



EA Engineering, Science, & Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102
Phone: (505) 224-9013

August 14, 2017

Mr. Chris Holmes
NMED PSTB
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505

Dear Mr. Holmes:

EA Engineering, Science, and Technology, Inc., PBC is submitting the Groundwater Monitoring & Non-Aqueous Phase Liquid (NAPL) Recovery Report for Halsell's Grocery located at 112 School Street, Hatch, New Mexico. The report summarizes the groundwater monitoring event conducted to fulfill requirements stated in the New Mexico Administrative Code, Title 20, Chapter 5, Part 12 and the New Mexico Environment Department Petroleum Storage Tank Bureau (PSTB) Guidelines for Corrective Action.

The total approved scope of work was completed for a total of \$2,956.25 including NMGR. T.

Please let me know if you have any questions regarding the information provided in this report.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Werth', is written above the printed name.

David L. Werth
Project Manager

Enclosure

Cc: Chuck Watkiss
File – EA Engineering, Science, and Technology, Inc., PBC



**GROUNDWATER MONITORING
AND NAPL RECOVERY REPORT
HALSELL'S GROCERY,
PSTB FACILITY #6053
112 SCHOOL STREET, HATCH,
NEW MEXICO**

Prepared by:

EA Engineering, Science,
and Technology, Inc., PBC
320 Gold Avenue SW, Suite 1300
Albuquerque, New Mexico 87102

July 2017

EA Project No. 6289825.01

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:



Name:

David L. Werth

Affiliation:

EA Engineering, Science, and Technology, Inc., PBC

Title:

Geologist

Date:

August 14, 2017

I. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has completed the groundwater monitoring and non-aqueous phase liquid (NAPL) recovery event at Halsell's Grocery State Lead Site (Site) located at 112 School Street, Hatch, New Mexico. The monitoring event was completed under state-lead contract # 14-667-2000-0030 and in accordance with the *Workplan for Semi-Annual Groundwater Monitoring & NAPL Recovery* prepared by EA to satisfy the requirements stated in the New Mexico Administrative Code, Title 20, Chapter 5, Part 12 and the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) Guidelines for Corrective Action (GCA). The work plan was approved by the NMED PSTB on November 30, 2016 under workplan identification number (WPID #) 3898. This is the final deliverable under WPID #3898-2.

The Site is located at 112 School Street on the northeast corner of School Street and West Hall Street on the south end of Hatch, New Mexico (Figure 1). Halsell's Grocery is no longer an active gasoline station. The Site contains one building that is currently a grocery store. Hydrocarbon contamination was discovered in the area of the Site in November 1990. In March of 1991, the New Mexico State Highway Department found USTs during a road improvement project. Petroleum hydrocarbon contamination was confirmed at the Site in September 1991. In May 1992, three monitoring wells were installed at the Site (Figure 1).

On July 5, 2017, fluid levels were measured in all three monitoring wells, and a groundwater sample was collected from one on site monitoring well (MW-1). The groundwater sample was analyzed for volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), 1,2 dibromoethane (EDB), 1,2 dichloroethane (EDC), and total naphthalenes by Environmental Protection Agency (EPA) Method 8260B; 1,2 dibromoethane (EDB) was also analyzed by EPA Method 504.1. In addition, pH, specific conductance, and temperature were monitored in the field.

This report summarizes the results of the monitoring event.

II. ACTIVITIES PERFORMED DURING THIS PERIOD

This section provides a brief description of monitoring activities performed during this monitoring period.

A. Brief Description of Remediation System and Date Installed

A remediation system has not been installed at this Site. However, a summary of corrective action activities that have occurred at the Site follows:

- Site reported as a suspected release in November 1990.
- In September 1991, NMED confirmed petroleum hydrocarbon contamination.
- In May 1992, a Minimum Site Assessment (MSA) was conducted.
- Currently groundwater monitoring and NAPL recovery is being conducted at the Site.

B. Description of Activities Performed to Keep System Operating Properly

No active remediation activities have been completed at the Site.

C. Monitoring Activities Performed

Field Activities

On July 5, 2017, fluid levels in all three wells (MW-1, MW-2 and MW-3) were gauged with an electronic water level meter or an interface probe. Table 1 provides a summary of the groundwater gauging data collected from the monitoring network. A potentiometric surface map (Figure 2) was constructed based on the collected data.

After the wells were gauged on July 5, 2017, monitoring well MW-1 was purged and then sampled using a disposable bailer. Well MW-1 was the only well scheduled to be sampled this event. All equipment was decontaminated with an Alconox™ solution to further ensure sample quality. Purge water was ground discharged in accordance with Section 1.7.2 of the GCA. Sampling was accomplished by carefully pouring groundwater from new disposable bailers into the sample containers.

EA measured field parameters, specific conductance, pH, and temperature, with an Oakton PC 300 water quality meter during purging and prior to sampling. Due to a malfunction, DO was not measured during this sampling event. Specific conductance, pH, and temperature were recorded on monitoring well sampling field forms. The meter was calibrated and/or checked against a standard in accordance with manufacturer's specifications prior to use. Monitoring well sampling field forms are provided in Appendix A.

Sample containers, preservatives, analytical methods, and holding times are specified in Table 2. Samples for VOC analysis were collected such that no headspace existed in the sample vial. All samples were preserved in accordance with method requirements, then immediately cooled

to less than 6°C with ice and delivered under chain-of-custody to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The analytical laboratory report is provided in Appendix B.

NAPL Recovery

On July 5, 2017, no measurable NAPL was found in well MW-1, only a light sheen was present. As a result, NAPL was not able to be recovered during this event. The cumulative total of NAPL recovered at the site is summarized in Table 3.

Groundwater Sampling Results

During this sampling event, the dissolved phase hydrocarbon concentrations exceeded New Mexico Water Quality Control Commission (NMWQCC) standards in the only well sampled, MW-1, with regards to benzene and naphthalenes with concentrations of 36 µg/L and 669 µg/L, respectively. Figure 3 illustrates the distribution of organic contaminants in groundwater. The laboratory analytical results for select organic compounds are summarized in Table 4.

D. System Performance and Effectiveness

No system has been installed at the site.

E. Statement Verifying Containment of Release

The extent of the contaminant plume at the Site is not defined.

III. SUMMARY AND CONCLUSIONS

This section summarizes the results, contains a brief discussion of site trends, and provides recommendations for future site activities.

A. Discussion of any Trends or Changes Noted in Analytical Results or Site Conditions

The results of groundwater gauging indicate that water levels have risen by more than 1.2 feet when compared to the previous groundwater gauging conducted on January 18, 2017. Hydrographs are included in Appendix C. The overall direction of groundwater flow is in a south-southeast direction with a gradient of 0.0009 (Figure 2).

No measurable NAPL was present during this event. The apparent NAPL thickness in well MW-1 has fluctuated since the November 2011. Water levels have also fluctuated during this time frame, which appear to be inversely related to the NAPL thickness observed (Appendix C).

Well MW-1 had hydrocarbon concentrations above NMWQCC standards and this is the first monitoring even in which MW-1 had been sampled since September 2006. Benzene concentrations have decreased in well MW-1 from 81 µg/L in September 2006 to 36 µg/L during this event; however, total naphthalenes are at the highest concentrations observed in the well at 669 µg/L. Historically, well MW-3 has never exceeded NMWQCC standards, and well MW-2 has been below standards since September 2006. The July 2017 distribution of dissolved phase organic contaminants is shown on Figure 3.

Field parameters, pH, specific conductance, and temperature, were measured during sampling. The field parameters are summarized in Table 5.

B. Ongoing Assessment of Remediation System

No active remediation system has been installed at the Site.

C. Recommendations

Based on the results of the groundwater monitoring, the following is recommended:

- Continued groundwater monitoring of all three monitoring wells.
- If measurable NAPL accumulates in well MW-1, install an absorbent sock.
- Install two new monitoring wells to better determine horizontal extent of the plume and groundwater flow direction. It is recommended that wells be installed west and south of well MW-1.

TABLES

**TABLE 1. SUMMARY OF FLUID GAUGING DATA
HALSELL'S GROCERY SITE, HATCH, NEW MEXICO**

Monitor Well	Date Measured	Casing Elevation ²	Depth to Product ³	Product Thickness ⁴	Depth to Water ³	Groundwater Elevation ²
MW-1	5-Jul-2017	4054.98	-	Sheen	10.27	4044.71
	18-Jan-2017		-	Sheen	11.47	4043.51
	14-Oct-2015		-	Sheen	13.04	4041.94
	29-Jul-2015		13.34	0.08	13.42	4041.62
	28-Apr-2015		14.59	1.69	16.28	4039.97
	8-Jan-2015		13.51	1.27	14.78	4041.15
	19-Jun-2012		12.41	0.88	13.29	4042.35
	31-May-2012		12.70	1.50	14.20	4041.91
	22-Nov-2011		-	0.02	13.21	4041.79
	2-Jun-2009		-	-	7.94	4047.04
	12-Sep-2006		-	-	5.81	4049.17
	19-Feb-2003		-	-	8.09	4046.89
	26-Nov-2002		-	-	7.44	4047.54
	15-Aug-2002		-	-	6.73	4048.25
	15-May-2002		-	-	7.17	4047.81
	12-Sep-2001		-	-	6.03	4048.95
	14-Jun-2001		-	-	6.06	4048.92
	14-Mar-2001		-	-	7.41	4047.57
	26-Jul-2000		-	-	5.11	4049.87
	4-May-2000		-	-	6.64	4048.34
MW-2	5-Jul-2017	4054.54	-	-	9.89	4044.65
	18-Jan-2017		-	-	11.13	4043.41
	14-Oct-2015		-	-	12.75	4041.79
	29-Jul-2015		-	-	13.07	4041.47
	28-Apr-2015		-	-	14.73	4039.81
	8-Jan-2015		-	-	13.89	4040.65
	19-Jun-2012		-	-	12.30	4042.24
	31-May-2012		-	-	12.72	4041.82
	22-Nov-2011		-	-	12.15	4042.39
	2-Jun-2009		-	-	7.58	4046.96
	12-Sep-2006		-	-	5.46	4049.08
	19-Feb-2003		-	-	7.72	4046.82
	15-Aug-2002		-	-	5.70	4048.84
	15-May-2002		-	-	6.76	4047.78
	12-Sep-2001		-	-	5.64	4048.90
	14-Jun-2001		-	-	5.62	4048.92
	14-Mar-2001		-	-	7.04	4047.50
	26-Jul-2000		-	-	1.70	4052.84
	4-May-2000		-	-	6.26	4048.28

**TABLE 1. SUMMARY OF FLUID GAUGING DATA
HALSELL'S GROCERY SITE, HATCH, NEW MEXICO**

Monitor Well	Date Measured	Casing Elevation ²	Depth to Product ³	Product Thickness ⁴	Depth to Water ³	Groundwater Elevation ²
MW-3	5-Jul-2017	4054.85	-	-	10.06	4044.79
	18-Jan-2017		-	-	11.30	4043.55
	14-Oct-2015		-	-	12.83	4042.02
	29-Jul-2015		-	-	13.19	4041.66
	28-Apr-2015		-	-	14.80	4040.05
	8-Jan-2015		-	-	14.02	4040.83
	19-Jun-2012		-	-	12.39	4042.46
	31-May-2012		-	-	12.83	4042.02
	22-Nov-2011		-	-	12.28	4042.57
	2-Jun-2009		-	-	7.71	4047.14
	12-Sep-2006		-	-	5.64	4049.21
	19-Feb-2003		-	-	7.94	4046.91
	15-Aug-2002		-	-	6.58	4048.27
	15-May-2002		-	-	7.06	4047.79
	12-Sep-2001		-	-	5.91	4048.94
	14-Jun-2001		-	-	5.90	4048.95
	14-Mar-2001		-	-	7.31	4047.54
	26-Jul-2000		-	-	4.92	4049.93
4-May-2000	-	-	6.48	4048.37		

NOTES:

¹ Horizontal control to NM State Plane Coordinates Central NAD83 Grid Coordinates (in feet)

² Vertical Control to NAVD88 Datum in feet above mean sea level

³ Measured in feet below the top of casing at survey point on north side of well

⁴ Measured in feet.

**TABLE 2. SUMMARY OF SAMPLE ANALYTICAL AND QUALITY CONTROL REQUIREMENTS
HALSELL'S GROCERY, HATCH, NEW MEXICO**

Target Analytes	Matrix	Analytical Method	Sample Container	Preservative	Holding Time
VOCs	Water	EPA 8260	2 x 40- mL glass vials	Mercuric Chloride; Cool to 4°C	14 days
EDB	Water	EPA 504.1	3 x 40- mL glass vials	Mercuric Chloride; Cool to <6°C	14 days

NOTES:
VOCs = Volatile organic compounds + naphthalenes
EPA = U.S. Environmental Protection Agency
EDB = Ethylene dibromide
°C = degrees Celcius
mL = milliliter

**TABLE 3. SUMMARY OF NAPL RECOVERY
HALSELL'S GROCERY, HATCH, NEW MEXICO**

Monitor Well	Date Recovered	NAPL Thickness Prior to Bailing ¹	NAPL Thickness After Bailing ¹	Total NAPL Recovered ²
MW-1	5-Jul-17	Light Sheen	NA	NA
	18-Jan-17	Sheen	NA	NA
	14-Oct-15	Sheen	NA	NA
	29-Jul-15	0.08	0.00	0.03
	28-Apr-15	1.69	0.01*	2.00
	8-Jan-15	1.27	0.00	0.25
	19-Jun-12	0.88	0.02	1.00
	31-May-12	1.50	0.01	0.25
	22-Nov-11	0.02	Sheen	Negligible
Cumulative Total NAPL Recovered at the Site¹				3.53
NOTES: NAPL - Non Aqueous Phase Liquid ¹ Measured in feet. ² Measured in gallons. *Measured in bailer				

**TABLE 4. SUMMARY OF GROUNDWATER SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS**

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene
MW-1	5-Jul-17	36	<5.0	470	99	<5.0	<0.0092	<5.0	360	220	89
	18-Jan-17	Not Sampled due to the Presence of NAPL									
	14-Oct-15	Not Sampled due to the Presence of NAPL									
	29-Jul-15	Not Sampled due to the Presence of NAPL									
	28-Apr-15	Not Sampled due to the Presence of NAPL									
	8-Jan-15	Not Sampled due to the Presence of NAPL									
	19-Jun-12	Not Sampled due to the Presence of NAPL									
	22-Nov-11	Not Sampled due to the Presence of NAPL									
	12-Sep-06	81	<10	220	130	<15	<10	<10	78	<40	<40
	19-Feb-03	7.1	7.5	110	26	<25	--	<0.2	--	--	--
	26-Nov-02	3.8	2.0	88	16	<2.5	--	<0.2	--	--	--
	15-Aug-02	20	<5.0	110	16	<25	--	--	--	--	--
	15-May-02	22	<1.0	4.1	<4.5	<1.0	<1.0	<1.0	<3.0	--	--
	12-Sep-01	14	2.5	150	33	<2.5	<1.0	<0.2	--	--	--
	15-Jun-01	8.1	1.4	67	13	<2.5	<1.0	<0.2	--	--	--
	14-Mar-01	23	<5.0	180	44	<25	<10	<2.0	--	--	--
	27-Jul-00	13	2.3	120	19	7.8	<2.0	<0.4	--	--	--
	2-May-00	7.4	2.1	130	20	<2.5	--	--	--	--	--
	26-Jan-00	<5.0	<5.0	170	15	<5.0	<5.0	<5.0	14	--	--
	2-Feb-98	84	15	290	98	<25	--	--	--	--	--
3-Jun-92	863	4426	1165	<0.2	--	--	1.0	--	--	--	
MW-2	5-Jul-17	Well Not Sampled									
	18-Jan-17	<1.0	<1.0	<1.0	<1.5	<1.0	<0.010	<1.0	<2.0	4.5	<4.0
	14-Oct-15	<1.0	<1.0	<1.0	<1.5	<1.0	<0.010	<1.0	<2.0	<4.0	<4.0
	29-Jul-15	<1.0	<1.0	<1.0	<1.5	<1.0	<0.010	<1.0	<2.0	<4.0	<4.0
	28-Apr-15	<2.0	<2.0	<2.0	<3.0	<2.0	<0.010	<2.0	<4.0	<8.0	<8.0
	8-Jan-15	<1.0	<1.0	<1.0	<1.5	<1.0	<0.010	<1.0	<2.0	<4.0	<4.0
	19-Jun-12	5.6	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0
	22-Nov-11	1.3	<1.0	1.1	<1.5	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0
	12-Sep-06	90	<1.0	5.0	<3.0	<1.5	<1.0	<1.0	3.9	<4.0	<4.0
	19-Feb-03	<0.5	<0.5	<0.5	<1.0	<2.5	--	--	--	--	--
	15-Aug-02	3.4	<2.5	<2.5	<5.0	<13	--	--	--	--	--
	15-May-02	1.1	<0.5	8.3	3.6	<2.5	--	--	--	--	--
	12-Sep-01	0.6	<0.5	<0.5	1.3	<2.5	<1.0	<0.2	--	--	--
	15-Jun-01	<0.5	<0.5	2.2	1.0	<2.5	<1.0	<0.2	--	--	--
	14-Mar-01	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.5	--	--	--
	27-Jul-00	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.2	--	--	--
	2-May-00	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--
	26-Jan-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	--	--
	2-Feb-98	<0.5	<0.5	2.1	0.6	<2.5	--	--	--	--	--
	3-Jun-92	5.5	26	6.1	27	--	--	<0.1	--	--	--

**TABLE 4. SUMMARY OF GROUNDWATER SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS**

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene
MW-3	5-Jul-17	Well Not Sampled									
	18-Jan-17	Well Not Sampled									
	14-Oct-15	Well Not Sampled									
	29-Jul-15	Well Not Sampled									
	28-Apr-15	Well Not Sampled									
	8-Jan-15	<1.0	<1.0	<1.0	<1.5	<1.0	<0.010	<1.0	<2.0	<4.0	<4.0
	19-Jun-12	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0
	22-Nov-11	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0
	12-Sep-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0	<4.0	<4.0
	19-Feb-03	<0.5	<0.5	<0.5	<1.0	<2.5	--	--	--	--	--
	15-Aug-02	<0.5	<0.5	<0.5	<1.0	<2.5	--	--	--	--	--
	15-May-02	<0.5	<0.5	<0.5	<1.0	<2.5	--	--	--	--	--
	12-Sep-01	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.5	--	--	--
	15-Jun-01	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.2	--	--	--
	14-Mar-01	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.5	--	--	--
	27-Jul-00	<0.5	<0.5	<0.5	<0.5	<2.5	<1.0	<0.2	--	--	--
	2-May-00	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--
26-Jan-00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	--	--	
2-Feb-98	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	--	--	--	
3-Jun-92	0.1	1.6	0.5	2.0	--	<0.1	--	--	--	--	
NMWQCC and EIB Standards	10	750	750	620	100	0.1	10	Total Naphthalene Plus Monomethylnaphthalenes		30	
<p>NOTES: All concentrations in micrograms per liter (µg/L) MTBE = Methyl tertiary butyl ether EDB = Ethylene dibromide EDC = Ethylene dichloride NAPL = Non-Aqueous Phase Liquid</p>											

**TABLE 5. SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
INORGANIC COMPOUNDS AND GEOCHEMICAL INDICATORS,
HALSELL'S GROCERY, HATCH, NEW MEXICO**

Well Number	Date Sampled	pH	SpC (uS/cm)	Temp	DO (mg/L)
MW-1	5-Jul-17	7.46	1,747	22.6	NM
	14-Oct-15	Not measured due to the presence of NAPL			
	29-Jul-15	Not measured due to the presence of NAPL			
	28-Apr-15	Not measured due to the presence of NAPL			
	8-Jan-15	Not measured due to the presence of NAPL			
	19-Jun-12	Not measured due to the presence of NAPL			
	22-Nov-11	Not measured due to the presence of NAPL			
MW-2	5-Jul-17	Well Not Sampled			
	18-Jan-17	7.17	1,837	21.4	1.52
	14-Oct-15	7.37	1,628	24.3	1.85
	29-Jul-15	7.31	717	22.5	1.17
	28-Apr-15	7.59	1,698	21.6	1.55
	8-Jan-15	7.25	1,631	22.0	1.06
	19-Jun-12	7.29	1,560	23.5	NM
	22-Nov-11	7.20	1,435	23.9	1.50
MW-3	5-Jul-17	Well Not Sampled			
	18-Jan-17	Well Not Sampled			
	14-Oct-15	Well Not Sampled			
	29-Jul-15	Well Not Sampled			
	28-Apr-15	Well Not Sampled			
	8-Jan-15	7.11	1,682	21.0	3.87
	19-Jun-12	7.22	1,584	22.4	NM
	22-Nov-11	7.25	1,485	22.8	1.64

NOTES:

DO = Dissolved oxygen

mg/L = Milligrams per liter

mV = Millivolts

NAPL = Non-Aqueous Phase Liquid

NM = Not Measured

ORP = Oxidation-reduction potential in milli volts (mV)

SpC = Specific conductance measured in micro siemens per centimeter (uS/cm)

Temp = Temperature in degrees Celsius

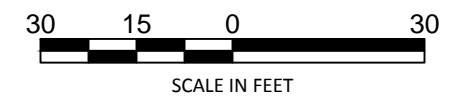
uS/cm = Microsiemens per centimeter

FIGURES



LEGEND

- ⊕ MW-3 MONITORING WELL
- ⊗ SB-1 SOIL BORING



HALSELL'S GROCERY
HATCH, NEW MEXICO

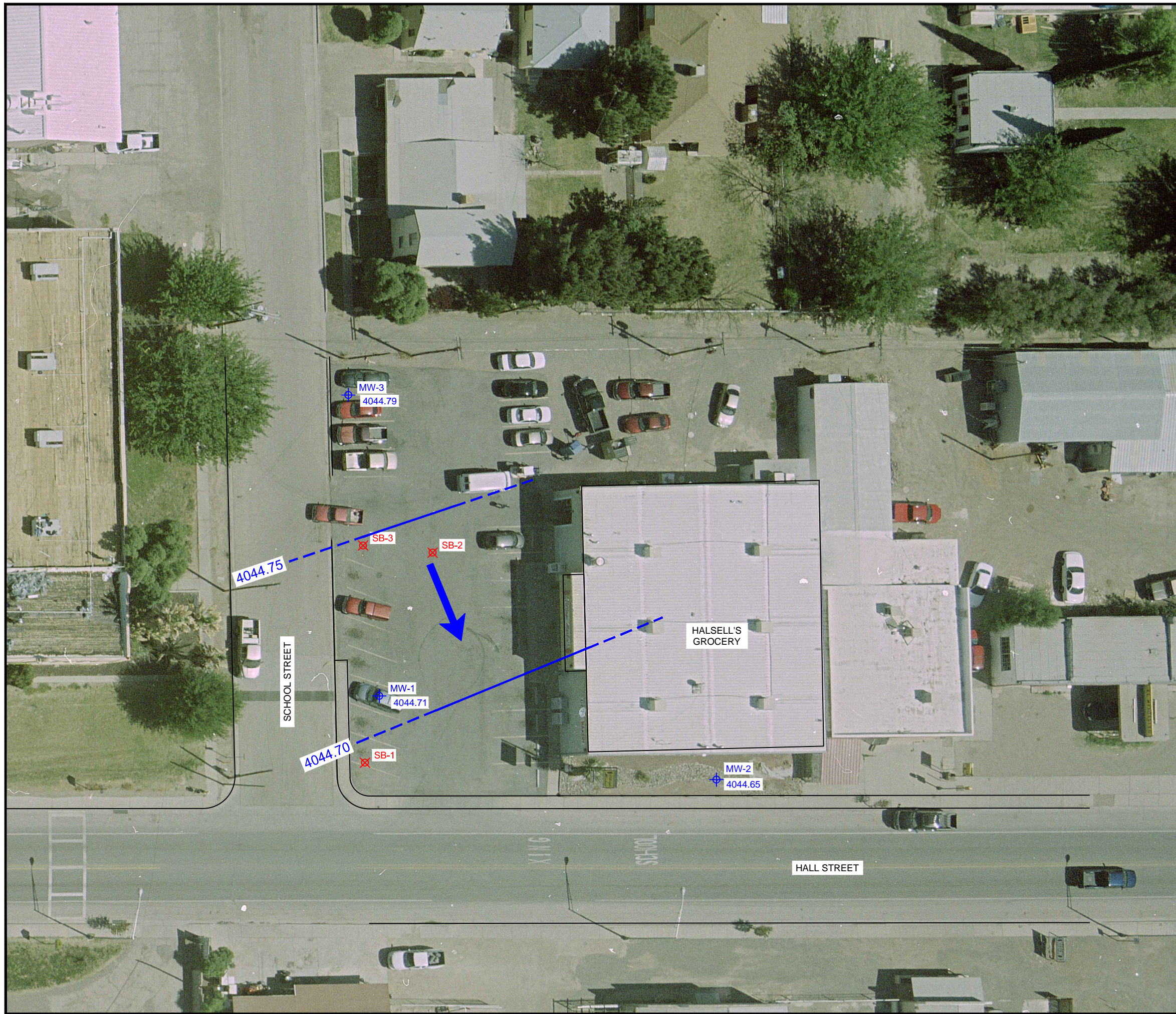
**FIGURE 1
SITE MAP**

PROJECT #:	6289825	PROJECT PHASE:	01	PROJECT MANAGER:	DW
------------	---------	----------------	----	------------------	----



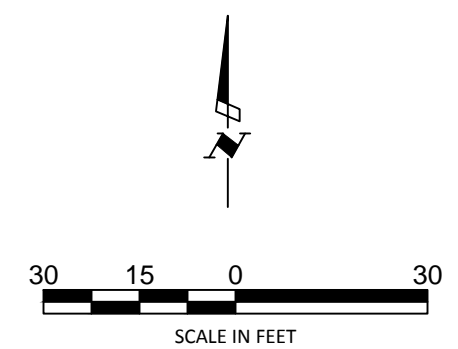
EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC

320 Gold Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013



LEGEND

	MW-3 4043.41	MONITORING WELL WITH POTENTIOMETRIC GROUNDWATER SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)
	SB-1	SOIL BORING
		ESTIMATED DIRECTION OF GROUNDWATER FLOW
	4043.50	GROUNDWATER POTENTIOMETRIC ELEVATION CONTOUR IN FEET MSL





HALSELL'S GROCERY
HATCH, NEW MEXICO

FIGURE 2
POTENTIOMETRIC SURFACE MAP

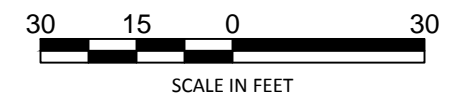
PROJECT #:	6289825	PROJECT PHASE:	01	PROJECT MANAGER:	DW
------------	---------	----------------	----	------------------	----



LEGEND

-  MW-3 MONITORING WELL
-  SB-1 SOIL BORING
- BTEX BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
- MTBE METHYL TERTIARY BUTYL ETHER
- EDB ETHYLENE DIBROMIDE
- EDC ETHYLENE DICHLORIDE
- TOTAL NAPH. TOTAL NAPHTHALENES
- NAPL NON-AQUEOUS PHASE LIQUID
- NS NOT SAMPLED

NOTES:
 1. ALL CONCENTRATIONS ARE IN MICROGRAMS PER LITER (ug/L)



HALSELL'S GROCERY
 HATCH, NEW MEXICO

**FIGURE 3
 DISTRIBUTION OF ORGANIC
 CONTAMINANTS IN GROUNDWATER**

PROJECT #: 6289825 PROJECT PHASE: 01 PROJECT MANAGER: DW



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC

320 Gold Avenue, SW Suite 1300
 Albuquerque, NM 87102
 Phone: (505) 224-9013

**APPENDIX A
FIELD FORMS**



MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID MW-1 Date gauged 7-5-17
 Site Halsell's Grocery Time gauged 1102
 Depth to PSH - Feet Well diameter 2 Inches
 Depth to water 10.27 Feet Height of fluid column 8.13 Feet
 Total depth 18.40 Feet Volume in well 1.38 Gallons
 NAPL thickness - Feet
 (3 well volumes = 4.15 gallons)

After Bailing NAPL

Depth to PSH _____ Feet

Depth to water _____ Feet

NAPL thickness _____ Feet

NAPL Recovered _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged 1115 Purge Method Hand Bail

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)
1120	0.25	23.5	1822	6.93		-
1125	2.00	22.9	1788	7.21		
1130	4.00	22.6	1747	7.46		

Actual purge volume 4.25 gal. Field measurements stabilized within ± 10%? X
 Time/date sampled 1125 7-5-17 Purged/sampled by C. Smith
 Sample method Disposable Bail
 Requested analyses 8260 B, 504.2
 Comments/observations DO meter malfunction ; light screen

Well Casing Volumes
 2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft



MONITOR WELL SAMPLING FIELD FORM

FLUID LEVEL DATA

Well ID MW-3 Date gauged 7-5-17
 Site Halsell's Grocery Time gauged 1056
 Depth to PSH - Feet Well diameter 2 Inches
 Depth to water 10.06 Feet Height of fluid column - Feet
 Total depth - Feet Volume in well - Gallons
 NAPL thickness - Feet
 (3 well volumes = - gallons)

After Bailing NAPL

Depth to PSH _____ Feet
 Depth to water _____ Feet
 NAPL thickness _____ Feet
 NAPL Recovered _____ Gallons

GROUNDWATER SAMPLING DATA

Time/date purged - Purge Method -

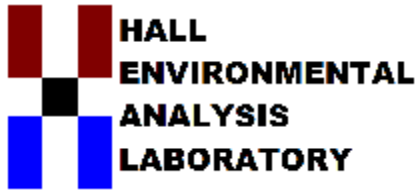
Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)

Gauge Only

Actual purge volume - gal. Field measurements stabilized within ± 10%? -
 Time/date sampled - Purged/sampled by C Smith
 Sample method -
 Requested analyses -
 Comments/observations -

Well Casing Volumes
 2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

**APPENDIX B
ANALYTICAL LABORATORY REPORTS**



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

July 11, 2017

Lane Address

EA Engineering
320 Gold Ave SW Suite 1210
Albuquerque, NM 87102
TEL: (505) 224-9013
FAX

RE: Halsells Grocery

OrderNo.: 1707152

Dear Lane Address:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/5/2017 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707152

Date Reported: 7/11/2017

CLIENT: EA Engineering

Client Sample ID: MW-1

Project: Halsells Grocery

Collection Date: 7/5/2017 11:35:00 AM

Lab ID: 1707152-001

Matrix: AQUEOUS

Received Date: 7/5/2017 2:35:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: MAB
1,2-Dibromoethane	ND	0.0092		µg/L	1	7/6/2017 6:31:19 PM	32649
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	36	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Toluene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Ethylbenzene	470	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2,4-Trimethylbenzene	230	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,3,5-Trimethylbenzene	61	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Naphthalene	360	100		µg/L	50	7/10/2017 2:16:00 PM	R44107
1-Methylnaphthalene	220	20		µg/L	5	7/6/2017 9:17:00 PM	R44030
2-Methylnaphthalene	89	20		µg/L	5	7/6/2017 9:17:00 PM	R44030
Acetone	ND	50		µg/L	5	7/6/2017 9:17:00 PM	R44030
Bromobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Bromodichloromethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Bromoform	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Bromomethane	ND	15		µg/L	5	7/6/2017 9:17:00 PM	R44030
2-Butanone	ND	50		µg/L	5	7/6/2017 9:17:00 PM	R44030
Carbon disulfide	ND	50		µg/L	5	7/6/2017 9:17:00 PM	R44030
Carbon Tetrachloride	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Chlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Chloroethane	ND	10		µg/L	5	7/6/2017 9:17:00 PM	R44030
Chloroform	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Chloromethane	ND	15		µg/L	5	7/6/2017 9:17:00 PM	R44030
2-Chlorotoluene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
4-Chlorotoluene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
cis-1,2-DCE	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	7/6/2017 9:17:00 PM	R44030
Dibromochloromethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Dibromomethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2-Dichlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,3-Dichlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,4-Dichlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Dichlorodifluoromethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1-Dichloroethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1-Dichloroethene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2-Dichloropropane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707152

Date Reported: 7/11/2017

CLIENT: EA Engineering

Client Sample ID: MW-1

Project: Halsells Grocery

Collection Date: 7/5/2017 11:35:00 AM

Lab ID: 1707152-001

Matrix: AQUEOUS

Received Date: 7/5/2017 2:35:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,3-Dichloropropane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
2,2-Dichloropropane	ND	10		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1-Dichloropropene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Hexachlorobutadiene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
2-Hexanone	ND	50		µg/L	5	7/6/2017 9:17:00 PM	R44030
Isopropylbenzene	41	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
4-Isopropyltoluene	9.5	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
4-Methyl-2-pentanone	ND	50		µg/L	5	7/6/2017 9:17:00 PM	R44030
Methylene Chloride	ND	15		µg/L	5	7/6/2017 9:17:00 PM	R44030
n-Butylbenzene	ND	15		µg/L	5	7/6/2017 9:17:00 PM	R44030
n-Propylbenzene	29	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
sec-Butylbenzene	16	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Styrene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
tert-Butylbenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	7/6/2017 9:17:00 PM	R44030
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
trans-1,2-DCE	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1,1-Trichloroethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,1,2-Trichloroethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Trichloroethene (TCE)	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Trichlorofluoromethane	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
1,2,3-Trichloropropane	ND	10		µg/L	5	7/6/2017 9:17:00 PM	R44030
Vinyl chloride	ND	5.0		µg/L	5	7/6/2017 9:17:00 PM	R44030
Xylenes, Total	99	7.5		µg/L	5	7/6/2017 9:17:00 PM	R44030
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	5	7/6/2017 9:17:00 PM	R44030
Surr: 4-Bromofluorobenzene	117	70-130		%Rec	5	7/6/2017 9:17:00 PM	R44030
Surr: Dibromofluoromethane	102	70-130		%Rec	5	7/6/2017 9:17:00 PM	R44030
Surr: Toluene-d8	99.3	70-130		%Rec	5	7/6/2017 9:17:00 PM	R44030

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707152

Date Reported: 7/11/2017

CLIENT: EA Engineering

Client Sample ID: Trip Blank

Project: Halsells Grocery

Collection Date:

Lab ID: 1707152-002

Matrix: AQUEOUS

Received Date: 7/5/2017 2:35:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: MAB
1,2-Dibromoethane	ND	0.0095		µg/L	1	7/6/2017 6:46:53 PM	32649
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Toluene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Ethylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Naphthalene	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1-Methylnaphthalene	ND	4.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
2-Methylnaphthalene	ND	4.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Acetone	ND	10		µg/L	1	7/6/2017 9:45:00 PM	R44030
Bromobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Bromodichloromethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Bromoform	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Bromomethane	ND	3.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
2-Butanone	ND	10		µg/L	1	7/6/2017 9:45:00 PM	R44030
Carbon disulfide	ND	10		µg/L	1	7/6/2017 9:45:00 PM	R44030
Carbon Tetrachloride	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Chlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Chloroethane	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Chloroform	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Chloromethane	ND	3.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
2-Chlorotoluene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
4-Chlorotoluene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
cis-1,2-DCE	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Dibromochloromethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Dibromomethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1-Dichloroethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1-Dichloroethene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2-Dichloropropane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1707152

Date Reported: 7/11/2017

CLIENT: EA Engineering

Client Sample ID: Trip Blank

Project: Halsells Grocery

Collection Date:

Lab ID: 1707152-002

Matrix: AQUEOUS

Received Date: 7/5/2017 2:35:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
2,2-Dichloropropane	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1-Dichloropropene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Hexachlorobutadiene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
2-Hexanone	ND	10		µg/L	1	7/6/2017 9:45:00 PM	R44030
Isopropylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
4-Isopropyltoluene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
4-Methyl-2-pentanone	ND	10		µg/L	1	7/6/2017 9:45:00 PM	R44030
Methylene Chloride	ND	3.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
n-Butylbenzene	ND	3.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
n-Propylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
sec-Butylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Styrene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
tert-Butylbenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
trans-1,2-DCE	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Trichlorofluoromethane	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Vinyl chloride	ND	1.0		µg/L	1	7/6/2017 9:45:00 PM	R44030
Xylenes, Total	ND	1.5		µg/L	1	7/6/2017 9:45:00 PM	R44030
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/6/2017 9:45:00 PM	R44030
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	7/6/2017 9:45:00 PM	R44030
Surr: Dibromofluoromethane	107	70-130		%Rec	1	7/6/2017 9:45:00 PM	R44030
Surr: Toluene-d8	103	70-130		%Rec	1	7/6/2017 9:45:00 PM	R44030

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID LCS-32649	SampType: LCS		TestCode: EPA Method 8011/504.1: EDB							
Client ID: LCSW	Batch ID: 32649		RunNo: 44041							
Prep Date: 7/6/2017	Analysis Date: 7/6/2017		SeqNo: 1388791		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.086	0.010	0.1000	0	86.0	70	130			

Sample ID MB-32649	SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB							
Client ID: PBW	Batch ID: 32649		RunNo: 44041							
Prep Date: 7/6/2017	Analysis Date: 7/6/2017		SeqNo: 1388856		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. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID	100ng lcs	SampType:	LCS4	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R44030	RunNo:	44030					
Prep Date:		Analysis Date:	7/6/2017	SeqNo:	1389275	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	19	1.0	20.00	0	94.7	70	130			
Ethylbenzene	19	1.0	20.00	0	95.8	70	130			
Methyl tert-butyl ether (MTBE)	45	1.0	40.00	0	112	70	130			
1,2,4-Trimethylbenzene	19	1.0	20.00	0	95.9	70	130			
1,3,5-Trimethylbenzene	19	1.0	20.00	0	94.2	70	130			
1,2-Dichloroethane (EDC)	21	1.0	20.00	0	103	62.2	143			
1,2-Dibromoethane (EDB)	22	1.0	20.00	0	110	70	130			
Naphthalene	22	2.0	20.00	0	112	70	130			
1-Methylnaphthalene	24	4.0	20.00	0	121	60	140			
2-Methylnaphthalene	18	4.0	20.00	0	89.3	60	140			
Bromobenzene	20	1.0	20.00	0	98.8	70	130			
Bromodichloromethane	20	1.0	20.00	0	102	70	130			
Bromoform	22	1.0	20.00	0	111	70	130			
Bromomethane	12	3.0	20.00	0	62.1	60	140			
Carbon disulfide	36	10	40.00	0	89.0	60	140			
Carbon Tetrachloride	19	1.0	20.00	0	94.8	70	130			
Chlorobenzene	20	1.0	20.00	0	97.5	70	130			
Chloroethane	19	2.0	20.00	0	94.0	60	140			
Chloroform	20	1.0	20.00	0	100	70	130			
Chloromethane	16	3.0	20.00	0	79.1	60	140			
2-Chlorotoluene	19	1.0	20.00	0	95.2	70	130			
4-Chlorotoluene	19	1.0	20.00	0	96.1	70	130			
cis-1,2-DCE	20	1.0	20.00	0	101	70	130			
cis-1,3-Dichloropropene	19	1.0	20.00	0	92.7	70	130			
1,2-Dibromo-3-chloropropane	26	2.0	20.00	0	129	70	130			
Dibromochloromethane	20	1.0	20.00	0	97.6	70	130			
Dibromomethane	22	1.0	20.00	0	110	70	130			
1,2-Dichlorobenzene	20	1.0	20.00	0	99.6	70	130			
1,3-Dichlorobenzene	19	1.0	20.00	0	97.3	70	130			
1,4-Dichlorobenzene	20	1.0	20.00	0	98.5	67.2	141			
Dichlorodifluoromethane	16	1.0	20.00	0	78.8	60	140			
1,1-Dichloroethane	19	1.0	20.00	0	95.8	52.6	157			
1,1-Dichloroethene	19	1.0	20.00	0	93.6	70	130			
1,2-Dichloropropane	20	1.0	20.00	0	98.9	63.7	138			
1,3-Dichloropropane	21	1.0	20.00	0	105	70	130			
2,2-Dichloropropane	19	2.0	20.00	0	96.7	70	130			
1,1-Dichloropropene	19	1.0	20.00	0	96.5	70	130			
Hexachlorobutadiene	17	1.0	20.00	0	87.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID	100ng lcs	SampType:	LCS4	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R44030	RunNo:	44030					
Prep Date:		Analysis Date:	7/6/2017	SeqNo:	1389275	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Isopropylbenzene	19	1.0	20.00	0	96.6	70	130			
4-Isopropyltoluene	19	1.0	20.00	0	97.1	70	130			
Methylene Chloride	20	3.0	20.00	0	98.3	70	130			
n-Butylbenzene	18	3.0	20.00	0	92.1	70	130			
n-Propylbenzene	19	1.0	20.00	0	94.0	70	130			
sec-Butylbenzene	18	1.0	20.00	0	92.0	70	130			
Styrene	20	1.0	20.00	0	97.6	70	130			
tert-Butylbenzene	19	1.0	20.00	0	93.8	70	130			
1,1,1,2-Tetrachloroethane	19	1.0	20.00	0	95.8	70	130			
1,1,2,2-Tetrachloroethane	25	2.0	20.00	0	123	65.9	133			
Tetrachloroethene (PCE)	20	1.0	20.00	0	99.5	70	130			
trans-1,2-DCE	19	1.0	20.00	0	92.8	70	130			
trans-1,3-Dichloropropene	19	1.0	20.00	0	93.6	70	130			
1,2,3-Trichlorobenzene	20	1.0	20.00	0	99.7	70	130			
1,2,4-Trichlorobenzene	19	1.0	20.00	0	96.1	70	130			
1,1,1-Trichloroethane	19	1.0	20.00	0	96.1	70	130			
1,1,2-Trichloroethane	21	1.0	20.00	0	106	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	96.9	70	130			
Trichlorofluoromethane	19	1.0	20.00	0	95.5	70	130			
1,2,3-Trichloropropane	25	2.0	20.00	0	124	69.7	129			
Vinyl chloride	17	1.0	20.00	0	86.1	70	130			
Xylenes, Total	58	1.5	60.00	0	97.0	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R44030	RunNo:	44030					
Prep Date:		Analysis Date:	7/6/2017	SeqNo:	1389276	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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R44030	RunNo:	44030					
Prep Date:		Analysis Date:	7/6/2017	SeqNo:	1389276	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R44030	RunNo:	44030					
Prep Date:		Analysis Date:	7/6/2017	SeqNo:	1389276	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	100ng lcs	SampType:	LCS4	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	BatchQC	Batch ID:	R44087	RunNo:	44087					
Prep Date:		Analysis Date:	7/7/2017	SeqNo:	1391116	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R44087	RunNo:	44087					
Prep Date:		Analysis Date:	7/7/2017	SeqNo:	1391118	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1707152

11-Jul-17

Client: EA Engineering
Project: Halsells Grocery

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R44087		RunNo: 44087							
Prep Date:	Analysis Date: 7/7/2017		SeqNo: 1391118		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 100ng lcs	SampType: LCS4		TestCode: EPA Method 8260B: VOLATILES							
Client ID: BatchQC	Batch ID: R44107		RunNo: 44107							
Prep Date:	Analysis Date: 7/10/2017		SeqNo: 1391695		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	18	2.0	20.00	0	89.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID RB	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R44107		RunNo: 44107							
Prep Date:	Analysis Date: 7/10/2017		SeqNo: 1391703		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

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



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

Sample Log-In Check List

Client Name: EA Engineering Alb Work Order Number: 1707152 RcptNo: 1

Received By: **Andy Jansson** 7/5/2017 2:35:00 PM *andy jansson*
 Completed By: **Andy Jansson** 7/5/2017 3:35:33 PM *andy jansson*
 Reviewed By: *see 07/06/17*

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

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

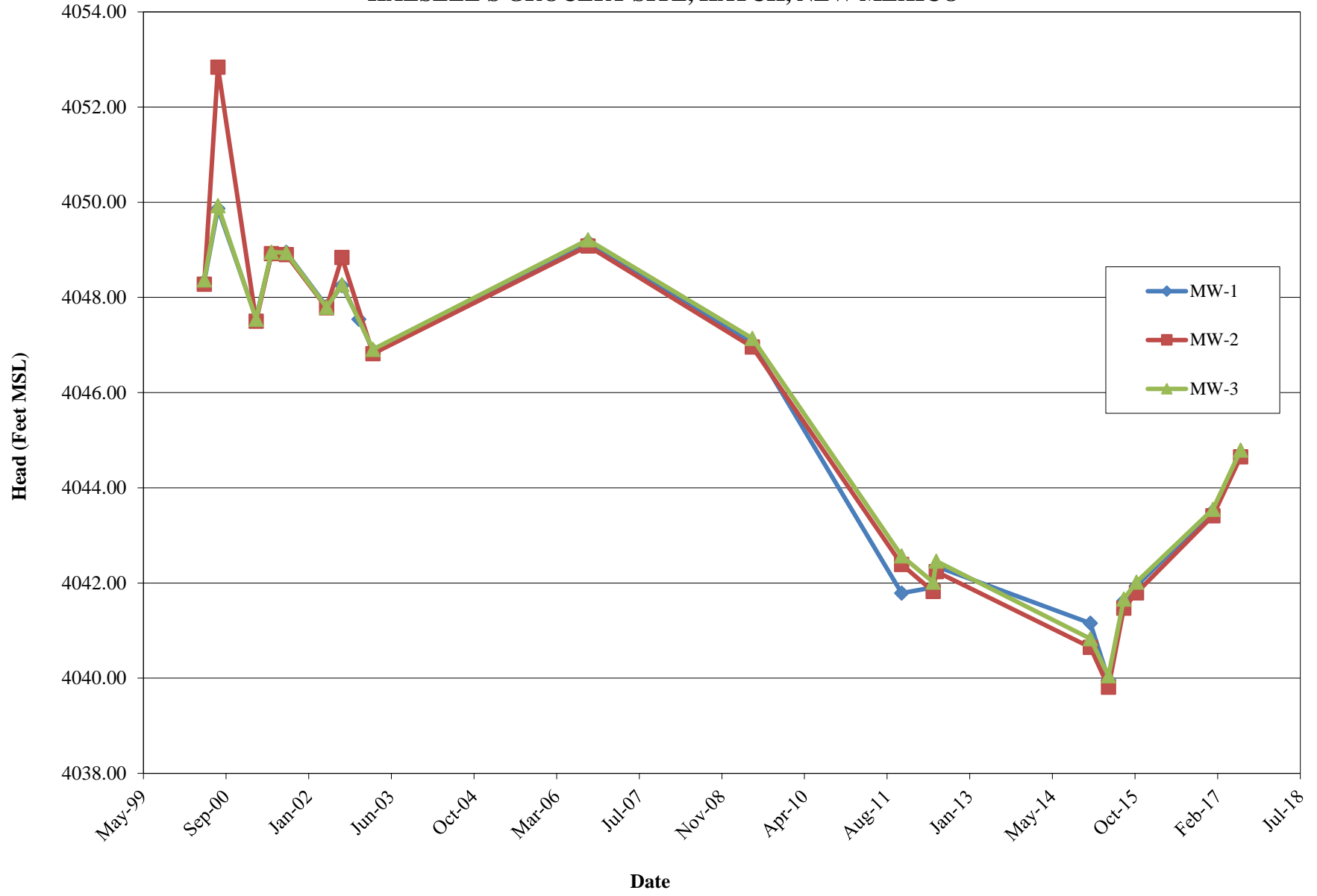
17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	16.6	Good	Not Present			

**APPENDIX C
HYDROGRAPHS**

**HYDROGRAPH FOR WELLS MW-1, MW-2 AND MW-3
HALSELL'S GROCERY SITE, HATCH, NEW MEXICO**



NAPL THICKNESS VS. WATER ELEVATION IN WELL MW-1 HALSELL'S GROCERY SITE, HATCH, NEW MEXICO

