0.491	20	
1,1-Dichloroethene	18	1.0	20.00	0	88.3	67.6	130	3.49	20	
Trichloroethene (TCE)	17	1.0	20.00	0	83.0	70	130	2.21	20	
Surr: 1,2-Dichloroethane-d4	8.1		10.00		81.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.0		10.00		90.1	70	130	0	0	
Surr: Dibromofluoromethane	9.6		10.00		96.1	70	130	0	0	
Surr: Toluene-d8	8.6		10.00		86.2	70	130	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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**
24-Jun-19

Client: Daniel B. Stephens & Assoc.
Project: Former Y Station

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60275**	RunNo: **60275**
Prep Date:	Analysis Date: **5/30/2019**	SeqNo: **2038359** 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								
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								

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 Quanitative 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 Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**
24-Jun-19

Client: Daniel B. Stephens & Assoc.
Project: Former Y Station

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60275**	RunNo: **60275**
Prep Date:	Analysis Date: **5/30/2019**	SeqNo: **2038359** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		81.5	70	130			
Surr: 4-Bromofluorobenzene	8.8		10.00		88.5	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.9	70	130			
Surr: Toluene-d8	8.5		10.00		84.6	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R60301**	RunNo: **60301**
Prep Date:	Analysis Date: **5/31/2019**	SeqNo: **2039984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.9	70	130			
Surr: 1,2-Dichloroethane-d4	7.9		10.00		79.2	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.8	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 Quanitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905C20**

24-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y Station

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R60301**	RunNo: **60301**
Prep Date:	Analysis Date: **5/31/2019**	SeqNo: **2039984** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	9.3		10.00		92.5	70	130			
Surr: Toluene-d8	8.4		10.00		83.5	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60301**	RunNo: **60301**
Prep Date:	Analysis Date: **5/31/2019**	SeqNo: **2039992** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	7.9		10.00		78.5	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.4	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	8.3		10.00		83.5	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 Quanitative 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 Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: **DBS** Work Order Number: **1905C20** RcptNo: **1**

Received By: **Isaiah Ortiz** **5/23/2019 2:30:00 PM** I-Ox

Completed By: **Leah Baca** **5/23/2019 3:16:48 PM** Leah S Baca

Reviewed By: LB 5/24/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑ JJC 5-24-19	No ☑	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JJC 5-24-19

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified:	Thomas Hopkins	Date	5/28/19
By Whom:	Leah Baca	Via:	☒ eMail ☒ Phone ☐ Fax ☒ In Person
Regarding:	Missing BW-8		
Client Instructions:	Sample could not be located - He will resample		

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.0	Good	Yes			

Chain-of-Custody Record

Client: Daniel B. Stephens

Mailing Address: 6020 Academy

Phone #: 505-702-6947

email or Fax#: ~~hopkins@~~ thopkins@geo-logic.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Former Y Station

Project #: DB18.1157

Project Manager: Tom Golden

Sampler: Thomas Hopkins

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 4.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1905C20	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	504.1	PTAH	Oxygenates	8015B	Organic Lead	EDB
5/21/19	8:25	water	BW-2	glass	HgCl2/TMB's SO_4	-001								X			X					
5/21	12:00	water	BW-3	glass	"	-002								X			X					
5/21	14:30	"	BW-6	"	"	-003								X			X					
5/21	16:30	"	BW-10	"	"	-004								X			X					
5/21	17:55	"	BW-9	"	"	-005								X			X					
5/22/19	8:30	"	BW-4	"	"	-006								X			X					
5/22	9:55	"	BW-1	"	"	-007								X			X					
5/22	11:40	"	BW-8	"	"	-008								X			X					
5/22	17:15	"	BW-7	"	"	-009								X			X					
5/23	6:05	"	BW-5	glass/plastic	None	-010												X	X	X	X	X
			Trip Blank	2/1	HgCl2/	-011																

Did not receive BW-8 on 5/23/19

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/23/19	2:30			COO	5/23/19	1430
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:

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

June 07, 2019

Tom Golden

Daniel B. Stephens & Assoc.
6020 Academy NE Suite 100
Albuquerque, NM 87109
TEL: (505) 822-9400
FAX (505) 822-8877

RE: Former Y OrderNo.: 1905E74

Dear Tom Golden:

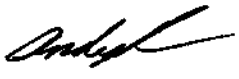
Hall Environmental Analysis Laboratory received 2 sample(s) on 5/31/2019 for the analyses presented in the following report.

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 #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-8
Project: Former Y
Collection Date: 5/30/2019 2:00:00 PM
Lab ID: 1905E74-001 **Matrix:** AQUEOUS **Received Date:** 5/31/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	9.1	0.95		µg/L	100	6/4/2019 11:30:57 AM	45318
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	4600	100		µg/L	100	6/5/2019 1:09:00 PM	R60430
Toluene	4200	100		µg/L	100	6/5/2019 1:09:00 PM	R60430
Ethylbenzene	390	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2,4-Trimethylbenzene	200	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,3,5-Trimethylbenzene	67	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2-Dichloroethane (EDC)	290	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2-Dibromoethane (EDB)	13	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Naphthalene	67	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
1-Methylnaphthalene	ND	20		µg/L	5	6/3/2019 8:44:00 PM	R60364
2-Methylnaphthalene	ND	20		µg/L	5	6/3/2019 8:44:00 PM	R60364
Acetone	390	50		µg/L	5	6/3/2019 8:44:00 PM	R60364
Bromobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Bromodichloromethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Bromoform	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Bromomethane	ND	15		µg/L	5	6/3/2019 8:44:00 PM	R60364
2-Butanone	400	50		µg/L	5	6/3/2019 8:44:00 PM	R60364
Carbon disulfide	ND	50		µg/L	5	6/3/2019 8:44:00 PM	R60364
Carbon Tetrachloride	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Chlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Chloroethane	ND	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
Chloroform	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Chloromethane	ND	15		µg/L	5	6/3/2019 8:44:00 PM	R60364
2-Chlorotoluene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
4-Chlorotoluene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
cis-1,2-DCE	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
Dibromochloromethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Dibromomethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2-Dichlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,3-Dichlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,4-Dichlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Dichlorodifluoromethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1-Dichloroethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1-Dichloroethene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2-Dichloropropane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364

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

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 Quanitative 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 Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: BW-8
Project: Former Y
Collection Date: 5/30/2019 2:00:00 PM
Lab ID: 1905E74-001 **Matrix:** AQUEOUS **Received Date:** 5/31/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
2,2-Dichloropropane	ND	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1-Dichloropropene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Hexachlorobutadiene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
2-Hexanone	250	50		µg/L	5	6/3/2019 8:44:00 PM	R60364
Isopropylbenzene	16	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
4-Isopropyltoluene	10	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
4-Methyl-2-pentanone	ND	50		µg/L	5	6/3/2019 8:44:00 PM	R60364
Methylene Chloride	ND	15		µg/L	5	6/3/2019 8:44:00 PM	R60364
n-Butylbenzene	ND	15		µg/L	5	6/3/2019 8:44:00 PM	R60364
n-Propylbenzene	40	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
sec-Butylbenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Styrene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
tert-Butylbenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
trans-1,2-DCE	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1,1-Trichloroethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,1,2-Trichloroethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Trichloroethene (TCE)	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Trichlorofluoromethane	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
1,2,3-Trichloropropane	ND	10		µg/L	5	6/3/2019 8:44:00 PM	R60364
Vinyl chloride	ND	5.0		µg/L	5	6/3/2019 8:44:00 PM	R60364
Xylenes, Total	1200	7.5		µg/L	5	6/3/2019 8:44:00 PM	R60364
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	5	6/3/2019 8:44:00 PM	R60364
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	5	6/3/2019 8:44:00 PM	R60364
Surr: Dibromofluoromethane	97.3	70-130		%Rec	5	6/3/2019 8:44:00 PM	R60364
Surr: Toluene-d8	94.0	70-130		%Rec	5	6/3/2019 8:44:00 PM	R60364

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Trip Blank
Project: Former Y **Collection Date:**
Lab ID: 1905E74-002 **Matrix:** AQUEOUS **Received Date:** 5/31/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0093		µg/L	1	6/3/2019 10:12:05 PM	45318
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Toluene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Ethylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Naphthalene	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
2-Methylnaphthalene	ND	4.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Acetone	ND	10		µg/L	1	6/3/2019 9:08:00 PM	R60364
Bromobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Bromodichloromethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Bromoform	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Bromomethane	ND	3.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
2-Butanone	ND	10		µg/L	1	6/3/2019 9:08:00 PM	R60364
Carbon disulfide	ND	10		µg/L	1	6/3/2019 9:08:00 PM	R60364
Carbon Tetrachloride	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Chlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Chloroethane	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Chloroform	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Chloromethane	ND	3.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
2-Chlorotoluene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
4-Chlorotoluene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
cis-1,2-DCE	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Dibromochloromethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Dibromomethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,3-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,4-Dichlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Dichlorodifluoromethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1-Dichloroethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1-Dichloroethene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2-Dichloropropane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364

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 Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: Trip Blank
Project: Former Y
Collection Date:
Lab ID: 1905E74-002
Matrix: AQUEOUS
Received Date: 5/31/2019 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichloropropane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
2,2-Dichloropropane	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1-Dichloropropene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Hexachlorobutadiene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
2-Hexanone	ND	10		µg/L	1	6/3/2019 9:08:00 PM	R60364
Isopropylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
4-Isopropyltoluene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
4-Methyl-2-pentanone	ND	10		µg/L	1	6/3/2019 9:08:00 PM	R60364
Methylene Chloride	ND	3.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
n-Butylbenzene	ND	3.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
n-Propylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
sec-Butylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Styrene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
tert-Butylbenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
trans-1,2-DCE	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Trichlorofluoromethane	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Vinyl chloride	ND	1.0		µg/L	1	6/3/2019 9:08:00 PM	R60364
Xylenes, Total	ND	1.5		µg/L	1	6/3/2019 9:08:00 PM	R60364
Surr: 1,2-Dichloroethane-d4	121	70-130		%Rec	1	6/3/2019 9:08:00 PM	R60364
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	6/3/2019 9:08:00 PM	R60364
Surr: Dibromofluoromethane	107	70-130		%Rec	1	6/3/2019 9:08:00 PM	R60364
Surr: Toluene-d8	93.7	70-130		%Rec	1	6/3/2019 9:08:00 PM	R60364

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905E74**

07-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y

Sample ID	**LCS-45318**	SampType:	**LCS**		TestCode:	**EPA Method 8011/504.1: EDB**				
Client ID:	**LCSW**	Batch ID:	**45318**		RunNo:	**60340**				
Prep Date:	**6/3/2019**	Analysis Date:	**6/3/2019**		SeqNo:	**2040396**	Units:	**µg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.093	0.010	0.1000	0	92.9	70	130			

Sample ID	**MB-45318**	SampType:	**MBLK**		TestCode:	**EPA Method 8011/504.1: EDB**				
Client ID:	**PBW**	Batch ID:	**45318**		RunNo:	**60340**				
Prep Date:	**6/3/2019**	Analysis Date:	**6/3/2019**		SeqNo:	**2040402**	Units:	**µg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905E74**

07-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R60364**	RunNo: **60364**
Prep Date:	Analysis Date: **6/3/2019**	SeqNo: **2041250** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
Chlorobenzene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	103	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	98.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		114	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.3		10.00		93.3	70	130			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60364**	RunNo: **60364**
Prep Date:	Analysis Date: **6/3/2019**	SeqNo: **2041253** 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 Quanitative 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 Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1905E74**
07-Jun-19

Client: Daniel B. Stephens & Assoc.
Project: Former Y

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60364**	RunNo: **60364**
Prep Date:	Analysis Date: **6/3/2019**	SeqNo: **2041253** 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1905E74**

07-Jun-19

Client: Daniel B. Stephens & Assoc.

Project: Former Y

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60364**	RunNo: **60364**
Prep Date:	Analysis Date: **6/3/2019**	SeqNo: **2041253** 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	12		10.00		118	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.3		10.00		92.7	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R60430**	RunNo: **60430**
Prep Date:	Analysis Date: **6/5/2019**	SeqNo: **2043731** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	12		10.00		117	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.3	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R60430**	RunNo: **60430**
Prep Date:	Analysis Date: **6/5/2019**	SeqNo: **2043732** 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								
Surr: 1,2-Dichloroethane-d4	12		10.00		116	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.9	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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 Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: DBS | Work Order Number: 1905E74 | RcptNo: 1

Received By: Anne Thorne 5/31/2019 8:10:00 AM

Completed By: Isaiah Ortiz 5/31/2019 9:39:32 AM

Reviewed By: JO 5/31/19

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JC 5-31-19

Special Handling (if applicable)

15. 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:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Not Present			

Chain-of-Custody Record

Client: Daniel B. Stephens

Mailing Address:

Phone #: 505-702-6947

email or Fax#: thopkins@geo-logic.com

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Former Y

Project #: DB18.1157.00

Project Manager: Tom Golden

Sampler: T. Hopkins

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 1.1°

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1905E74	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/30/19	14:00	H2O	BW-8	4 glass	Thiosol, HCl	-001				X				X		
			Trip Blank							X				X		

Date:	Time:	Relinquished by:	Received by:	Via	Date	Time
5/31/19	8:10				05/31/19	0810
Date	Time:	Relinquished by:	Received by:	Via	Date	Time

Remarks:

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

Analytical Report
Lab Order **1906493**
Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-11
Project: Former Y Station
Collection Date: 6/7/2019 4:55:00 PM
Lab ID: 1906493-001 **Matrix:** AQUEOUS **Received Date:** 6/10/2019 12:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	0.13	0.10		mg/L	2	6/11/2019 9:31:33 PM	G60568
Surr: BFB	103	70-130		%Rec	2	6/11/2019 9:31:33 PM	G60568
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	0.014	0.0094		µg/L	1	6/11/2019 9:16:19 PM	45489
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/12/2019 8:56:41 AM	45521
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/12/2019 8:56:41 AM	45521
Surr: DNOP	107	70-130		%Rec	1	6/12/2019 8:56:41 AM	45521
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	64	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Toluene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Ethylbenzene	4.3	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2,4-Trimethylbenzene	2.0	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2-Dichloroethane (EDC)	5.2	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Naphthalene	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1-Methylnaphthalene	ND	4.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
2-Methylnaphthalene	ND	4.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Acetone	14	10		µg/L	1	6/11/2019 12:06:31 PM	W60553
Bromobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Bromodichloromethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Bromoform	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Bromomethane	ND	3.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
2-Butanone	ND	10		µg/L	1	6/11/2019 12:06:31 PM	W60553
Carbon disulfide	ND	10		µg/L	1	6/11/2019 12:06:31 PM	W60553
Carbon Tetrachloride	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Chlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Chloroethane	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Chloroform	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Chloromethane	ND	3.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
2-Chlorotoluene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
4-Chlorotoluene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
cis-1,2-DCE	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Dibromochloromethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553

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

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative 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 Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** MW-11
Project: Former Y Station **Collection Date:** 6/7/2019 4:55:00 PM
Lab ID: 1906493-001 **Matrix:** AQUEOUS **Received Date:** 6/10/2019 12:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Dibromomethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,3-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,4-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Dichlorodifluoromethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1-Dichloroethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1-Dichloroethene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2-Dichloropropane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,3-Dichloropropane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
2,2-Dichloropropane	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Hexachlorobutadiene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
2-Hexanone	ND	10		µg/L	1	6/11/2019 12:06:31 PM	W60553
Isopropylbenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
4-Isopropyltoluene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
4-Methyl-2-pentanone	ND	10		µg/L	1	6/11/2019 12:06:31 PM	W60553
Methylene Chloride	ND	3.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
n-Butylbenzene	ND	3.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
n-Propylbenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
sec-Butylbenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Styrene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
tert-Butylbenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
trans-1,2-DCE	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Trichlorofluoromethane	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Vinyl chloride	ND	1.0		µg/L	1	6/11/2019 12:06:31 PM	W60553
Xylenes, Total	16	1.5		µg/L	1	6/11/2019 12:06:31 PM	W60553
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%Rec	1	6/11/2019 12:06:31 PM	W60553
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	6/11/2019 12:06:31 PM	W60553
Surr: Dibromofluoromethane	82.0	70-130		%Rec	1	6/11/2019 12:06:31 PM	W60553

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc.
Client Sample ID: MW-11
Project: Former Y Station
Collection Date: 6/7/2019 4:55:00 PM
Lab ID: 1906493-001
Matrix: AQUEOUS
Received Date: 6/10/2019 12:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Surr: Toluene-d8	94.6	70-130		%Rec	1	6/11/2019 12:06:31 PM	W60553

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Trip Blank
Project: Former Y Station **Collection Date:**
Lab ID: 1906493-002 **Matrix:** TRIP BLANK **Received Date:** 6/10/2019 12:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **CLP**	
1,2-Dibromoethane	ND	0.0095		µg/L	1	6/11/2019 9:31:42 PM	45489
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Toluene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Ethylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Naphthalene	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1-Methylnaphthalene	ND	4.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
2-Methylnaphthalene	ND	4.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Acetone	ND	10		µg/L	1	6/11/2019 12:35:53 PM	W60553
Bromobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Bromodichloromethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Bromoform	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Bromomethane	ND	3.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
2-Butanone	ND	10		µg/L	1	6/11/2019 12:35:53 PM	W60553
Carbon disulfide	ND	10		µg/L	1	6/11/2019 12:35:53 PM	W60553
Carbon Tetrachloride	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Chlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Chloroethane	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Chloroform	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Chloromethane	ND	3.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
2-Chlorotoluene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
4-Chlorotoluene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
cis-1,2-DCE	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Dibromochloromethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Dibromomethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,3-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,4-Dichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Dichlorodifluoromethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1-Dichloroethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1-Dichloroethene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2-Dichloropropane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553

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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Daniel B. Stephens & Assoc. **Client Sample ID:** Trip Blank
Project: Former Y Station **Collection Date:**
Lab ID: 1906493-002 **Matrix:** TRIP BLANK **Received Date:** 6/10/2019 12:05:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,3-Dichloropropane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
2,2-Dichloropropane	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Hexachlorobutadiene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
2-Hexanone	ND	10		µg/L	1	6/11/2019 12:35:53 PM	W60553
Isopropylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
4-Isopropyltoluene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
4-Methyl-2-pentanone	ND	10		µg/L	1	6/11/2019 12:35:53 PM	W60553
Methylene Chloride	ND	3.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
n-Butylbenzene	ND	3.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
n-Propylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
sec-Butylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Styrene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
tert-Butylbenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
trans-1,2-DCE	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Trichlorofluoromethane	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
1,2,3-Trichloropropane	ND	2.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Vinyl chloride	ND	1.0		µg/L	1	6/11/2019 12:35:53 PM	W60553
Xylenes, Total	ND	1.5		µg/L	1	6/11/2019 12:35:53 PM	W60553
Surr: 1,2-Dichloroethane-d4	91.3	70-130		%Rec	1	6/11/2019 12:35:53 PM	W60553
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1	6/11/2019 12:35:53 PM	W60553
Surr: Dibromofluoromethane	78.5	70-130		%Rec	1	6/11/2019 12:35:53 PM	W60553
Surr: Toluene-d8	97.1	70-130		%Rec	1	6/11/2019 12:35:53 PM	W60553

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

Qualifiers:

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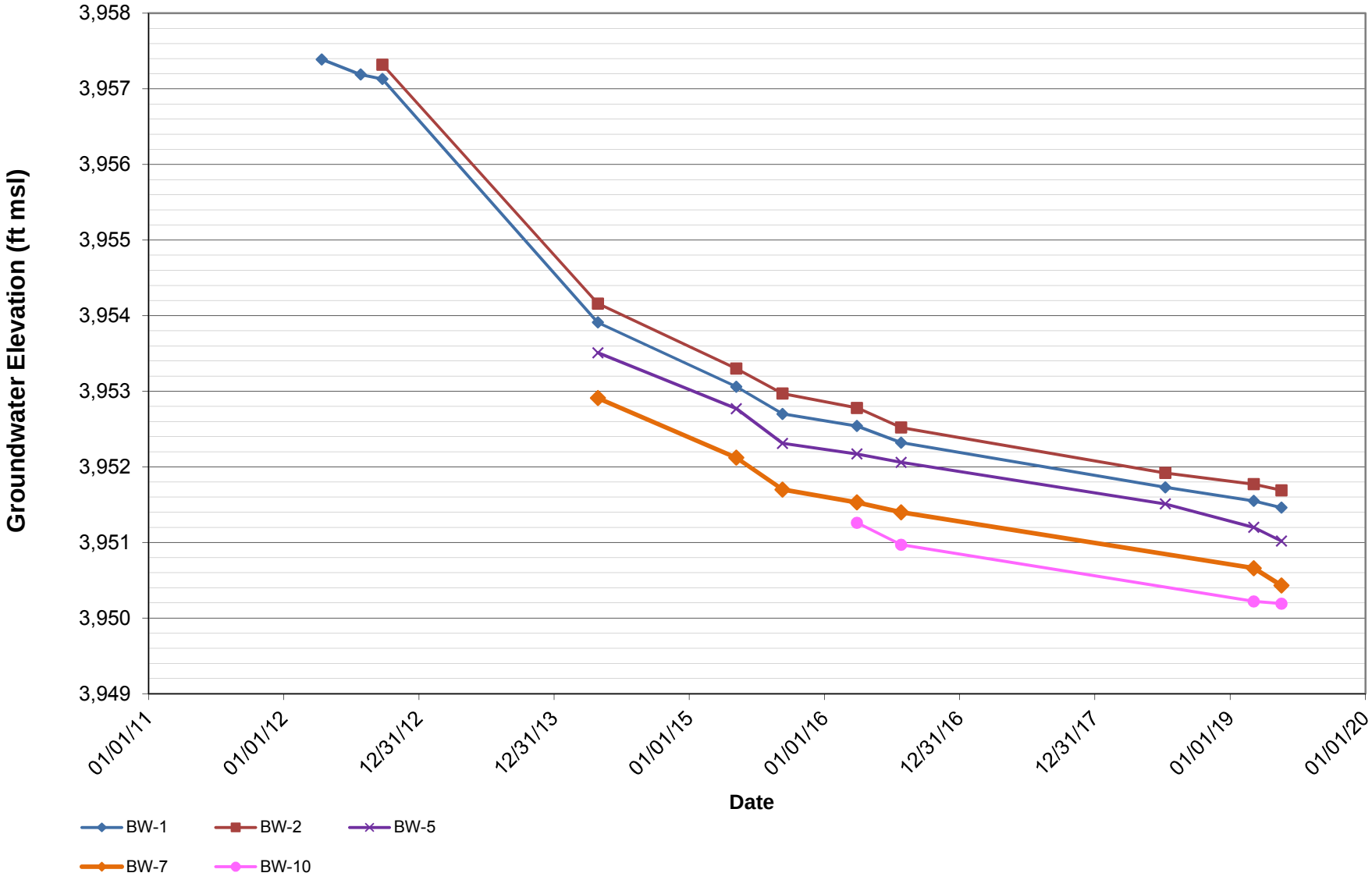
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Appendix D

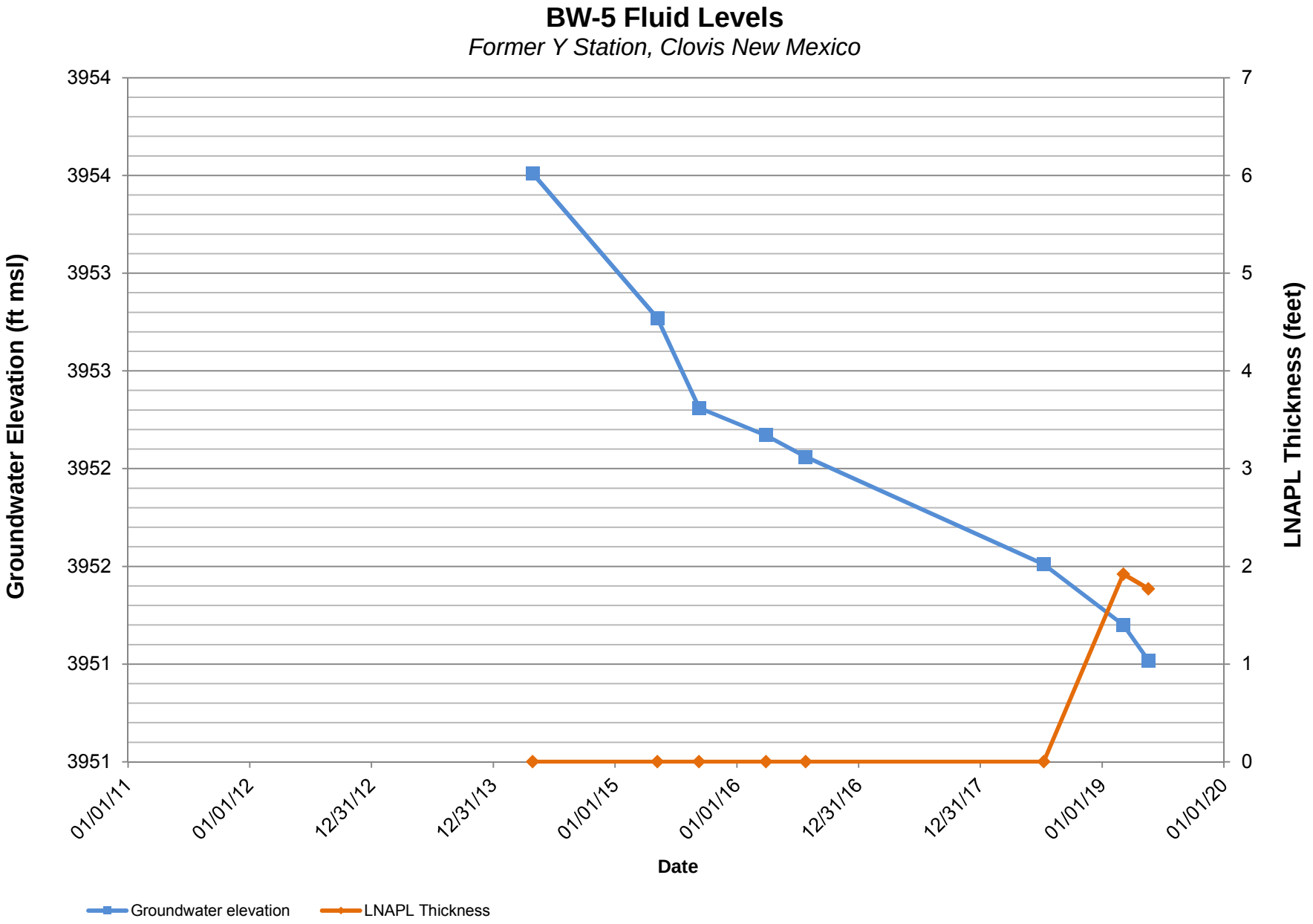
Graphs Showing Groundwater Elevations, LNAPL Thicknesses, and COC Concentrations over Time

Groundwater Elevations

Former Y Station, Clovis New Mexico

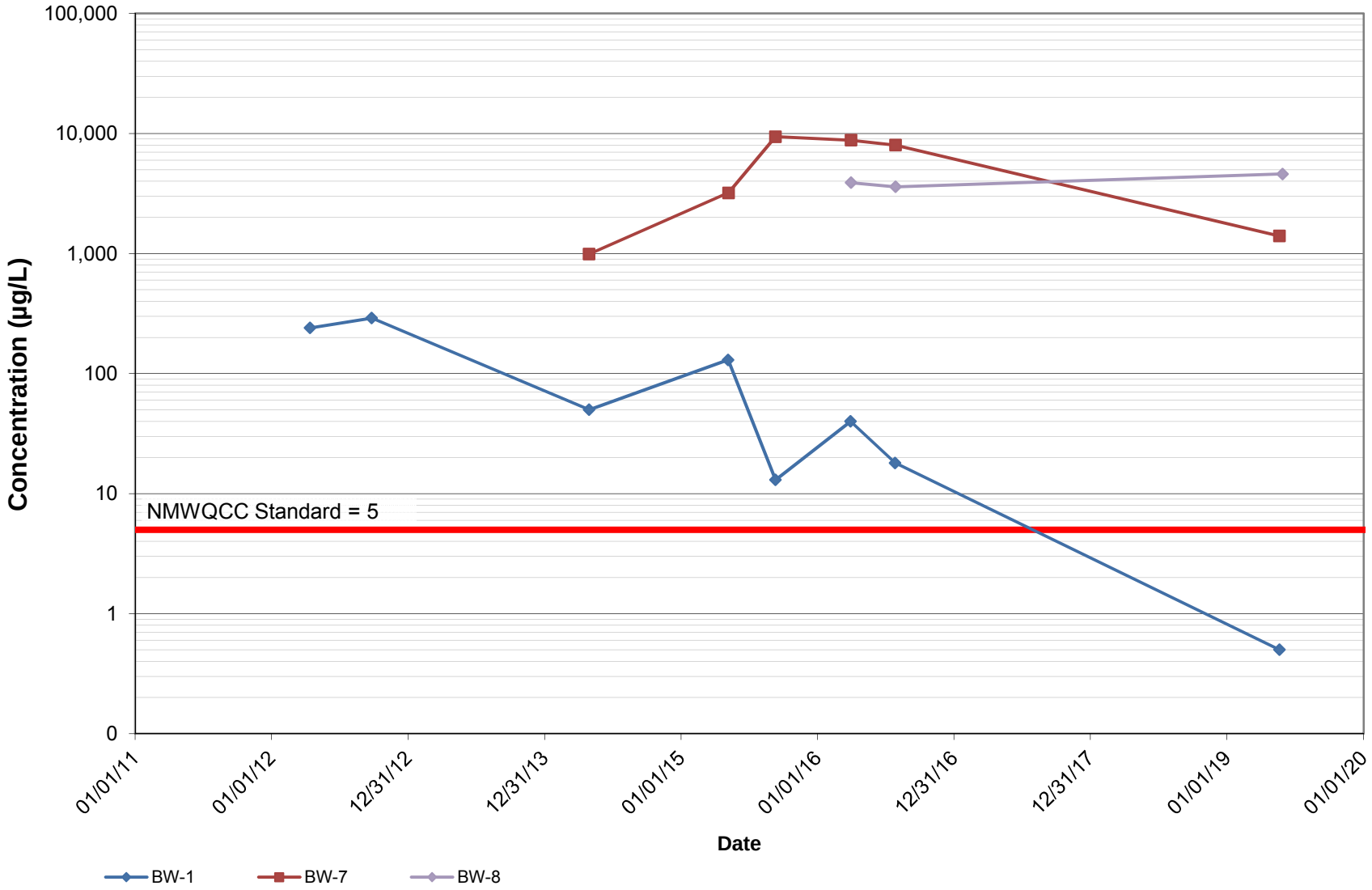


S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts GW Elevations


BW-5 Fluid Levels
Former Y Station, Clovis New Mexico
Groundwater Elevation (ft msl)
LNAPL Thickness (feet)
3954
3954
3953
3953
3952
3952
3951
3951
7
6
5
4
3
2
1
0
01/01/11
01/01/12
12/31/12
12/31/13
01/01/15
01/01/16
12/31/16
12/31/17
01/01/19
01/01/20
Date
Groundwater elevation
LNAPL Thickness

Benzene Concentrations

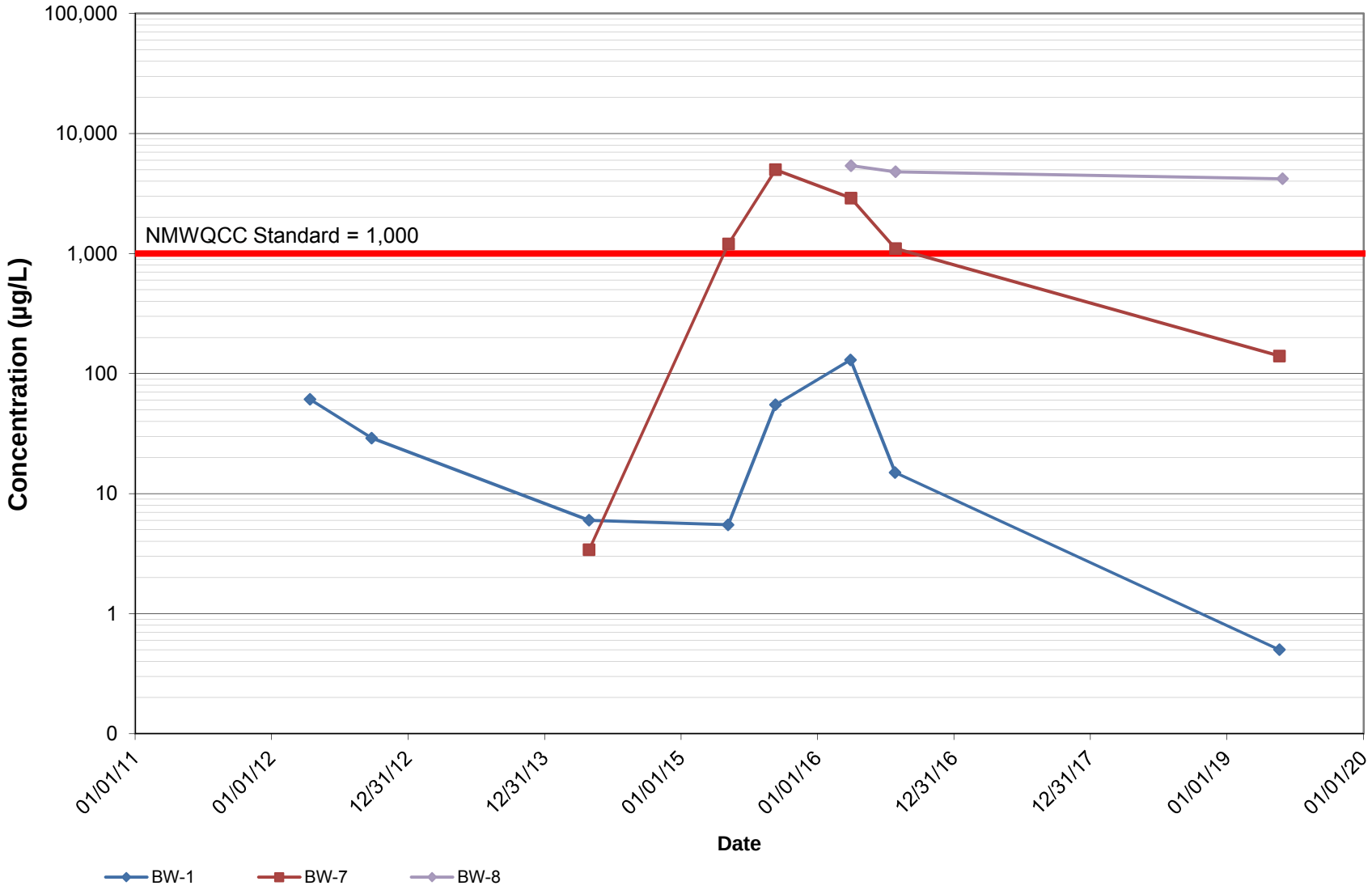
Former Y Station, Clovis New Mexico



S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts Benzene

Toluene Concentrations

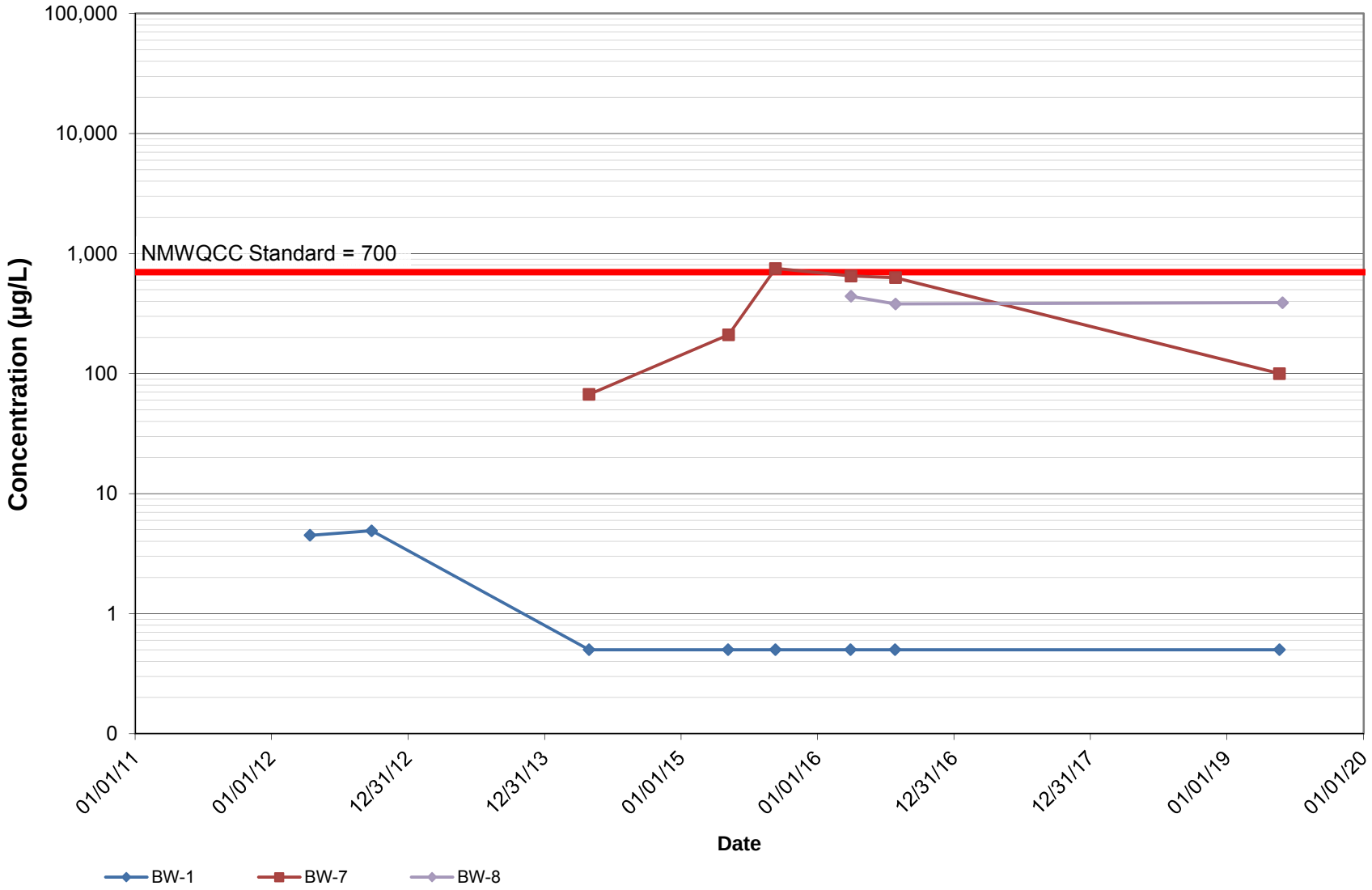
Former Y Station, Clovis New Mexico



S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts Toluene

Ethylbenzene Concentrations

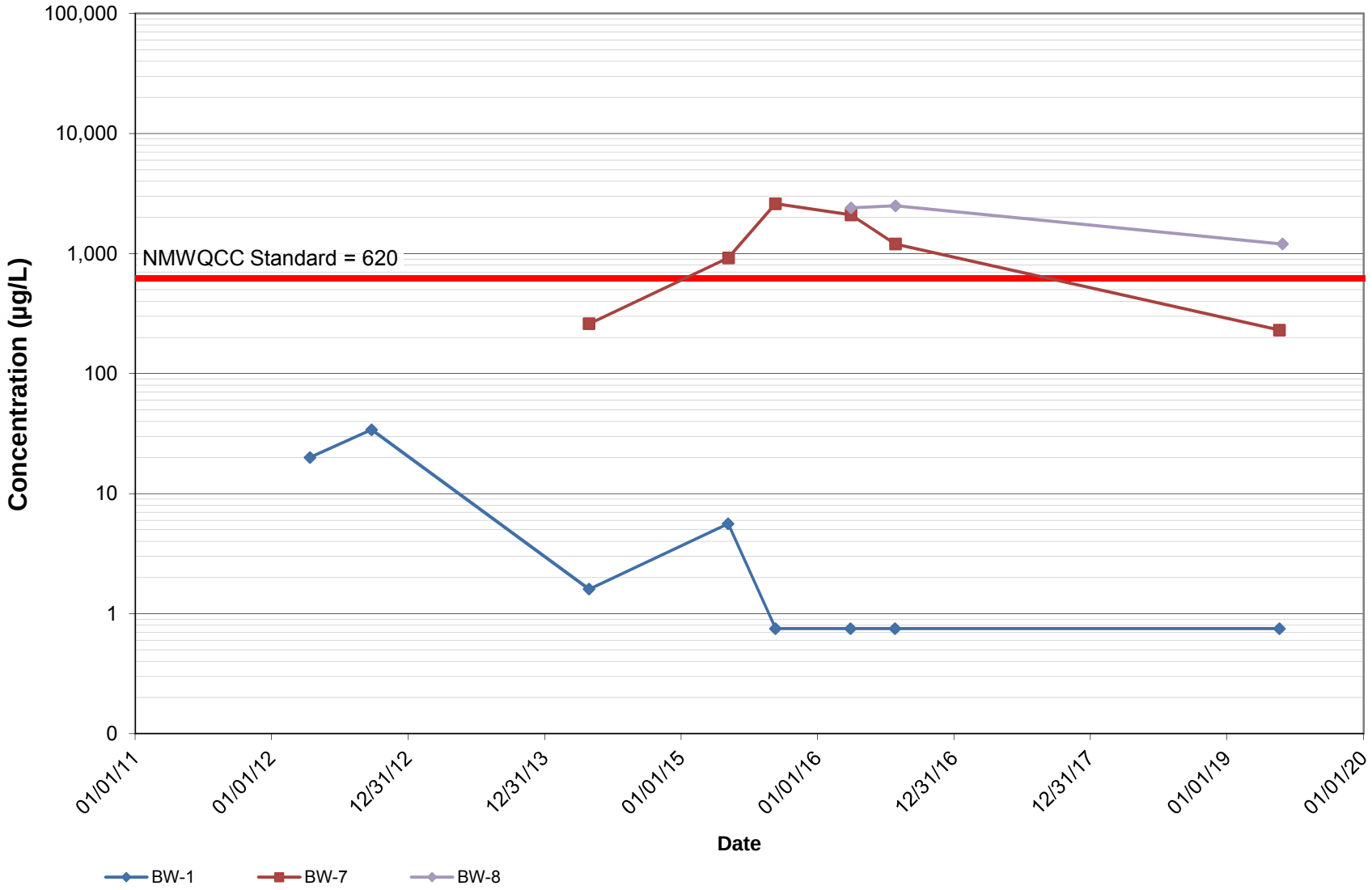
Former Y Station, Clovis New Mexico



S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts Ethylbenzene

Total Xylenes Concentrations

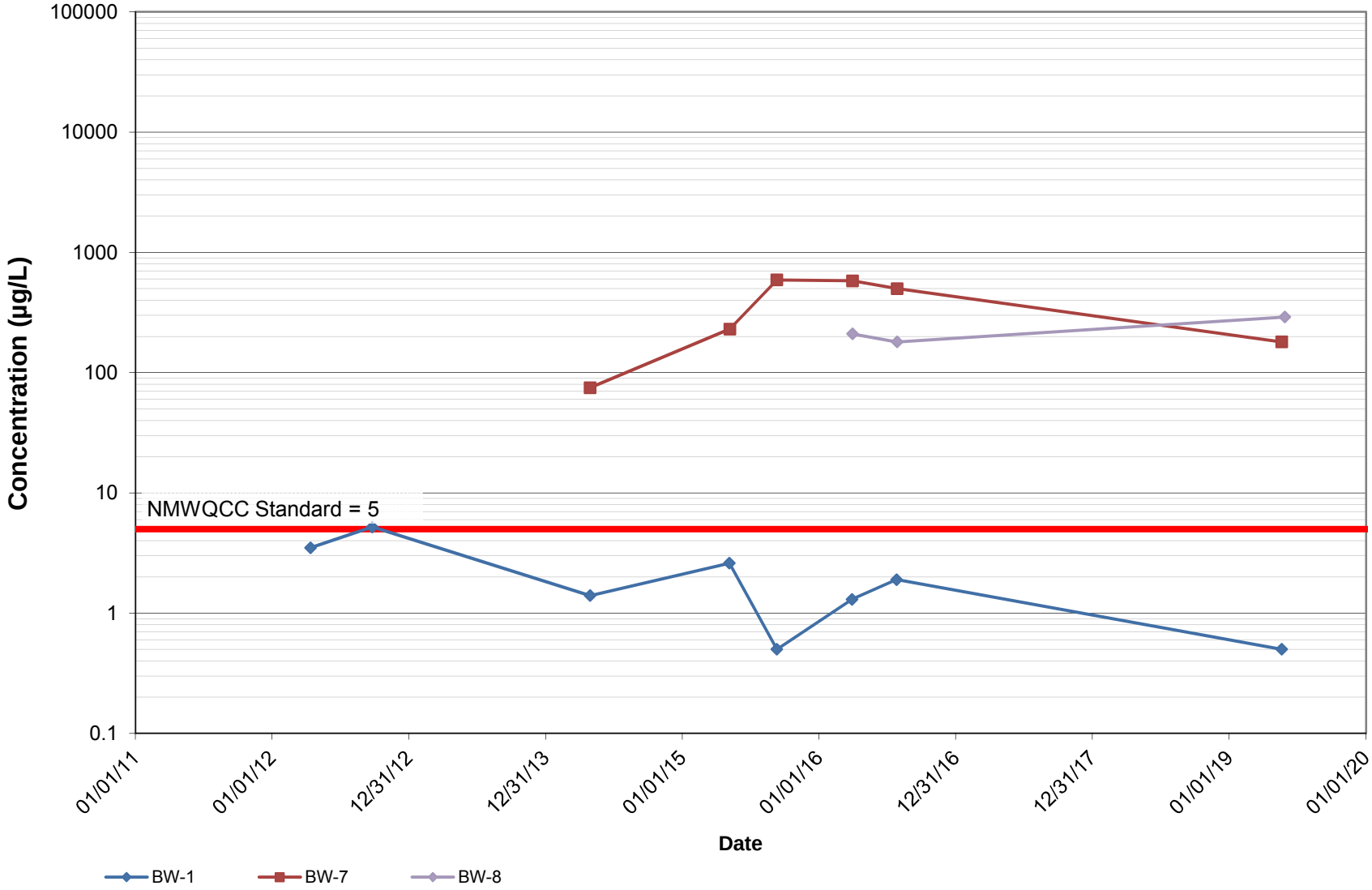
Former Y Station, Clovis New Mexico



S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts Xylenes

EDC Concentrations

Former Y Station, Clovis New Mexico



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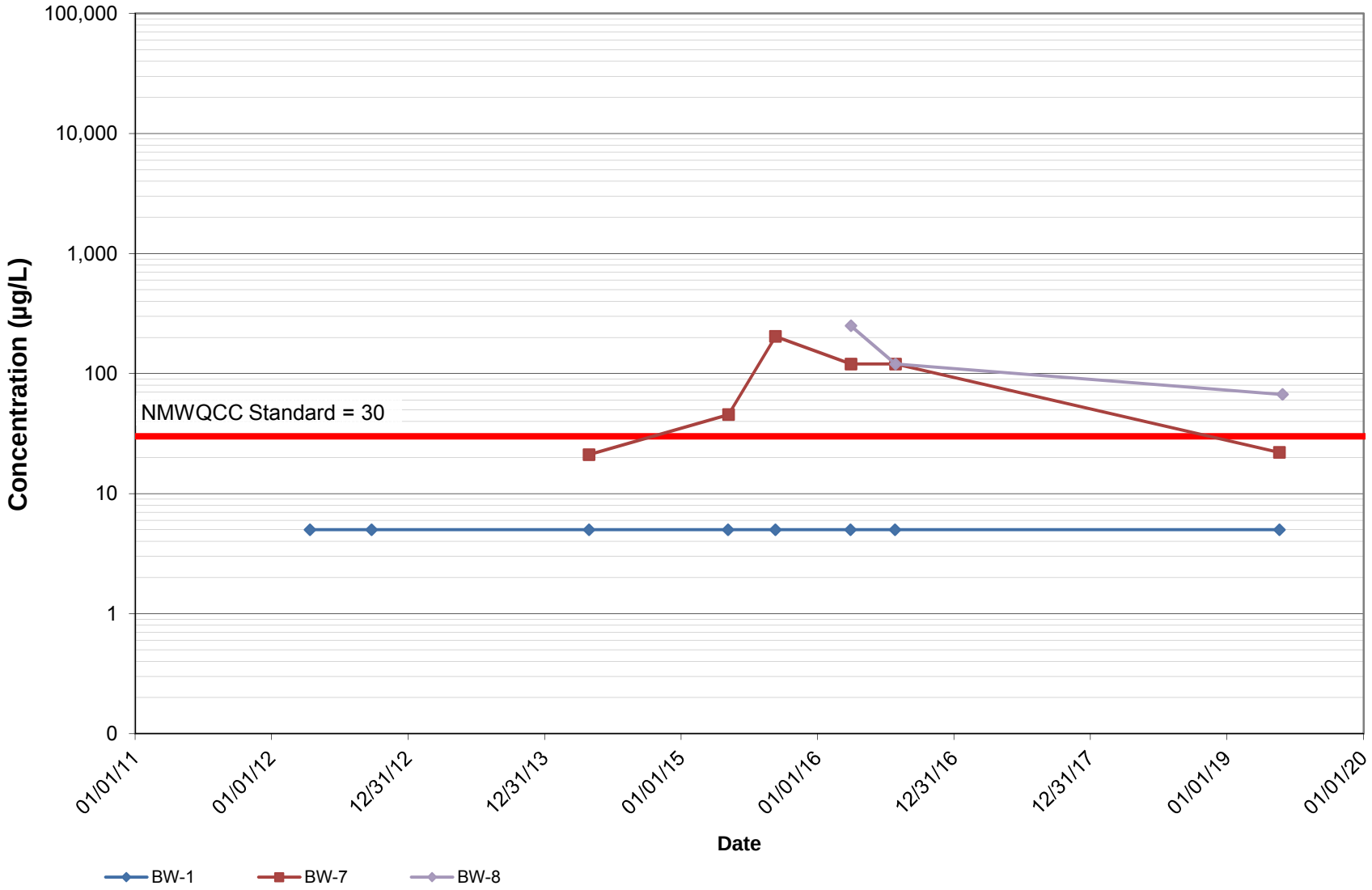
Total Naphthalenes Concentrations

Former Y Station, Clovis New Mexico



S:\Projects\DB18.1157_Former_Y_Station\Docs\Tables for Reports\Appx_Charts Naphthalenes