REPORT

FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT (FORM 1216)

June 2016 Event

Lovington 66
PSTB Facility #1489
503 S. Main Street
Lovington, New Mexico

Submitted To: NMED-PSTB
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

On Behalf of: Jack Walstad Oil Company
c/o Robert Murrell
2317 Tuttington Circle
Oklahoma City, OK 73170

Submitted By: Golder Associates Inc.
5200 Pasadena Avenue NE, Suite C
Albuquerque, NM 87113 USA

Distribution:
1 Copy – Mr. Tim Noger, NMED-PSTB
1 Copy – Jack Walstad Oil Company
2 Copies – Golder Associates Inc.

August 3, 2016

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Golder Associates

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Form 1216
First Semi-Annual Groundwater Monitoring Report

Site:	Lovington 66
Responsible Party:	Jack Walstad Oil Company Inc., Robert C. Murrell
Responsible Party Mailing Address:	2317 Tuttington Circle Oklahoma City, OK 73170
Facility ID:	1489
Release ID:	1182
Site Address:	424 S. Main St., Lovington, NM
Author/Consulting Company:	Golder Associates Inc.
Date of Report:	August 3, 2016
Date of Confirmation of Release:	December 5, 1991

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 complete and true to the best of my knowledge.

Signature: _____ Date: August 3, 2016

Name: Clay Kilmer
Affiliation: Golder Associates Inc.
Title: Project Manager

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1.0 INTRODUCTION

On behalf of Jack Walstad Oil Company (Walstad), Golder Associates Inc. (Golder) has completed the first semi-annual groundwater monitoring event at the former Lovington 66 site. The monitoring event was completed in accordance with the *Work Plan for Semi-Annual Monitoring and Quarterly Free Product Recovery, Lovington 66 Site (LUST ID1182), Lovington, New Mexico* dated March 3, 2016. This work plan satisfies the requirements stated in the New Mexico Administrative Code, Title 20, Chapter 5, Section 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 May 17, 2016 under work plan identification number (WPID #) 17734. This is the first deliverable under WPID #17734, and is identified as deliverable ID 17734-1.

The former Lovington 66 Site is located at 424 South Main Street, Lovington, New Mexico (**Figure 1**). This site is bounded by Highway 83/Avenue D on the south, and Main Street on the east. Avenue C is north of the site, and west of the site is commercial property. Southeast of the site is Allsup's #109 convenience store and self-service gasoline station (Allsup's), which is also a leaking underground storage tank site. A self-service gasoline station is located south of the site. The original Lovington 66 building has been demolished, and presently a McDonald's restaurant is located on the property. The former Lovington 66 was located on the southern portion of the property that now is the parking lot for McDonald's. The Lovington 66 dissolved phase plume has migrated southeast across the intersection of Main and Avenue D and is commingled with the Allsup's #109 site dissolved phase plume.

Significant thickness of nonaqueous phase liquid (NAPL) fuels has been detected at the site in monitoring wells W-1, W-2 and W-3, as well as in Allsup's monitoring well MW-3, located approximately 200 feet downgradient and southeast across the intersection of NM 83 (Avenue D) and Main Street (Figure 1). Multiphase vacuum extraction pilot testing was conducted on Walstad wells VE-1, W-1, W-2 and W-3 on July 12-13, 2015.

Fluid levels were measured in wells VE-1, W-1, W-2 and W-3 on June 15, 2016 pursuant to NAPL bailing and recovery at the site. Pursuant to groundwater monitoring and sampling, fluid levels were measured in fourteen Lovington 66 monitoring wells (W-5, W-7, W-8, W-9, W-11, W-12, W-13, W-14, W-15, W-16, W-18, W-19, W-20, and W-21), and in 2 wells on the Allsup's #109 site (MW-1 and MW-3) on June 23, 2016. Groundwater samples were collected from nine Lovington 66 monitoring wells (W-5, W-8, W-9, W-11, W-14, W-16, W-19, W-20, and W-21) and analyzed for volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX), ethylene dichloride (EDC), methyl tertiary butyl ether (MTBE), and total naphthalenes by Environmental Protection Agency (EPA) Method 8260. In addition, pH, specific conductance, dissolved oxygen (DO), and temperature were measured in the field. The following sections provide a detailed summary of the results of the first semi-annual monitoring event under WPID #17734.

2.0 ACTIVITIES PERFORMED DURING THIS PERIOD

This section provides a brief description of previous corrective action activities conducted at the site, and monitoring activities performed during this monitoring period.

2.1 Brief Description of Remediation System and Date Installed

A remediation system has not been installed at this site. Previous corrective action activities that have occurred at the site include the following:

- July 1991 – AEI Tank, Inc. (AEI) conducted a site assessment that included seven soil borings advanced within the underground storage tank (UST) backfill or UST perimeter, and five borings in or near product pipe trenches. Hydrocarbon contamination was observed.
- November 1991 – AEI removed five USTs that contained diesel, unleaded fuels, and used oil, as well as the associated product piping and fuel dispensers. Hydrocarbon contamination was observed in the location of the dispensers and the location of the diesel tank. It was determined that a release likely occurred from overfilling the USTs and from the dispensers and product lines (a large section of product piping had been replaced).
- November and December 1991 – AEI excavated approximately 600 cubic yards of contaminated soil from product line trenches, dispenser islands and tank excavations.
- December 1991 – AEI attempted to delineate the vertical extent of contamination by installing one soil boring. The location of this soil boring was never documented. During the drilling of the boring auger refusal was encountered at 40 feet below ground surface (bgs).
- February 1992 – AEI installed one groundwater monitoring well. Groundwater sample results indicated that groundwater contamination was present above New Mexico Water Quality Control Commission (NMWQCC) standards.
- March 1992 – AEI installed two additional monitor wells to determine the extent of dissolved phase hydrocarbon contamination. Both wells had dissolved phase hydrocarbon concentrations well above NMWQCC standards.
- June 1992 – Billings & Associates, Inc (BAI) completed an Interim Hydrogeologic Investigation Report (On-site). During this investigation six soil borings (B-4 through B-9) were advanced at the site to a depth of 40 feet bgs. Heated headspace measurements above action levels were present in all borings except B-8. Non-Aqueous Phase Liquid (NAPL) was present in the three monitor wells installed by AEI. Three additional monitor wells W-4, W-5, and W-6 were installed. The three new wells exceeded NMWQCC standards.
- September 1993 – BAI completed a 2nd Interim Hydrogeologic Investigation Report. During this investigation free product recovery efforts commenced using BAI's Product Recovery Filter system. In addition six new monitor wells (W-7 through W-12) and vertical extent well V-1, were installed.
- June 1993 – BAI submitted the 3rd Interim Hydrogeologic Investigation Report. Five wells (W-13 through W-17) were installed to delineate the dissolved phase plume. NAPL was present in vertical extent well V-1, which Billings attributed to leaking well casing.
- August 2006 – Golder sampled the Lovington 66 wells as part of an investigation conducted at the Allsup's #109 site located downgradient from the Lovington 66 site.

- November 2007 – Golder completed a Continued Secondary Investigation in which three downgradient wells (W-19, W-20, and W-21) were installed and a NAPL bail down test was completed on wells W-2 and W-3. The downgradient extent of contamination was delineated.
- August 2008 – Golder completed four quarters of groundwater monitoring at the Lovington 66 site.
- February 2009 – Golder completed the first biannual monitoring event and associated quarterly product recovery from wells W-1, W-2, W-3, and V-1. The site data for the First Biannual Groundwater Monitoring Report was completed in January, 2009.
- August 2009 – Golder completed the second biannual monitoring event and associated quarterly product recovery from wells W-1, W-2 and W-3. The site data for the second Biannual Groundwater Monitoring Report was completed in July, 2009.
- February 2014 – Golder completed the first biannual monitoring event and associated quarterly product recovery from wells W-1, W-2, W-3, and V-1. The site data for the First Biannual Groundwater Monitoring Report was completed in January 2014.
- October 2014 – Golder completed the second biannual monitoring event and associated quarterly product recovery from wells W-1, W-2 and W-3. The site data for the second Biannual Groundwater Monitoring Report was completed in October 2014.
- November 2015 – Golder completed NAPL bail-down and recovery testing on wells W-1, W-2 and W-3 in June 2015.
- November 2015 – Golder completed installation of a multiphase extraction pilot test well (MPE-1) at the property and performed pilot testing on wells MPE-1, W-1 and W-2 in July 2015.
- Golder completed multiphase vacuum extraction pilot testing on Walstad wells VE-1, W-1, W-2 and W-3 on July 12 and 13, 2015.

2.2 Description of Activities Performed to Keep System Operating Properly

No active remediation activities have been completed at the site.

2.3 Monitoring Activities Performed

2.3.1 NAPL Gauging, Recovery and Disposal

Golder subcontracted Clayton M. Barnhill Environmental (CMB) to gauge NAPL and to bail NAPL from wells W-1, W-2 and W-3 on a quarterly basis as part of the semi-annual monitoring and quarterly free product recovery project scope. The first quarterly NAPL bailing event was conducted as part of the first semi-annual groundwater monitoring event and indicates that NAPL remains in four of the Lovington 66 monitor wells (MPE-1, W-1, W-2, and W-3) and is also present in Allsup's well MW-3, located approximately 200 feet downgradient to the southeast.

Table 1 contains a cumulative summary of the NAPL thicknesses and recovered quantities collected during the bailing events conducted since 2008. **Table 1** also contains NAPL gauging and recovery data collected

during the Multiphase Extraction (MPE) pilot testing that was performed in July, 2015. Approximately 141 gallons of NAPL were recovered during the July 2015 MPE pilot testing.

A total of approximately 19 gallons of NAPL were recovered from the wells during the June 15, 2016 monitoring and bailing event. The NAPL and highly contaminated groundwater that were recovered during NAPL bailing at the site on June 15, 2016 were transported to the Gandy Marley disposal facility in Roswell; a copy of the documentation of disposal is included in **Appendix A.**

Cumulative water level and NAPL thickness data for the monitoring wells in the Lovington 66 site network, as well as the Allsup's site network are included in **Table 2**. Hydrographs showing water levels and NAPL thickness trends in selected wells are included in **Appendix B**.

2.3.2 Groundwater Gauging and Sampling Activities

The first semi-annual groundwater monitoring event under WPID # 17734-1 was conducted on June 15 and June 23, 2016. Water level, NAPL gauging and bailing was completed on wells W-1, W-2, W-3 and MPE-1 on June 15, 2016. Groundwater monitoring wells were gauged and sampled on June 23, 2016. Prior to collecting groundwater samples, fluid levels in all existing Lovington 66 wells (except for the wells gauged on June 15, and wells W-10 and W-7), and in Allsup's wells MW-1 and MW-3 were measured with an electronic water level meter or interface probe. Well W-10 is located in the middle of Main Street and it was determined that it was unsafe to measure fluid levels in this well. Well MW-7 was found to be occluded with heavy root-like biological growth that precluded obtaining a water level measurement. Due to major pavement rework at the Allsup's #109 site, well MW-2 on that site has apparently been covered with concrete pavement and could not be measured. Allsup's well MW-3 was found to be intact, but the vault's bolts had been occluded with new concrete. The concrete was chipped away and the well was accessed and measured for the first time since July 2009, revealing that a NAPL thickness of 5.14 feet was present in the well.

Table 2 provides a summary of the groundwater level and NAPL measurements collected from the monitoring wells. A potentiometric surface map was prepared using the collected data and is included in **Figure 2**. Hydrographs for selected site monitor wells are provided in **Appendix B**.

Nine Lovington 66 monitoring wells (W-5, W-8, W-9, W-11, W-14, W-16, W-19, W-20, and W-21) were purged and sampled with disposable polyethylene bailers following the measurement of fluid levels in the wells. The wells were sampled from least to most contaminated where possible to minimize cross-contamination. All equipment was decontaminated between wells with an Alconox™ solution to prevent cross-contamination. 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.

Golder's contractor, CMB Environmental & Geological Services, Inc. (CMB) performed the fluid gauging and groundwater sampling at the site. CMB measured field parameters of produced water during purging and prior to sampling. The multi-parameter meter was calibrated and/or checked against standards in accordance with manufacturer's specifications prior to use. Specific conductance, DO, pH, Oxidation-Reduction Potential (ORP) and temperature were recorded on monitoring well sampling field forms. Monitoring well sampling field forms are provided in **Appendix C**. A summary of field parameter data from well purging activities is presented in **Table 5**.

Sample containers, preservatives, analytical methods, and holding times employed for this project are specified in **Table 3**. Samples for VOC analysis were collected such that no headspace air existed in the sample vial. All samples were preserved in accordance with method requirements, then immediately cooled to 4 °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 D**.

2.3.3 Groundwater Sampling Results

The laboratory analytical results for the first semi-annual monitoring event are summarized in **Table 4**. The following are observations from this data:

- The dissolved phase hydrocarbon concentrations were at or above NMWQCC standards in five of the nine monitor wells sampled.
- The highest benzene concentration observed was 32,000 µg/L in monitor well W-14.
- Well W-8 had benzene, toluene, ethylbenzene, total xylenes, MTBE, EDC, and total naphthalenes at concentrations above standards.
- Well W-9 had benzene, MTBE, and EDC at concentrations above standards.
- Well W-11 had EDC at a concentration above the standard.
- Well W-14 had benzene, toluene, ethylbenzene, total xylenes, MTBE, and total naphthalenes at concentrations above standards.
- Well W-19 had EDC at a concentration above standard.
- Wells W-16, W-20 and W-21 had non detected concentrations, or concentrations below NMWQCC standards for all compounds analyzed.

2.4 System Performance and Effectiveness

No system has been installed at the site.

2.5 Statement Verifying Containment of Release

The Lovington 66 dissolved phase plume has migrated southeast across the intersection of Avenue D and Main Street to Avenue E southeast of the site. The NAPL plume appears to have migrated beneath the intersection of Avenue D and Main Street with NAPL noted in Allsup's network well MW-3, and dissolved phase concentrations observed in well W-14 near NAPL levels. The downgradient extent of the dissolved

phase plume appears to be upgradient of wells W-20 and W-21. Cumulative NAPL data, as well as dissolved VOC data from downgradient wells W-9 and W-19 indicate that the dissolved phase plume is mobile to the southeast.

3.0 SUMMARY AND CONCLUSIONS

This section summarizes the results of the first semi-annual monitoring event and includes a brief discussion of water level and contaminant concentration trends at the Lovington 66 site. Additionally, recommendations for future site activities are provided.

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

Depth to shallow groundwater at the site is approximately 57 to 60 feet below ground surface. Groundwater and NAPL level measurements made during the June 15 and 23 site visits, as well as cumulative groundwater gauging data for the period of record at the site, are included in **Table 2**. These measurements were used to prepare hydrographs and NAPL thickness histories for selected wells which are included in **Appendix B**. The hydrographs indicate that groundwater levels rose as much as 3 feet between the summer of 1992 when wells were initially installed and approximately the end of 2007. Since early 2008, groundwater levels have declined approximately 5 feet at the site.

Water level elevation measurements collected during the June 15 and June 23, 2016 site visits were used to prepare the water table gradient map included in **Figure 2**. The overall direction of groundwater flow is southeasterly and the hydraulic gradient is approximately 0.0047 foot per foot, or about 24.7 feet per mile. This is consistent with earlier assessments of groundwater gradient magnitude and direction at the site.

NAPL has consistently been detected in wells W-1, W-2 and W-3 throughout the period of record at the Walstad site. NAPL had not been detected in any of the other Walstad site wells, or in any of the Allsup's site wells until June 23, 2016, when 5.17 feet of NAPL was noted in Allsup's well MW-3. NAPL thicknesses measured in wells W-1, W-2 and W-3 have varied from less than one inch in July 2009 to as much as 7.0 feet measured during the January 21, 2014 site visit. The history of NAPL thicknesses in wells W-1, W-2 and W-3 are shown on the hydrographs in **Appendix B**. The NAPL thickness increased substantially from July 2009 to January 2014, from approximately 3 feet to nearly 7 feet. The June 2014 monitoring shows that NAPL thickness increased by almost 4 feet in W-1 but remained approximately the same in W-2 and W-3. Low water levels are correlated with greatest NAPL thicknesses; high water levels correlate to thin NAPL accumulation.

The distribution of dissolved phase organic contaminants determined from analytical data from samples collected on June 23, 2016 is shown on the map in **Figure 3**. Dissolved concentration historical trends are shown in the plots included in **Appendix E**. The dissolved phase benzene concentrations in wells W-8 and W-14 were approximately 2-4 orders of magnitude greater than the NMWQCC standard of 10 μg/L. The distribution of benzene in the groundwater is shown on **Figure 4**. Dissolved fuel concentrations are generally increasing within the downgradient plume in the area of well W-14 and have slightly decreased in downgradient areas near wells W-9 and W-19.

A significant spike in the concentration of benzene was detected in samples collected from side-gradient well W-16 between August 2006 and January 2009. A similarly-timed spike in MTBE concentration was noted in samples collected from side-gradient well W-11. These spikes may be associated with mobilization of adsorbed contaminants occurring during the period when groundwater levels rose and peaked during approximately the same time frame. MTBE concentrations declined in MW-8 and rose significantly in MW-9 since the January 2014 monitoring. Distribution of MTBE in groundwater is shown on **Figure 5**. EDC concentrations from the June 23, 2016 monitoring event are generally somewhat lower than those determined from samples collected during the previous monitoring event conducted in October 2014 monitoring event and are shown on **Figure 6**. The overall shapes of the mapped groundwater analyte plumes do not show significant regression or further excursion of dissolved fuel contaminants than those mapped during the previous sampling event in October 2014.

Field measurements of the ORP of groundwater samples from each of the nine sampled wells were used to prepare the projection of groundwater ORP shown on the map in **Figure 7**. This map indicates that reducing groundwater conditions, indicating continuing organic loading into groundwater, are distributed more than 800 feet downgradient and 800 feet laterally to gradient direction, across an area of approximately 13.5 acres to the southeast of fuel contaminants at the Walstad site.

3.2 Ongoing Assessment of Remediation System

No active remediation system has been installed at the site.

3.3 Recommendations

Based on the results of the first semi-annual groundwater monitoring event, we conclude that the geometry of the dissolved phase fuel contaminant plume at the site has not changed significantly since the site was placed into regulatory enforcement in 1991. Separate phase fuel, however, appears to be mobile downgradient and to the southeast. A new municipal well is located approximately 2,800 feet downgradient of the site.

The results of MPE pilot testing performed at the site in 2015 indicate that hydraulic conductance of sediments in the adsorbed fuel plume is limited. Vapor flow rates were found to be modest; however, NAPL recovery rates were noted to be significant. During the combined 16.6 hours of MPE operations performed during pilot testing, a total of 141 gallons of NAPL were recovered from the three tested wells, and the equivalent of an additional 89 gallons of fuel was recovered as vapor. Therefore, we recommend that NAPL recovery and/or MPE be implemented at the site. Until active remediation is implemented, we recommend that semi-annual groundwater monitoring continue and that more frequent and aggressive NAPL recovery be performed using total fluids recovery from existing site wells and produced fluid be disposed at a permitted facility.

TABLES

Table 1: Summary of NAPL Gauging and Recovery
Lovington 66, Lovington, New Mexico

Monitor Well	Date Recovered	Prior to Bailing			Post Bailing			Total NAPL Recovered (gallons)	Sources of Data, Comments
		Depth To NAPL (feet)	Depth to Water (feet)	NAPL Thickness (feet)	Depth to NAPL (feet)	Depth to Water (feet)	NAPL Thickness (feet)		
W-1	3-Sep-08	54.69	58.52	3.83	-	57.22	0.00	6.00	1, NAPL Bailing Event
	27-Jan-09	54.69	58.22	3.53	-	56.25	0.00	6.00	1, NAPL Bailing Event
	12-May-09	54.85	57.78	2.93	-	56.62	0.00	1.90	1, NAPL Bailing Event
	10-Jul-09	55.33	56.99	1.66	-	56.69	0.00	1.08	1, NAPL Bailing Event
	12-Feb-14	57.30	60.08	2.78	-	57.88	0.00	8.50	1, NAPL Bailing Event
	9-Jun-14	57.72	64.31	6.59	-	59.85	0.00	4.18	1, NAPL Bailing Event
	15-Oct-14	57.91	64.55	6.64	-	60.20	0.00	20.05	1, NAPL Bailing Event
	2-Jun-15	58.11	64.89	6.78	60.41	60.51	0.10	5.75	1, NAPL Bail-Down Recovery Test
	13-Jul-15	57.12	63.96	6.84	NM	NM	NM	47.61	2, MPE Pilot Test
	15-Jun-16	58.18	64.18	6.00	61.30	61.31	0.01	4.24	1, NAPL Bailing Event
W-2	3-Sep-08	54.50	54.94	0.44	-	55.52	0.00	0.25	1, NAPL Bailing Event
	27-Jan-09	54.48	54.81	0.33	-	55.55	0.00	0.25	1, NAPL Bailing Event
	12-May-09	54.50	54.83	0.33	-	55.64	0.00	0.21	1, NAPL Bailing Event
	10-Jul-09	54.68	54.96	0.28	-	55.50	0.00	0.18	1, NAPL Bailing Event
	12-Feb-14	56.25	63.26	7.01	-	58.60	0.00	9.75	1, NAPL Bailing Event
	9-Jun-14	56.67	63.64	6.97	-	58.87	0.00	9.15	1, NAPL Bailing Event
	15-Oct-14	56.87	63.85	6.98	-	59.42	0.00	15.85	1, NAPL Bailing Event
	2-Jun-15	57.07	64.26	7.19	59.30	59.32	0.02	6.20	1, NAPL Bail-Down Recovery Test
	13-Jul-15	58.13	64.67	6.54	NM	NM	NM	25.92	2, MPE Pilot Test
	15-Jun-16	57.11	63.60	6.49	59.81	59.82	0.01	5.88	1, NAPL Bailing Event
W-3	3-Sep-08	54.60	54.81	0.21	-	55.57	0.00	0.25	1, NAPL Bailing Event
	27-Jan-09	54.56	54.69	0.13	-	55.52	0.00	0.25	1, NAPL Bailing Event
	12-May-09	54.58	54.68	0.10	-	55.54	0.00	0.07	1, NAPL Bailing Event
	10-Jul-09	54.78	54.85	0.07	-	55.64	0.00	0.05	1, NAPL Bailing Event
	12-Feb-14	56.36	63.03	6.67	-	58.05	0.00	9.75	1, NAPL Bailing Event
	9-Jun-14	56.78	63.43	6.65	-	59.07	0.00	9.30	1, NAPL Bailing Event
	15-Oct-14	56.96	63.70	6.74	-	60.02	0.00	21.10	1, NAPL Bailing Event
	2-Jun-15	57.17	64.10	6.93	59.80	59.95	0.15	7.00	1, NAPL Bail-Down Recovery Test
	15-Jun-16	57.21	63.53	6.32	NM	NM	NM	8.88	1, NAPL Bailing Event
MPE-1	12-Jul-15	57.40	64.08	6.68	61.61	61.65	0.04	67.10	2, MPE Pilot Test
	15-Jun-16	57.43	63.75	6.32	NAPL not bailed				1, NAPL Bailing Event
V-1	3-Sep-08	53.92	58.45	4.53	-	55.20	0.00	1.00	1
		Well Plugged & Abandoned							

Cumulative Total NAPL Recovered at the Site (gallons) ***303.69***

Notes:

NAPL - Non Aqueous Phase Liquid

NAPL and water disposed of at Gandy-Marley

NM - not measured

Sources of Data

1: Clayton M Barnhill, Roswell NM

2: AcuVac Remediation, Inc. Houston, TX

Golder Associates

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
Allsup's # 109								
MW-1	6-Aug-2005	708392.73	843467.49	3909.74			55.07	3854.67
	8-Aug-2006						54.36	3855.38
	7-Nov-2007						53.93	3855.81
	12-May-2008						54.36	3855.38
	7-Aug-2008						54.86	3854.88
	28-Jan-2009						54.91	3854.83
	10-Jul-2009						55.12	3854.62
	12-Feb-2014						58.47	3851.27
	7-Oct-2014						58.86	3850.88
	23-Jun-2016						59.19	3850.55
MW-2	6-Aug-2005	708398.53	843584.18	3910.05			55.74	3854.31
	8-Aug-2006						55.04	3855.01
	7-Nov-2007						54.58	3855.47
	12-May-2008						55.05	3855.00
	7-Aug-2008						55.54	3854.51
	28-Jan-2009						55.56	3854.49
	10-Jul-2009						55.79	3854.26
	12-Feb-2014	Well Destroyed -- covered by new cement (parking lot)						
MW-3	6-Aug-2005	708484.61	843518.13	3910.14			55.33	3854.81
	8-Aug-2006						54.65	3855.49
	7-Nov-2007						54.22	3855.92
	13-May-2008						54.76	3855.38
	7-Aug-2008						55.15	3854.99
	28-Jan-2009						55.16	3854.98
	10-Jul-2009						55.42	3854.72
	12-Feb-2014				Bolts on vault are cemented in place			
	23-Jun-2016				58.28	5.14	63.42	3850.58
Walstad 66								
V-1	29-Aug-1992	708614.74	843348.54	99.37			56.68	42.69
	25-May-1993						56.74	42.63
	8-Aug-2006			3910.67	53.32	4.59	57.91	3852.76
	7-Nov-2007				53.01	4.58	57.59	3853.08
	13-Feb-2008				53.01	4.57	57.58	3853.09
	13-May-2008				53.41	4.57	57.98	3852.69
	7-Aug-2008				53.75	4.55	58.30	3852.37
		Well Plugged & Abandoned						
MPE-1	15-Jun-2016	Has Not Been Surveyed			57.43	6.32	63.75	Not Surveyed

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
W-1	12-Feb-1992	708649.18	843347.81	3911.33	0.125" of NAPL Present			
	8-Jun-1992				>30" of NAPL Present			
	24-Jun-1992				>30" of NAPL Present			
	24-May-1993				NAPL Present			
	28-Aug-1993				NAPL Present			
	8-Aug-2006				54.23	3.15	57.38	3856.31
	7-Nov-2007				53.91	3.11	57.02	3856.64
	13-Feb-2008				53.89	3.16	57.05	3856.65
	13-May-2008				54.25	3.37	57.62	3856.24
	7-Aug-2008				54.96	3.31	58.27	3855.54
	28-Jan-2009				55.39	0.31	55.70	3855.86
	10-Jul-2009				55.69	0.09	55.78	3855.62
	21-Jan-2014				57.30	2.78	60.08	3853.34
	7-Oct-2014				57.91	6.64	64.55	3851.76
	15-Jun-2016				58.18	6.00	64.18	3851.65
W-2	13-Mar-1992	708625.02	843381.13	3910.19	0.125" of NAPL Present			
	8-Jun-1992				>30" of NAPL Present			
	24-Jun-1992				>30" of NAPL Present			
	28-Aug-1992				NAPL Present			
	24-May-1993				NAPL Present			
	8-Aug-2006				53.21	5.34	58.55	3855.65
	7-Nov-2007				52.88	3.32	56.20	3856.48
	13-Feb-2008				53.57	0.31	53.88	3856.54
	13-May-2008				53.98	0.38	54.36	3856.12
	7-Aug-2008				54.34	0.44	54.78	3855.74
	28-Jan-2009				54.44	0.03	54.47	3855.74
	10-Jul-2009				54.69	0.11	54.8	3855.47
	21-Jan-2014				56.23	7.00	63.23	3852.21
	7-Oct-2014				56.87	6.98	63.85	3851.58
	15-Jun-2016				57.11	6.49	63.60	3851.46
W-3	13-Mar-1992	708597.90	843348.60	3910.29	0.125" of NAPL Present			
	8-Jun-1992				>30" of NAPL Present			
	24-Jun-1992				>30" of NAPL Present			
	28-Aug-1992				NAPL Present			
	24-May-1993				NAPL Present			
	8-Aug-2006				53.30	3.20	56.50	3856.19
	7-Nov-2007				53.01	3.03	56.04	3856.52
	13-Feb-2008				53.65	0.13	53.78	3856.61
	13-May-2008				54.44	0.21	54.65	3855.80
	7-Aug-2008				54.08	0.18	54.26	3856.17
	28-Jan-2009				54.50	0.06	54.56	3855.78
	10-Jul-2009				54.75	0.02	54.77	3855.54
	21-Jan-2014				56.36	6.66	63.02	3852.27
	7-Oct-2014				56.96	6.74	63.70	3851.65
	15-Jun-2016				57.21	6.32	63.53	3851.50

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
W-4	24-Jun-1992			99.62			57.04	42.58
	28-Aug-1992						56.69	42.93
	25-May-1993						56.48	43.14
	8-Aug-2006	Well Destroyed						
W-5	24-Jun-1992	708759.72	843252.39	100.41			57.59	3854.12
	28-Aug-1992						57.24	3854.47
	26-May-1993						57.02	3854.69
	8-Aug-2006			3911.71			54.88	3856.83
	7-Nov-2007						54.61	3857.10
	13-Feb-2008						54.63	3857.08
	12-May-2008						54.87	3856.84
	7-Aug-2008						55.36	3856.35
	28-Jan-2009						55.36	3856.35
	9-Jul-2009						55.54	3856.17
	21-Jan-2014						58.51	3853.20
	7-Oct-2014						59.24	3852.47
	23-Jun-2016						59.39	3852.32
W-6	24-Jun-1992			99.48			56.97	42.51
	28-Aug-1992						56.64	42.84
	26-May-1993						56.49	42.99
	8-Aug-2006	Well Destroyed						
W-7	28-Aug-1992	708911.67	843120.56	100.07			56.29	3854.59
	25-May-1993						55.96	3854.92
	8-Aug-2006			3911.35			53.74	3857.14
	7-Nov-2007						53.48	3857.40
	12-Feb-2008	708910.73	843120.52	3910.88			53.33	3857.55
	12-May-2008						53.55	3857.33
	6-Aug-2008						53.97	3856.91
	28-Jan-2009						54.11	3856.77
	9-Jul-2009						54.23	3856.65
	21-Jan-2014						57.05	3853.83
	7-Oct-2014						57.92	3852.96
	23-Jun-2016				Well occluded by roots above the water level (57.73 ft)			
W-8	28-Aug-1992	708389.76	843640.62	98.69			57.24	3852.68
	25-May-1993						57.20	3852.72
	8-Aug-2006			3909.92			55.11	3854.81
	7-Nov-2007						54.65	3855.27
	13-Feb-2008						54.79	3855.13
	12-May-2008						55.14	3854.78
	7-Aug-2008						55.64	3854.28
	28-Jan-2009						55.67	3854.25
	9-Jul-2009						55.82	3854.10
	21-Jan-2014						59.33	3850.59
	7-Oct-2014						59.84	3850.08
	23-Jun-2016						60.05	3849.87

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
W-9	28-Aug-1992	708267.18	843790.26	97.47			56.76	3851.96
	25-May-1993						56.74	3851.98
	8-Aug-2006			3908.72			54.66	3854.06
	7-Nov-2007						54.12	3854.60
	13-Feb-2008						54.31	3854.41
	12-May-2008						54.68	3854.04
	7-Aug-2008						55.18	3853.54
	28-Jan-2009						55.19	3853.53
	9-Jul-2009						55.35	3853.37
	21-Jan-2014						59.01	3849.71
	7-Oct-2014						59.50	3849.22
	23-Jun-2016						59.64	3849.08
W-10	28-Aug-1992	708254.54	843452.92	97.85			56.18	41.67
	26-May-1993						55.80	42.05
	8-Aug-2006			3908.89			53.79	3855.10
	13-Feb-2008	Unable to gauge well due to traffic constraints						
	12-May-2008	Unable to gauge well due to traffic constraints						
	7-Aug-2008	Unable to gauge well due to traffic constraints						
	28-Jan-2009	Unable to gauge well due to traffic constraints						
	9-Jul-2009	Unable to gauge well due to traffic constraints						
	21-Jan-2014	No access to well, well vault broken						
	7-Oct-2014	No access to well, well vault broken						
W-11	28-Aug-1992	708600.95	843650.96	98.66			56.82	3853.14
	26-May-1993						56.85	3853.11
	8-Aug-2006			3909.96			54.70	3855.26
	7-Nov-2007						54.26	3855.70
	13-Feb-2008						54.41	3855.55
	12-May-2008						54.71	3855.25
	6-Aug-2008						55.14	3854.82
	28-Jan-2009						55.26	3854.70
	9-Jul-2009						55.46	3854.50
	21-Jan-2014						58.80	3851.16
	7-Oct-2014						59.41	3850.55
	23-Jun-2016						59.53	3850.43
W-12	29-Aug-1992	708435.38	843045.85	99.34			56.28	3854.31
	26-May-1993						55.96	3854.63
	8-Aug-2006			3910.59			53.55	3857.04
	7-Nov-2007						53.72	3856.87
	12-Feb-2008						53.29	3857.30
	12-May-2008						54.05	3856.54
	6-Aug-2008						54.50	3856.09
	28-Jan-2009						54.09	3856.50
	9-Jul-2009						54.23	3856.36
	21-Jan-2014						57.81	3852.78
	7-Oct-2014						58.07	3852.52
	23-Jun-2016						58.69	3851.90

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
W-13	29-Aug-1992	708915.13	843525.37	99.07			56.36	3854.00
	26-May-1993						56.25	3854.11
	8-Aug-2006			3910.36			54.01	3856.35
	7-Nov-2007						53.70	3856.66
	12-Feb-2008						53.80	3856.56
	12-May-2008						54.08	3856.28
	6-Aug-2008						54.50	3855.86
	28-Jan-2009						54.66	3855.70
	9-Jul-2009						54.74	3855.62
	21-Jan-2014						57.87	3852.49
	7-Oct-2014						58.67	3851.69
	23-Jun-2016						58.69	3851.67
W-14	26-May-1993	708504.99	843463.76	98.54			56.26	3853.47
	8-Aug-2006			3909.73			54.15	3855.58
	7-Nov-2007						53.72	3856.01
	13-Feb-2008						53.80	3855.93
	13-May-2008						54.24	3855.49
	7-Aug-2008						54.65	3855.08
	28-Jan-2009						54.67	3855.06
	10-Jul-2009						54.90	3854.83
	21-Jan-2014						58.15	3851.58
	7-Oct-2014						58.65	3851.08
	23-Jun-2016						58.93	3850.80
W-15	26-May-1993	708195.85	843053.51	98.49			55.40	3854.00
	8-Aug-2006						53.41	3855.99
	7-Nov-2007			3909.71			53.11	3856.29
	12-Feb-2008	708221.99	843030.65	3909.40			53.02	3856.38
	12-May-2008						53.27	3856.13
	6-Aug-2008						53.71	3855.69
	28-Jan-2009						53.82	3855.58
	9-Jul-2009						53.91	3855.49
	21-Jan-2014						57.09	3852.31
	7-Oct-2014						56.53	3852.87
	23-Jun-2016						57.98	3851.42
W-16	26-May-1993	708153.28	843364.45	97.44			55.52	3853.15
	8-Aug-2006			3908.67			53.49	3855.18
	7-Nov-2007						53.06	3855.61
	13-Feb-2008						53.20	3855.47
	12-May-2008						53.52	3855.15
	7-Aug-2008						54.03	3854.64
	28-Jan-2009						53.52	3855.15
	9-Jul-2009						54.23	3854.44
	21-Jan-2014						57.61	3851.06
	7-Oct-2014						57.84	3850.83
	23-Jun-2016						58.40	3850.27

Table 2: Summary of Fluid Gauging Data
Lovington 66, Lovington, New Mexico

Monitor Well	Date Measured	Northing[1]	Easting[1]	Casing Elevation[2]	Depth to Product[3]	Product Thickness[4]	Depth to Water[3]	Groundwater Elevation[2]
W-17	26-May-1993			96.94			56.86	40.08
	8-Aug-2006	Well Destroyed						
W-18	26-May-1993	708698.11	843818.96	98.26			56.79	3852.59
	8-Aug-2006						54.60	3854.78
	7-Nov-2007			3909.50			54.19	3855.19
	12-Feb-2008	708697.21	843818.98	3909.38			54.13	3854.54
	12-May-2008						54.65	3854.02
	6-Aug-2008						54.90	3853.77
	28-Jan-2009						55.04	3853.63
	9-Jul-2009						55.14	3853.53
	21-Jan-2014						58.60	3850.07
	7-Oct-2014						59.26	3849.41
	23-Jun-2016						59.33	3849.34
W-19	7-Nov-2007	708148.94	843934.18	3908.36			54.23	3854.13
	13-Feb-2008						54.51	3853.85
	12-May-2008						54.88	3853.48
	6-Aug-2008						55.31	3853.05
	28-Jan-2009						55.36	3853.00
	9-Jul-2009						55.48	3852.88
	21-Jan-2014						59.27	3849.09
	7-Oct-2014						59.78	3848.58
	23-Jun-2016						59.94	3848.42
W-20	7-Nov-2007	707780.85	844187.25	3907.45			54.29	3853.16
	13-Feb-2008						54.69	3852.76
	12-May-2008						55.09	3852.36
	6-Aug-2008						55.53	3851.92
	28-Jan-2009						55.54	3851.91
	9-Jul-2009						55.60	3851.85
	21-Jan-2014						59.80	3847.65
	7-Oct-2014						60.32	3847.13
	23-Jun-2016						60.68	3846.77
W-21	7-Nov-2007	707988.79	843841.61	3908.49			54.19	3854.30
	13-Feb-2008						54.45	3854.04
	12-May-2008						54.81	3853.68
	6-Aug-2008						55.23	3853.26
	28-Jan-2009						55.32	3853.17
	9-Jul-2009						55.39	3853.10
	21-Jan-2014						59.22	3849.27
	7-Oct-2014						59.74	3848.75
	23-Jun-2016						59.88	3848.61

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 leve
[3] Measured in feet below the top of casing at survey point on north side of wel
[4] Measured in feet

Table 3: Summary of Sample Analytical and Quality Control Requirements
Lovington 66, Lovington, New Mexico

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

Notes:
EPA = U.S. Environmental Protection Agency

Table 4: Summary of Groundwater Sample Results
Volatile Organic Compounds
Lovington 66, Lovington, New Mexico

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standards		**10**	**750**	**750**	**620**	**100**	**0.10**	**10**	**30**
W-2	13-Mar-92	29,878	28,953	3,874	13,109	5,921	NA	NA	NA
W-3	13-Mar-92	10,493	8,961	1,253	5,320	5,150	NA	NA	NA
W-4	24-Jun-92	200	53	21	40	<5.0	NA	NA	NA
	28-Aug-92	1,400	430	95	300	<2.5	NA	NA	NA
	25-May-93	2,500	980	310	470	<63	NA	NA	NA
W-5	24-Jun-92	470	250	41	290	<10	NA	NA	NA
	28-Aug-92	850	400	58	450	3.3	NA	NA	NA
	9-Aug-06	2.0	<1.0	3.7	<3.0	22	<1.0	<1.0	<2.0
	7-Nov-07	45	8.5	29	15	170	<1.0	<1.0	4.9
	13-Feb-08	26	1.1	24	<1.5	140	<1.0	<1.0	4.5
	12-May-08	16	<1.0	7.6	<1.5	65	<1.0	<1.0	<2.0
	7-Aug-08	5.2	<1.0	3.7	<1.5	39	<1.0	<1.0	<2.0
	28-Jan-09	<1.0	<1.0	<1.0	<1.5	18	<1.0	<1.0	<2.0
	9-Jul-09	<1.0	<1.0	<1.0	<1.5	21	<1.0	<1.0	<2.0
	21-Jan-14	8.5	1.0	2.7	2.5	3.8	<1.0	<1.0	<2.0
	7-Oct-14	8.5	<2.0	<2.0	<3.0	2.5	<2.0	<2.0	<4.0
	23-Jun-16	**17.0**	<1.0	7.5	7.0	2.1	<1.0	<1.0	<2.0
W-6	24-Jun-92	1,400	1,200	48	500	<25	NA	NA	NA
	28-Aug-92	3,000	2,700	93	860	<2.5	NA	NA	NA
W-7	28-Aug-92	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NA
	25-May-93	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NA
	8-Aug-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0
	7-Nov-07	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
W-8	28-Aug-92	8,000	9,500	690	5,200	<2.5	NA	NA	NA
	25-May-93	12,000	8,300	1,500	8,800	<250	NA	NA	NA
	4-Aug-05	27,000	35,000	3,800	18,000	3,700	1,100	4,300	622
	9-Aug-06	21,000	29,000	2,600	13,000	6,300	<500	3,700	1,100
	7-Nov-07	20,000	27,000	3,200	15,000	5,900	440	4,100	770
	13-Feb-08	27,000	39,000	4,800	16,000	8,600	670	4,000	1,350
	12-May-08	19,000	22,000	1,800	8,000	4,900	250	2,100	400
	7-Aug-08	20,000	24,000	2,400	11,000	8,600	270	2,900	670
	28-Jan-09	19,000	26,000	2,500	11,000	9,800	290	3,000	570
	9-Jul-09	18,000	26,000	2,400	11,000	13,000	230	2,300	500
	21-Jan-14	14,000	8,800	2,300	7,900	25,000	<100	610	610
	7-Oct-14	14,000	7,000	2,400	7,600	28,000	<100	440	590
	23-Jun-16	**16,000**	**7,300**	**2,100**	**6,000**	**16,000**	<200	**320**	**540**

Table 4: Summary of Groundwater Sample Results
Volatile Organic Compounds
Lovington 66, Lovington, New Mexico

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standards		**10**	**750**	**750**	**620**	**100**	**0.10**	**10**	**30**
W-9	28-Aug-92	130	8.2	16	140	<2.5	NA	NA	NA
	25-May-93	100	6.3	2.5	170	<5.0	NA	NA	NA
	4-Aug-05	4,300	180	850	830	<1.0	<0.01	320	28.5
	9-Aug-06	6,700	560	1,200	1,400	<150	<100	650	250
	7-Nov-07	6,500	120	620	450	<10	<10	360	51
	13-Feb-08	7,500	130	910	590	<10	<10	450	129
	12-May-08	3,000	63	800	360	<10	<10	480	228
	7-Aug-08	5,100	<100	830	300	<100	<100	520	<200
	28-Jan-09	4,800	<10	370	380	<10	<10	580	120
	9-Jul-09	6,400	<5	1,100	460	<5	<5	570	139
	21-Jan-14	7,500	<10	1,200	250	100	<10	910	180
	7-Oct-14	8,000	<50	1,200	210	150	<50	960	180
	23-Jun-16	**3,800**	<50	290	<75	**300**	<50	**410**	<100
W-10*	28-Aug-92	1,100	11.0	120	440	<2.5	NA	NA	NA
	4-Aug-05	940	2.6	930	140	2,400	0.11	48	27.1
	9-Aug-06	420	<1.0	31	<3.0	22	<1.0	12	121
W-11	28-Aug-92	770	13	13	280	<2.5	NA	NA	NA
	9-Aug-06	5.0	<1.0	62	44	88	<1.0	33	<2.0
	7-Nov-07	18	<1.0	38	13	540	<1.0	35	<2.0
	13-Feb-08	3.2	<1.0	41	5.1	540	<1.0	37	<2.0
	12-May-08	3.0	<1.0	31	3.7	740	<1.0	36	<2.0
	6-Aug-08	3.2	<1.0	28	2.5	610	<1.0	38	<2.0
	28-Jan-09	<1.0	<1.0	40	5.7	160	<1.0	44	<2.0
	9-Jul-09	<1.0	<1.0	34	7.2	160	<1.0	44	<2.0
	21-Jan-14	5.4	<1.0	25	1.8	44	<1.0	51	<2.0
	7-Oct-14	90	<5.0	150	<7.5	11	<5.0	57	<10
	23-Jun-16	1.7	<1.0	47	<1.5	34	<1.0	**63**	<2.0
W-12	29-Aug-92	87	6.1	2.6	180	<2.5	NA	NA	NA
	8-Aug-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0
W-13	29-Aug-92	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NA
	8-Aug-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0

Table 4: Summary of Groundwater Sample Results
Volatile Organic Compounds
Lovington 66, Lovington, New Mexico

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standards		**10**	**750**	**750**	**620**	**100**	**0.10**	**10**	**30**
W-14	26-May-93	6,600	4,300	1,200	4,000	<125	NA	NA	NA
	5-Aug-05	27,000	26,000	4,900	9,500	7,600	3.3	120	413
	9-Aug-06	25,000	23,000	4,000	9,500	4,700	<500	<500	1,200
	13-Feb-08	30,000	23,000	4,900	13,000	4,400	<50	210	1,270
	13-May-08	14,000	6,500	2,800	6,300	2,400	<10	170	1,001
	7-Aug-08	26,000	20,000	4,400	11,000	3,700	<100	160	840
	28-Jan-09	24,000	19,000	2,200	8,700	3,200	<100	150	640
	10-Jul-09	26,000	24,000	4,000	11,000	2,600	<50	160	590
	21-Jan-14	28,000	27,000	4,000	12,000	1,700	<100	120	730
	7-Oct-14	31,000	31,000	4,200	11,000	1,600	<200	<200	700
	23-Jun-16	**32,000**	**35,000**	**4,000**	**13,000**	**1,400**	<200	<200	**760**
W-15	26-May-93	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NA
	8-Aug-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0
W-16	26-May-93	52	<0.5	7.9	15	<2.5	NA	NA	NA
	8-Aug-06	1.3	14	2.9	<3	<1.5	<1.0	<1.0	<2.0
	7-Nov-07	640	<1.0	22	12	55	<1.0	23	363
	13-Feb-08	630	<1.0	12	8.6	47	<1.0	17	342
	12-May-08	690	<1.0	12	3.6	60	<1.0	21	327
	7-Aug-08	790	<1.0	5.4	<1.5	59	<1.0	17	352
	28-Jan-09	170	<1.0	<1.0	<1.5	39	<1.0	13	120
	9-Jul-09	35	<1.0	1.3	<1.5	11	<1.0	3.8	14.5
	21-Jan-14	<1.0	<1.0	<1.0	<1.5	4.3	<1.0	<1.0	<2.0
	7-Oct-14	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	23-Jun-16	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
W-17	26-May-93	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA	NA
W-18	26-May-93	1.6	1.8	<0.5	2.0	<2.5	NA	NA	NA
	8-Aug-06	<1.0	<1.0	<1.0	<3.0	<1.5	<1.0	<1.0	<2.0
W-19	8-Nov-07	4.3	<1.0	<1.0	<1.5	<1.5	<1.0	23	<2.0
	13-Feb-08	2.4	<1.0	<1.0	<1.5	<1.5	<1.0	10	<2.0
	12-May-08	1.6	<1.0	<1.0	<1.5	<1.0	<1.0	9.2	<2.0
	6-Aug-08	2.4	<1.0	<1.0	<1.5	<1.0	<1.0	19	<2.0
	28-Jan-09	3.8	<1.0	<1.0	<1.5	<1.0	<1.0	37	<2.0
	9-Jul-09	3.4	<1.0	<1.0	<1.5	<1.0	<1.0	37	<2.0
	21-Jan-14	4.9	<1.0	<1.0	<1.5	<1.0	<1.0	59	<2.0
	7-Oct-14	6.9	<2.0	<2.0	<3.0	<2.0	<2.0	100	<4.0
	23-Jun-16	4.5	<1.0	<1.0	<1.5	<1.0	<1.0	**79**	<2.0

Table 4: Summary of Groundwater Sample Results
Volatile Organic Compounds
Lovington 66, Lovington, New Mexico

Monitor Well	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	EDB	EDC	Total Naphthalenes
NMWQCC Standards		**10**	**750**	**750**	**620**	**100**	**0.10**	**10**	**30**
W-20	8-Nov-07	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	13-Feb-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	12-May-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	6-Aug-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	28-Jan-09	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	9-Jul-09	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	21-Jan-14	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	7-Oct-14	<2.0	<2.0	<2.0	<3.0	<2.0	<2.0	<2.0	<4.0
	23-Jun-16	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
W-21	8-Nov-07	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	12-Feb-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	12-May-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	6-Aug-08	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	28-Jan-09	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	9-Jul-09	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	21-Jan-14	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
	7-Oct-14	<2.0	<2.0	<2.0	<3.0	<2.0	<2.0	<2.0	<4.0
	23-Jun-16	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<2.0
V-1	29-Aug-92	250	680	240	810	<2.5	NA	NA	NA
	25-May-93	5,000	14,000	3,000	10,000	600	NA	NA	NA

Notes:

All concentrations in micrograms per liter (parts per billion)

Bold font indicates analyte above NMWQCC or NMED standard

MTBE = Methyl tertiary butyl ether

EDB = Ethylene dibromide

EDC = Ethylene dichloride

NA = Not Analyzed

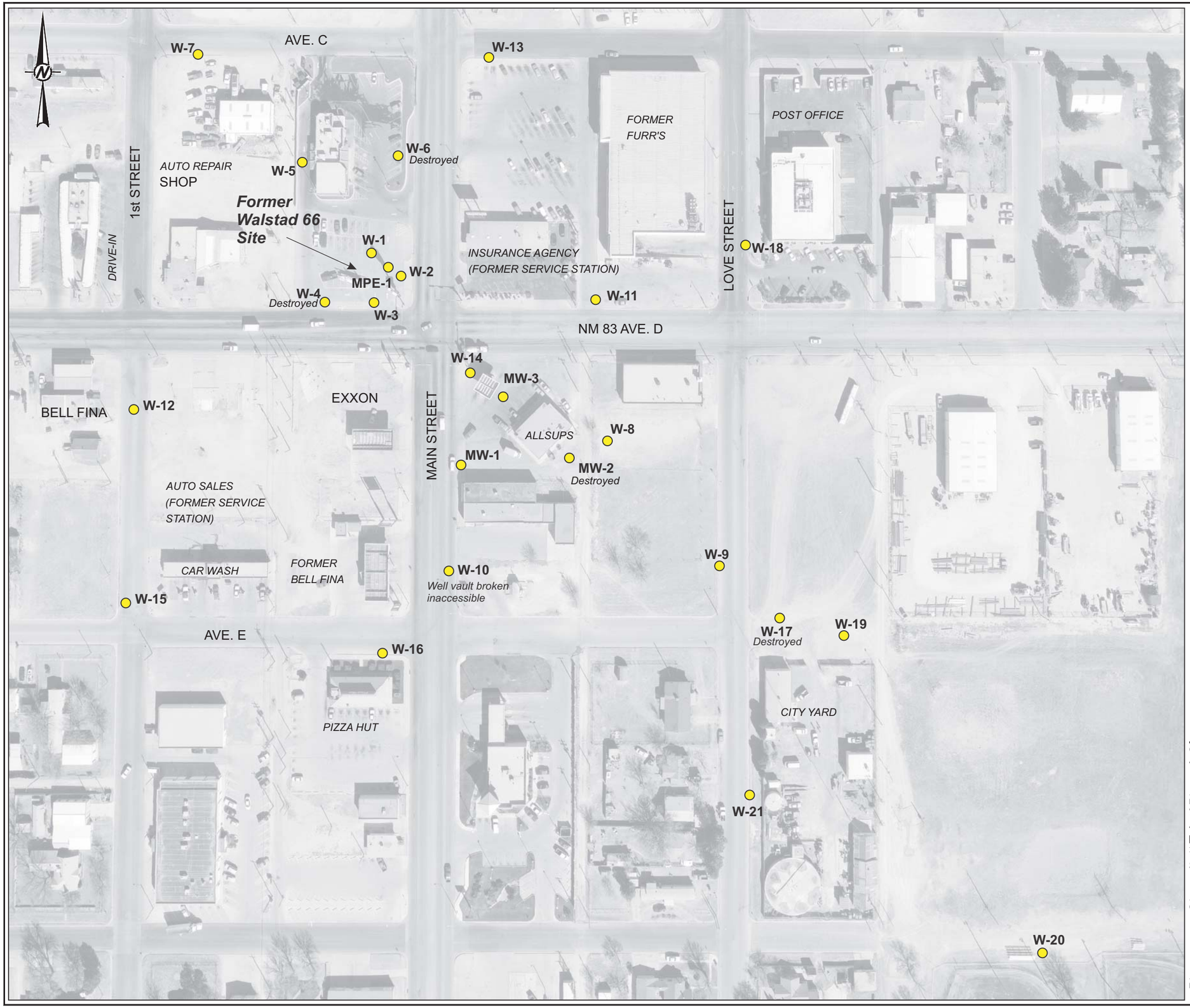
Table 5: Summary of Groundwater Purging Field Parameter Data Lovington 66, Lovington, New Mexico

Monitor Well	Date Sampled	Temp. (°C)	Conductance (µs/cm)	pH	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (millivolts)	Total Purge Volume (gallons)	Comments
W-5	6/23/2016	20.66	1,902	6.41	8.60	+105	2.75	Slight hydrocarbon odor
W-8	6/23/2016	21.96	1,426	6.66	7.88	-298.5	2.75	Black-grey turbid, strong hydrocarbopn odor
W-9	6/23/2016	20.02	1,528	6.43	7.83	-277.3	0.25	Black-grey turbid, strong hydrocarbopn odor
W-11	6/23/2016	21.67	1,528	6.69	7.97	-213.0	2.75	Turbid fine silt, slight hydrocarbon odor
W-14	6/23/2016	22.25	1,605	6.61	7.75	-269.0	2.75	Black-grey turbid, strong hydrocarbopn odor
W-16	6/23/2016	21.89	2,137	6.59	7.92	-180.0	3.25	Turbid grey-black, fine silt
W-19	6/23/2016	21.52	1,232	6.17	8.03	-166.0	2.75	Turbid, fine silt
W-20	6/23/2016	20.14	1,139	6.30	8.24	-40.2	2.50	Turbid, fine silt
W-21	6/23/2016	21.09	1,190	6.52	7.40	-24.9	2.50	Turbid, fine silt

Notes:

Purge parameters as finals (end of purging)

FIGURES



EXPLANATION

- **W-11** — Location of groundwater monitoring well in the Walstad 66 site network
- **MW-3** — Location of groundwater monitoring well in the Allsups site network

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
SITE MAP

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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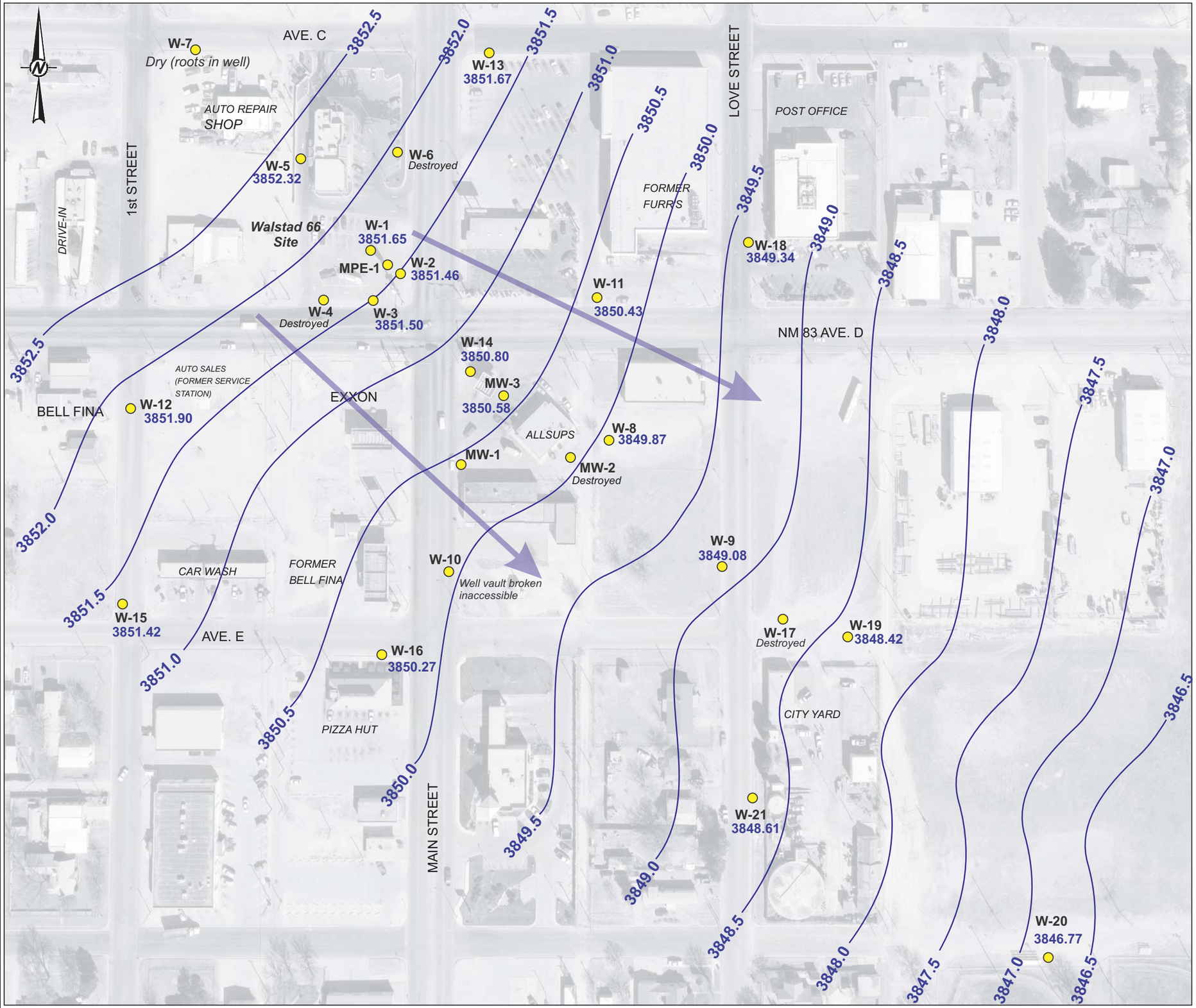

EXPLANATION

W-11 / 3850.43 — Location of groundwater monitoring well showing designation and water level elevation (ft above MSL) on 6/23/2016

–3849.0– Isopleth on line of equal water level elevation (ft above MSL)

Direction of groundwater gradient

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
POTENTIOMETRIC SURFACE MAP
JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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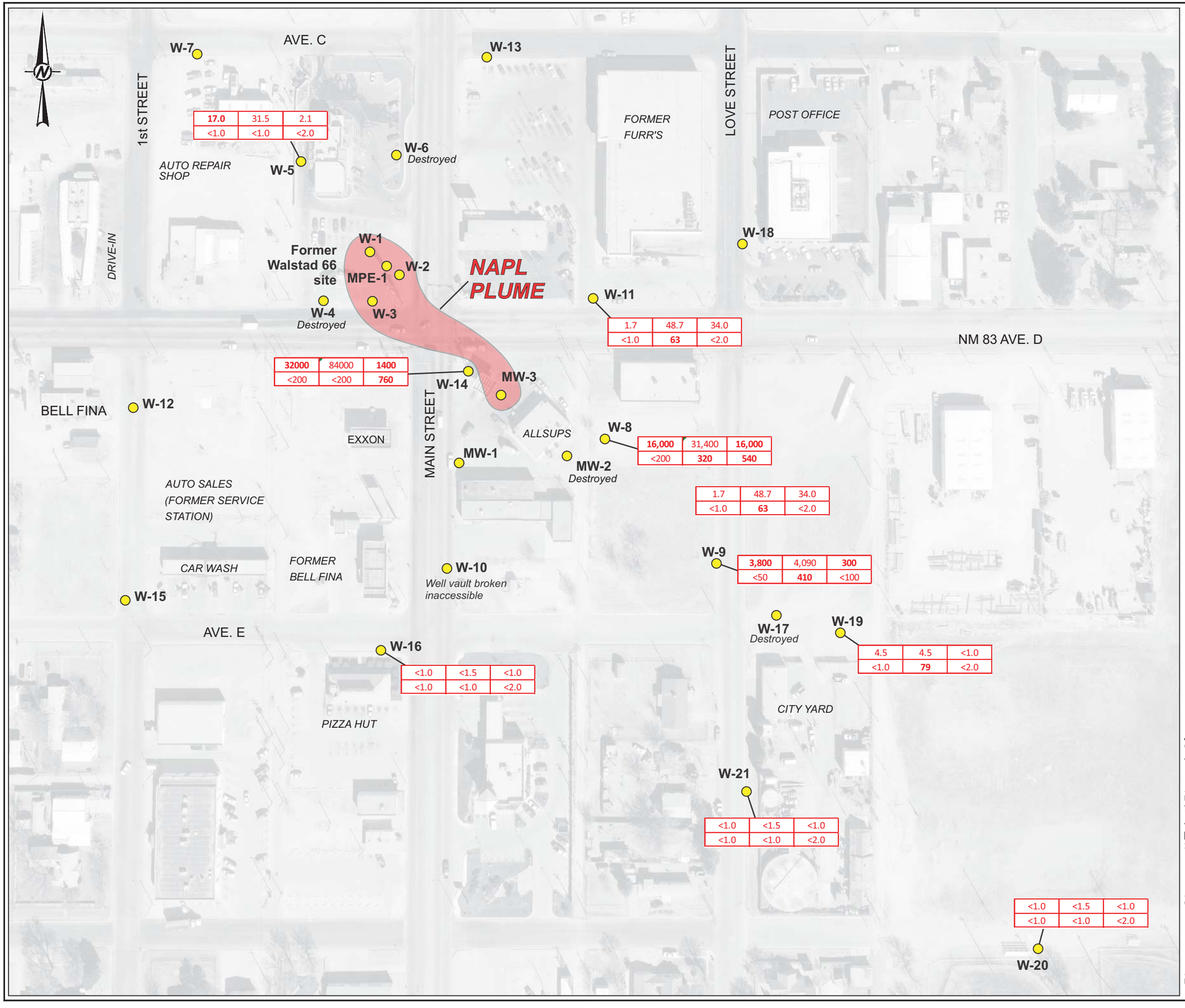

EXPLANATION

W-11 — Location of groundwater monitoring well in the Walstad 66 site network

MW-3 — Location of groundwater monitoring well in the Allsups site network

VOC concentrations at well 6/23/2016

BENZENE	BTEX	MTBE
EDB	EDC	TOTAL NAPTHALENE

All concentrations in micrograpms per liter (µg/L)

Bold font indicates that concentration exceeds NMWQCC standard

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
DISTRIBUTION OF ORGANIC CONTMINANTS IN GROUNDWATER JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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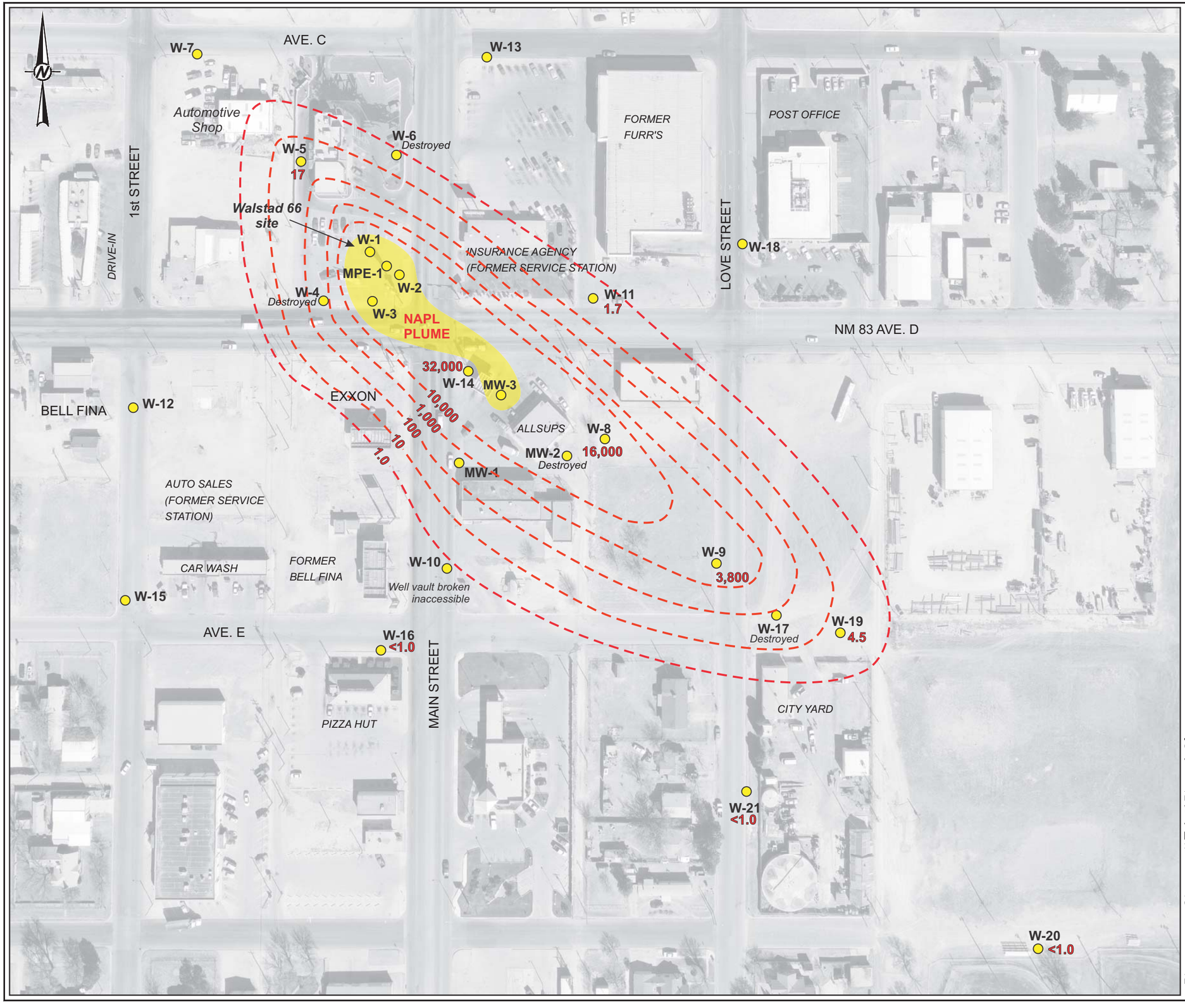

EXPLANATION

W-14
32,000
Location of groundwater monitoring well showing designation and dissolved benzene concentration (μg/L) in groundwater sample collected 6/23/2016

--10--
Isopleth on projected equal dissolved benzene concentration (μg/L)

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
DISTRIBUTION OF DISSOLVED BENZENE IN GROUNDWATER - JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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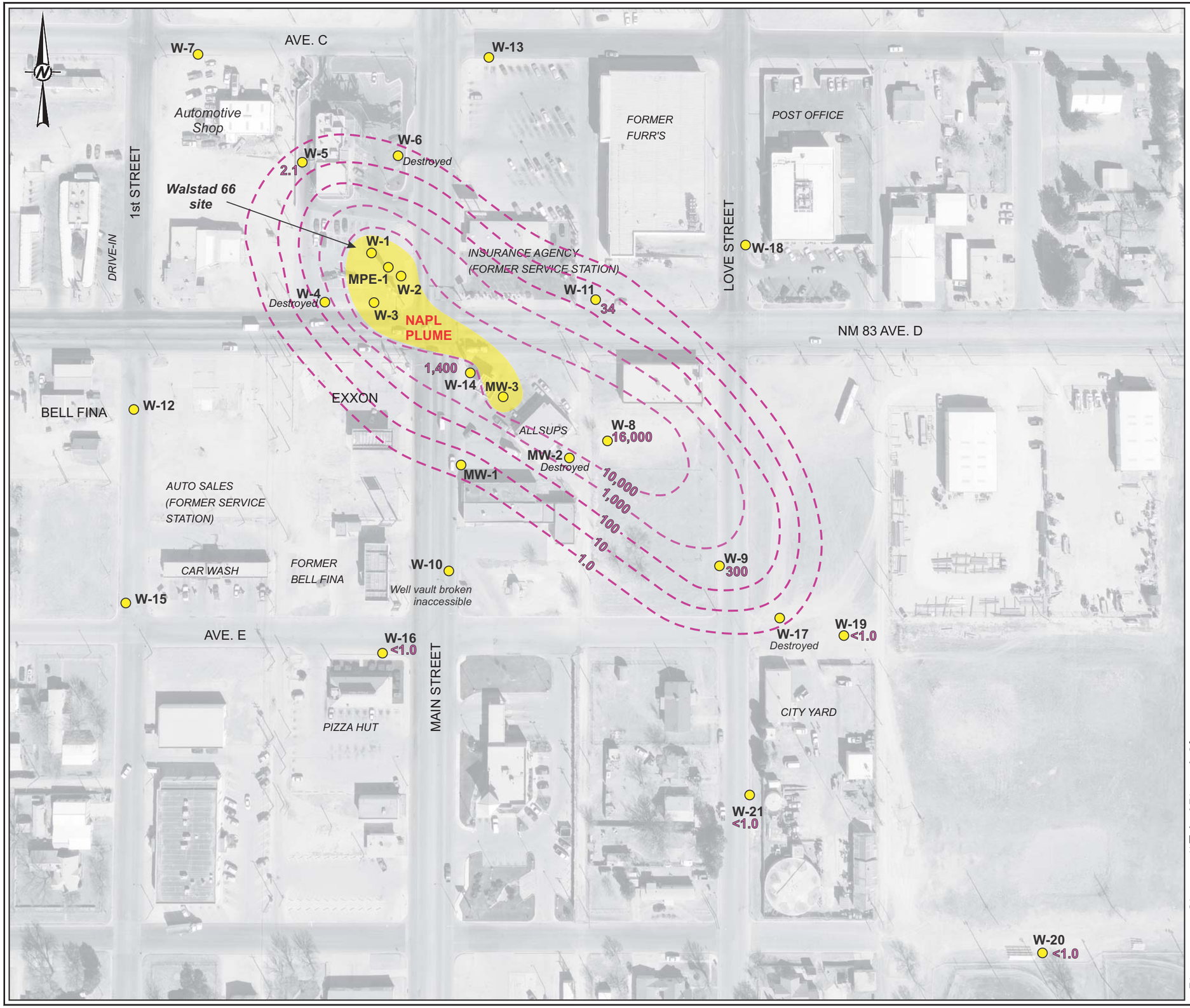

EXPLANATION

W-14
32,000
Location of groundwater monitoring well showing designation and dissolved MTBE concentration (μg/L) in groundwater sample collected 6/23/2016

10
Isopleth on projected equal dissolved MTBE concentration (μg/L)

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
DISTRIBUTION OF DISSOLVED MTBE IN GROUNDWATER - JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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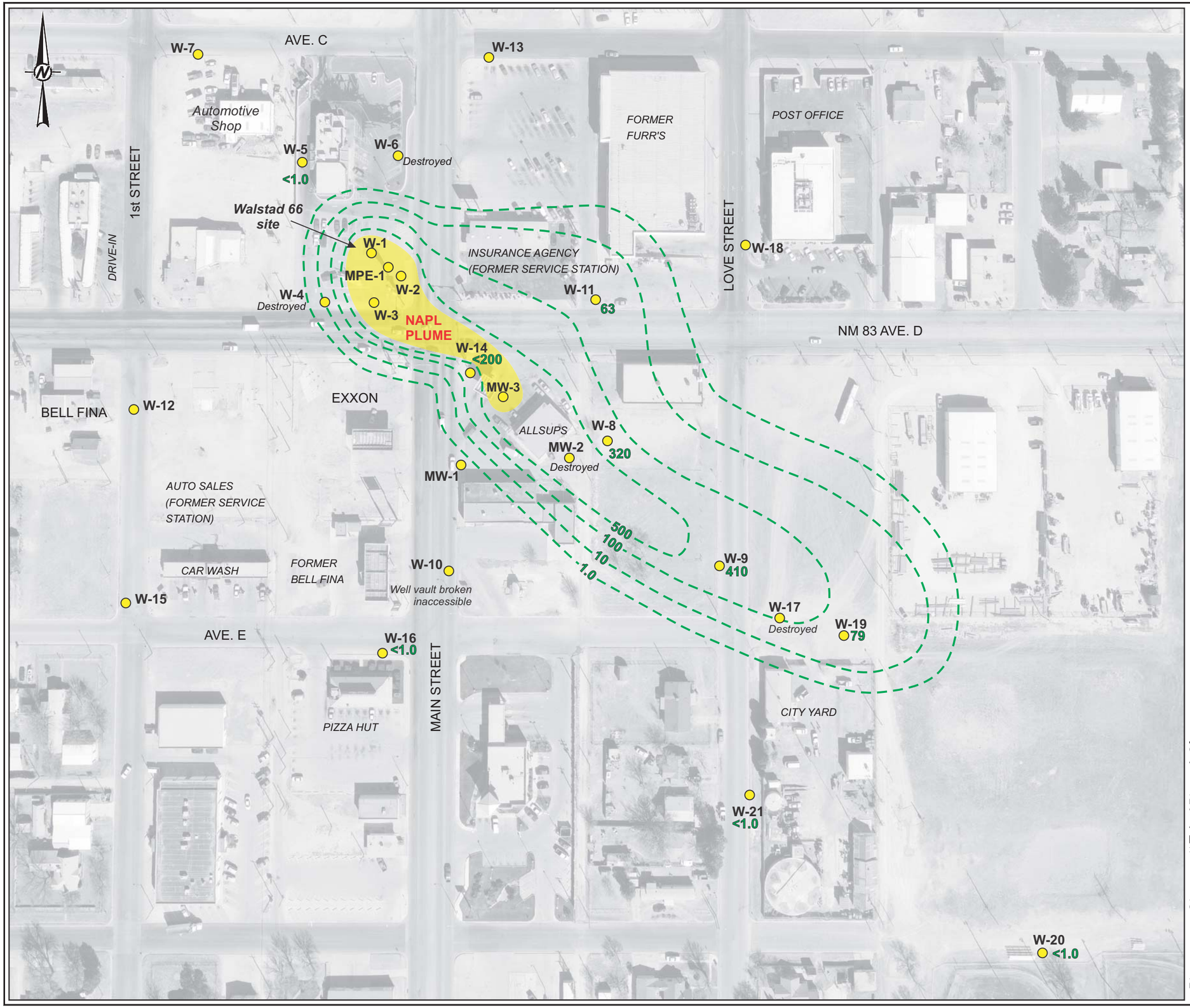

EXPLANATION

W-8
320
Location of groundwater monitoring well showing designation and dissolved EDC concentration (μg/L) in groundwater sample collected 6/23/2016

10
Isopleth on projected equal dissolved EDC concentration (μg/L)

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
DISTRIBUTION OF DISSOLVED EDC IN GROUNDWATER - JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
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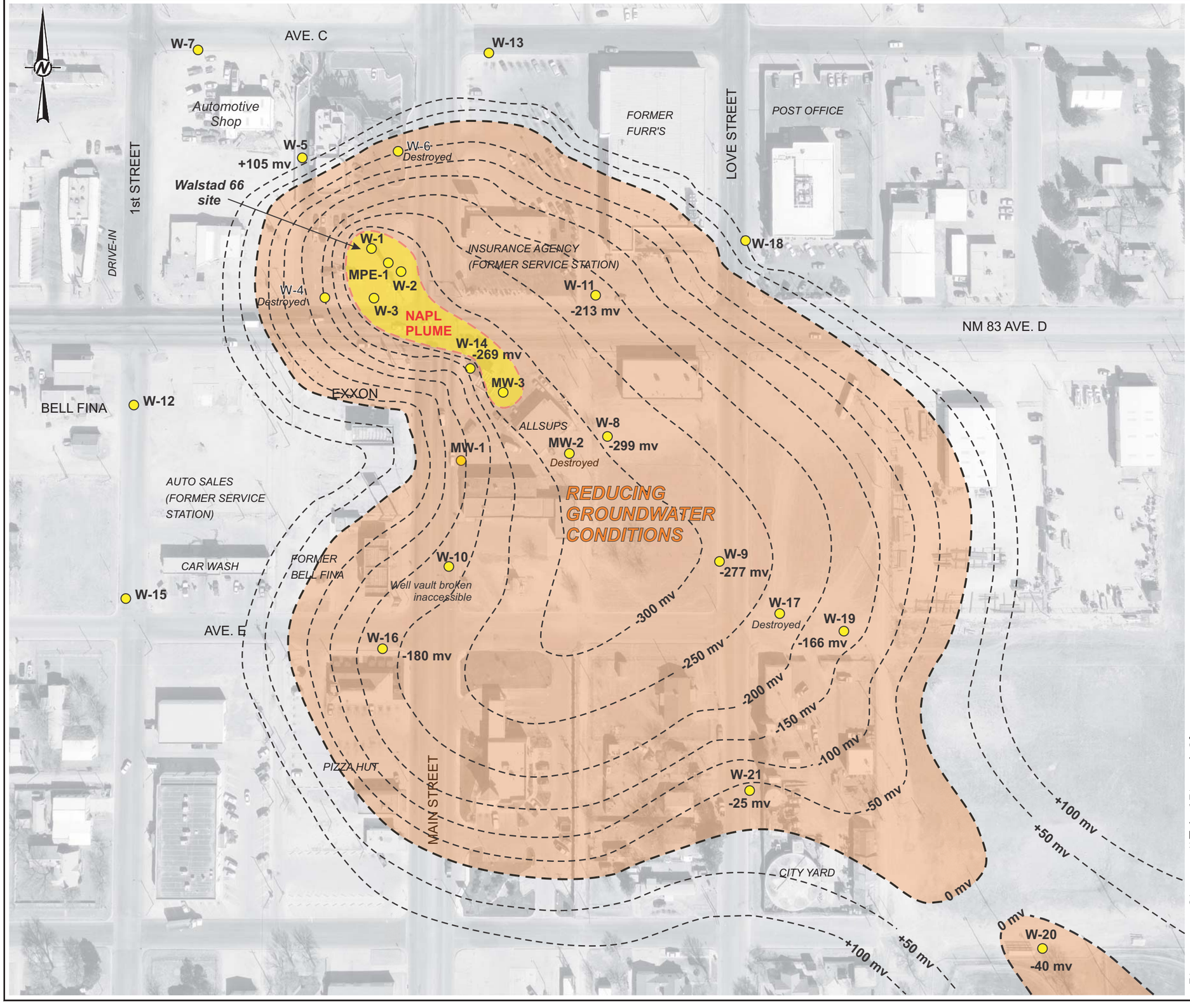


EXPLANATION

W-8 / -299 — Location of groundwater monitoring well showing designation and Oxidation-Reduction Potential (ORP in millivolts) in groundwater sample collected 6/23/2016

– -0 mv- – Isopleth on projected equal Oxidation Reduction Potential value (millivolts)

0 60 120
SCALE FEET

CLIENT
JACK WALSTAD OIL COMPANY, INC

PROJECT
WALSTAD 66
424 SOUTH MAIN
LOVINGTON, NEW MEXICO

TITLE
DISTRIBUTION OF OXIDATION-REDUCTION POTENTIAL (ORP) IN GROUNDWATER - JUNE 2016

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-07-21
PREPARED	LCK
DESIGN	LCK
REVIEW	TS
APPROVED	LCK

PROJECT No.	PHASE:	Rev.	FIGURE:
1651353	1	0	7

APPENDIX A
NAPL DISPOSAL MANIFEST

N.M.E.D. – DP-1041

Gandy Marley, Inc.

P.O. BOX 1658 • ROSWELL, NM 88202

LOAD INSPECTION FORM 16156

Date of Receipt: 06/16/16 Time of Receipt 12:01 AM / PM Cell Placement: UST-7

Quantity 45 Gallons T/CY: _____ Description: Monitor Well Purge H2O Collected 6/16/16 Lovington, NM

Name/Address of Generator: Golder Associates Inc. 5200 Pasadena Avenue N.E. Suite C Albuquerque, NM 87113

Origin of Materials (if different) _____

Transporter Name: CMS Environmental SCC ID No. _____

Name of Laboratory Performing Sample Analysis Xenco (on file)

TCLP (EPA Method 1311) _____ BTEX _____ MTBE _____ TPH ✓ Non-Hazardous ✓ Exempt _____

Verification of No Free Liquids _____ Paint Filter Liquids Test Performed _____

Verification of Property Completed Manifest _____ Generator Manifest Number _____

As a condition to Gandy Marley, Inc.'s acceptance of the materials shipped as represented on this Load Inspection Form, Generator represents and warrants that the waste material shipped herewith is exempt from the Resource Conservation and Recovery Act of 1976, as amended from time to time, 40 U.S.C. Section 6901, et seq., The New Mexico Health and Safety Code, section 361.001, et seq., and regulations related thereto, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Further, as a condition to Gandy Marley, Inc.'s acceptance of the materials shipped as represented on this Load Inspection Form; Transporter represents and warrants that only the material delivered by Generator to Transporter is now delivered by Transporter to Gandy Marley, Inc.'s facility for disposal.

THIS WILL CERTIFY that the above Transporter loaded the material as represented on this Load Inspection Form at the above described location, and that it was tendered by the above described Generator. THIS WILL CERTIFY that no additional materials were added to this load, and that the material was delivered without incident.

Transporter: Clayton M Bandy II _____ _____

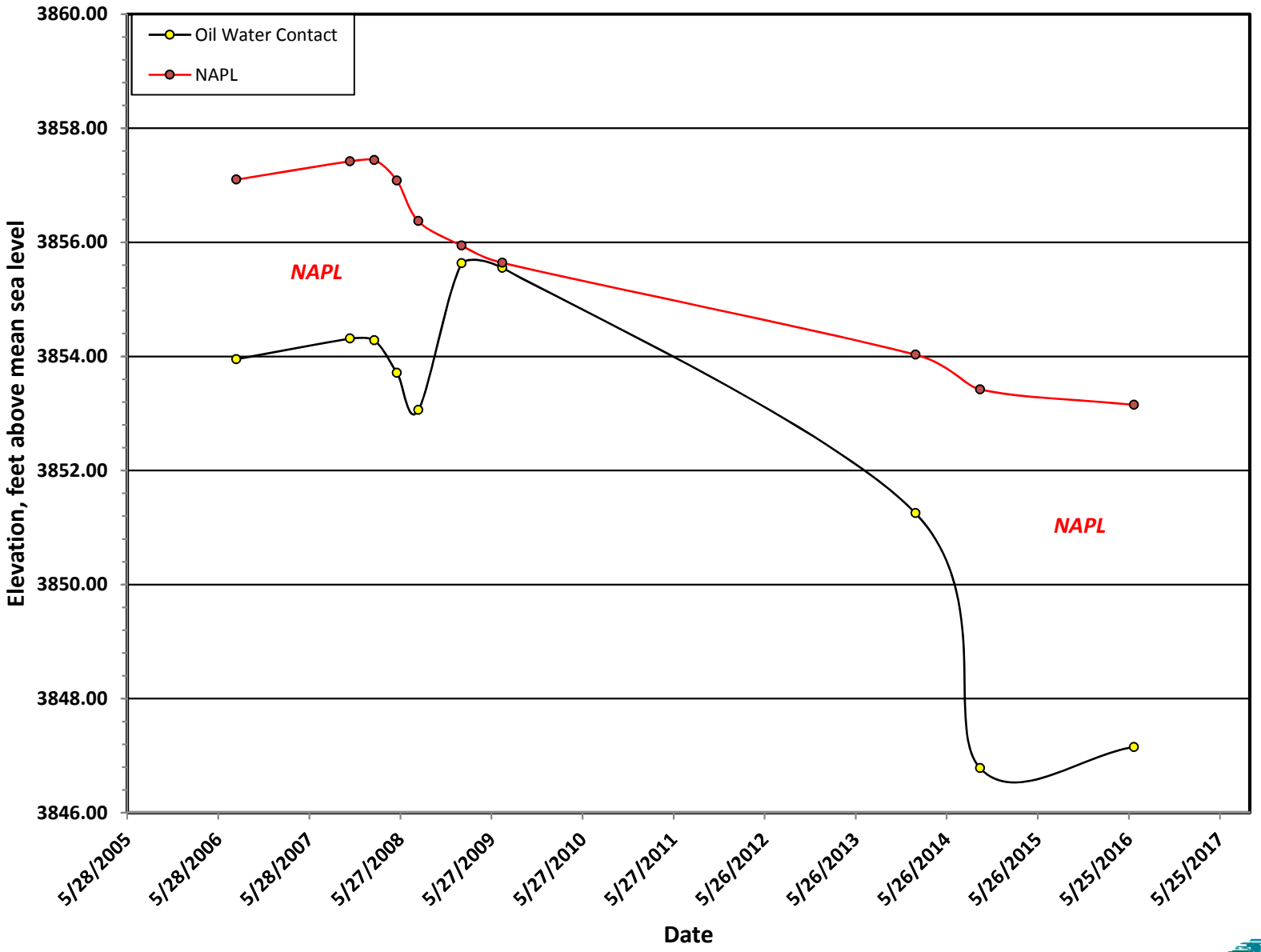
Print Name Signature

GMI Employee: _____ _____

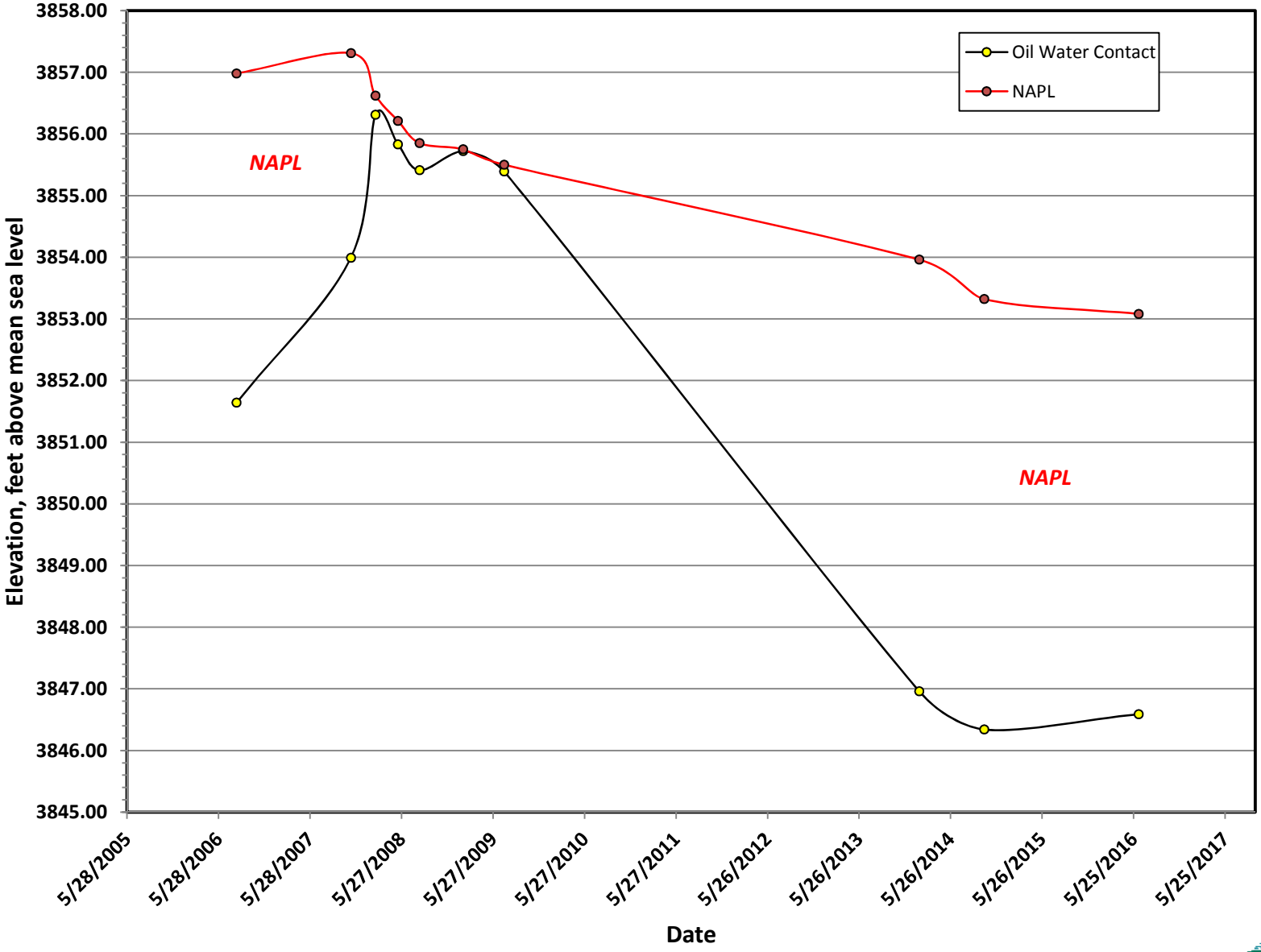
Print Name Signature

APPENDIX B
HYDROGRAPHS

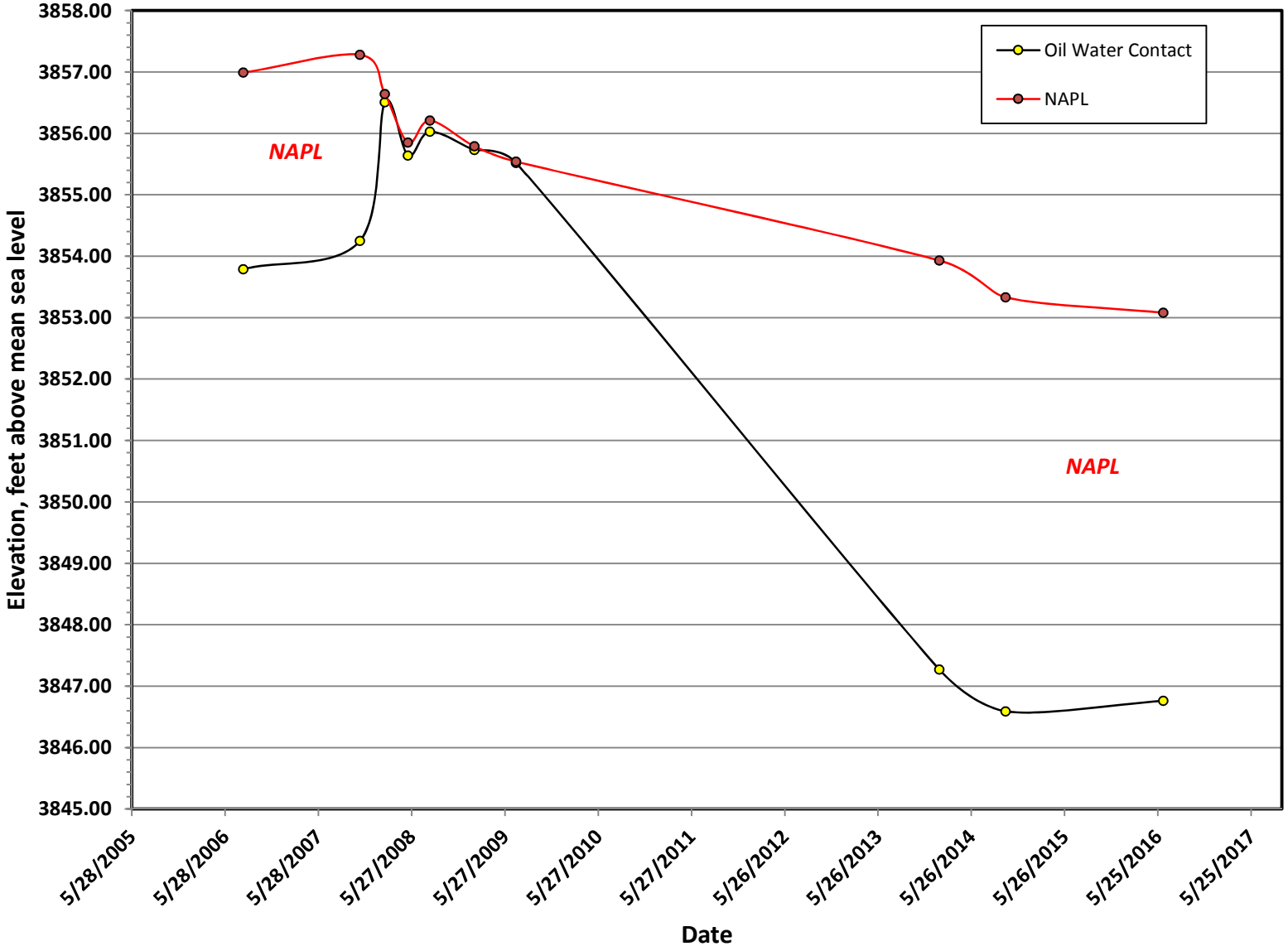
Water Level Hydrograph
Well W-1



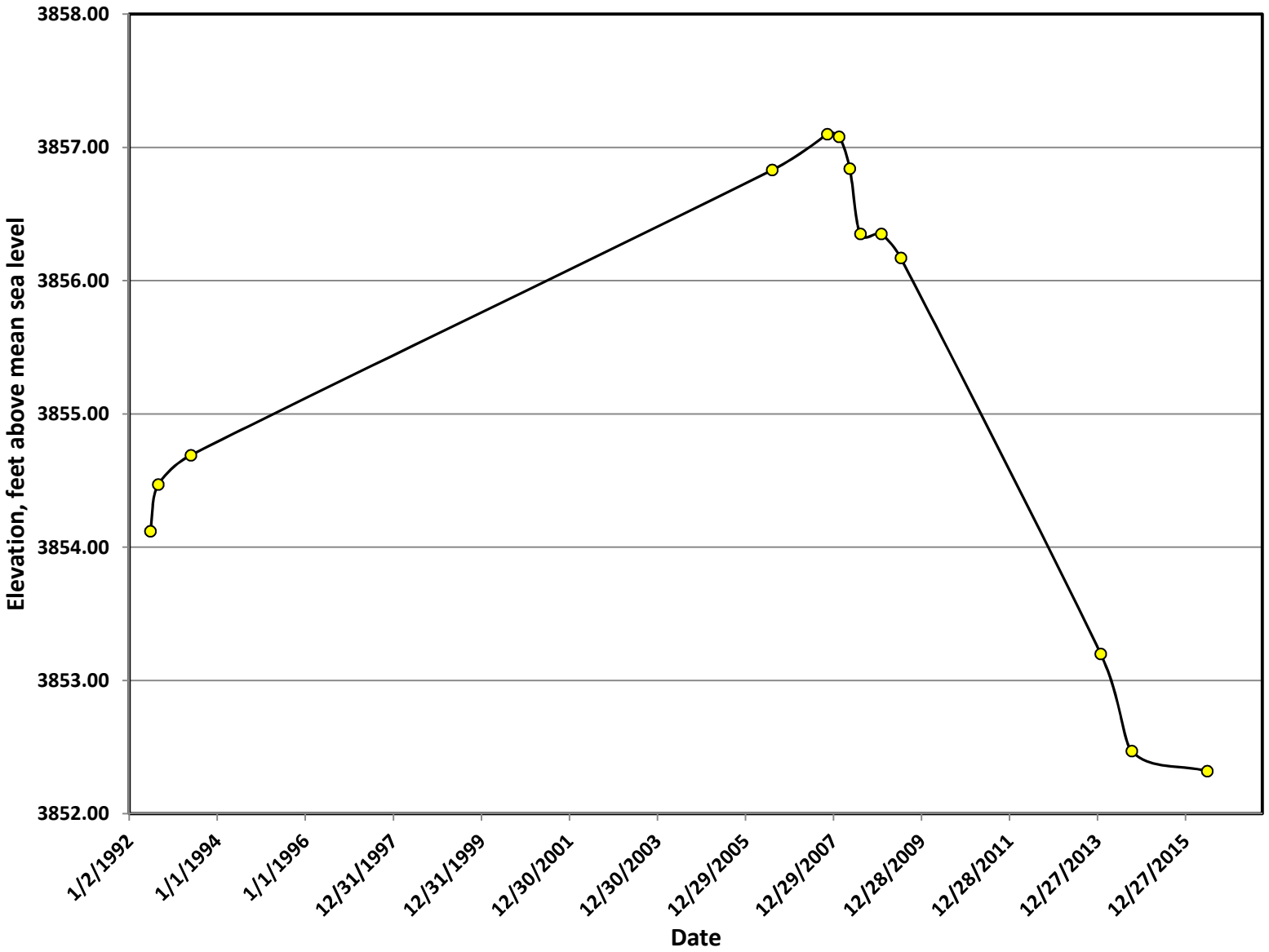
Water Level Hydrograph
Well W-2



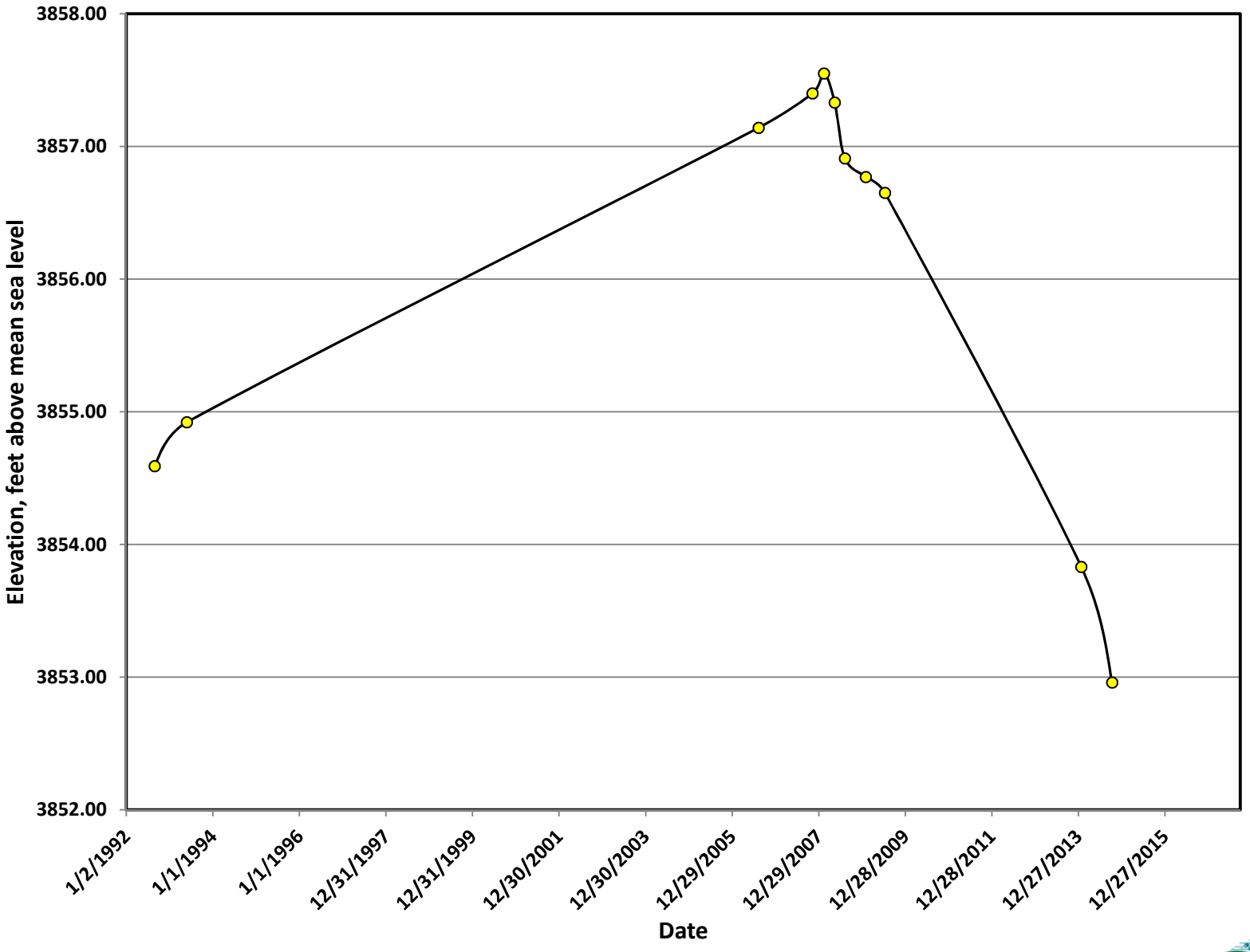
Water Level Hydrograph
Well W-3



Water Level Hydrograph
Well W-5

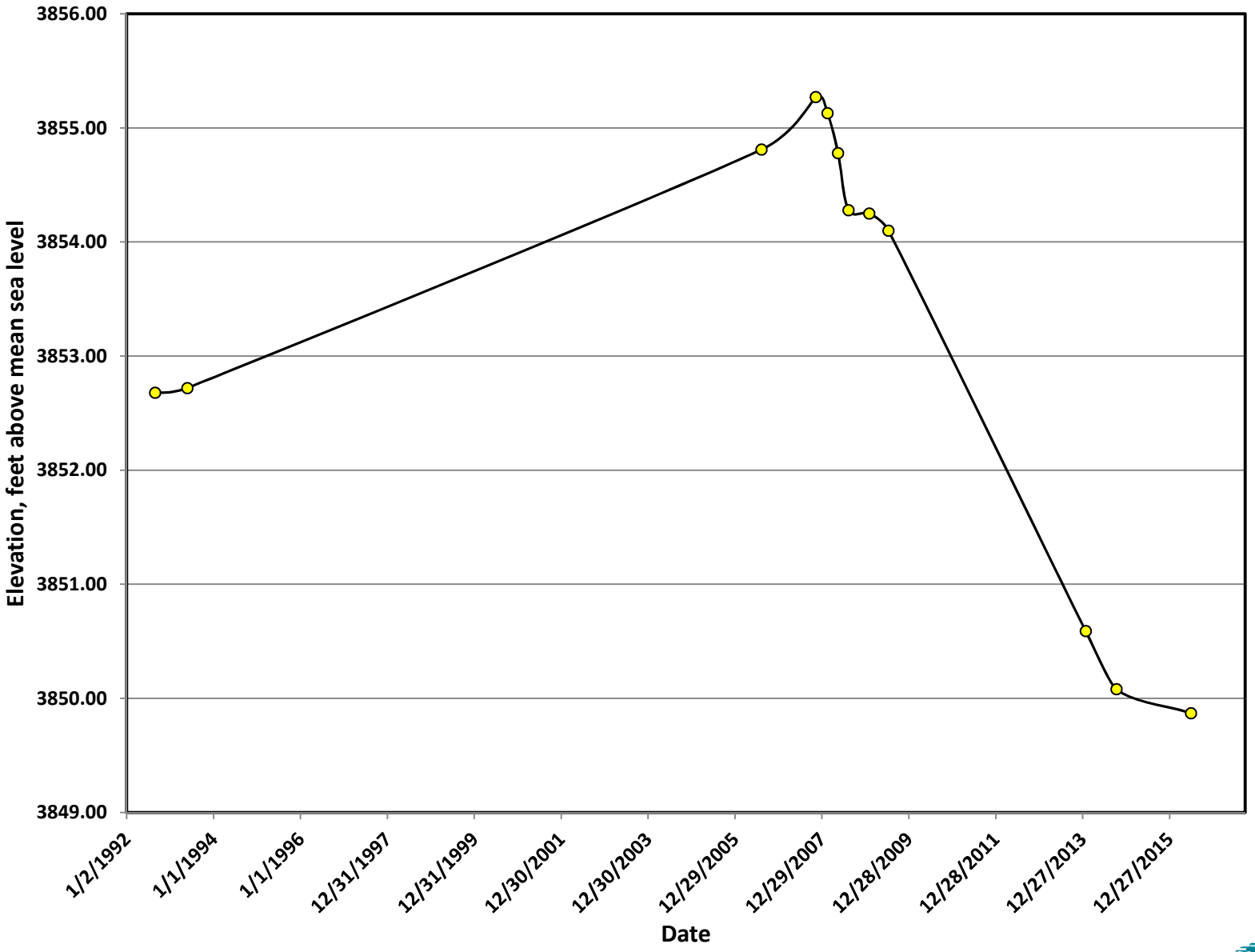


Water Level Hydrograph
Well W-7

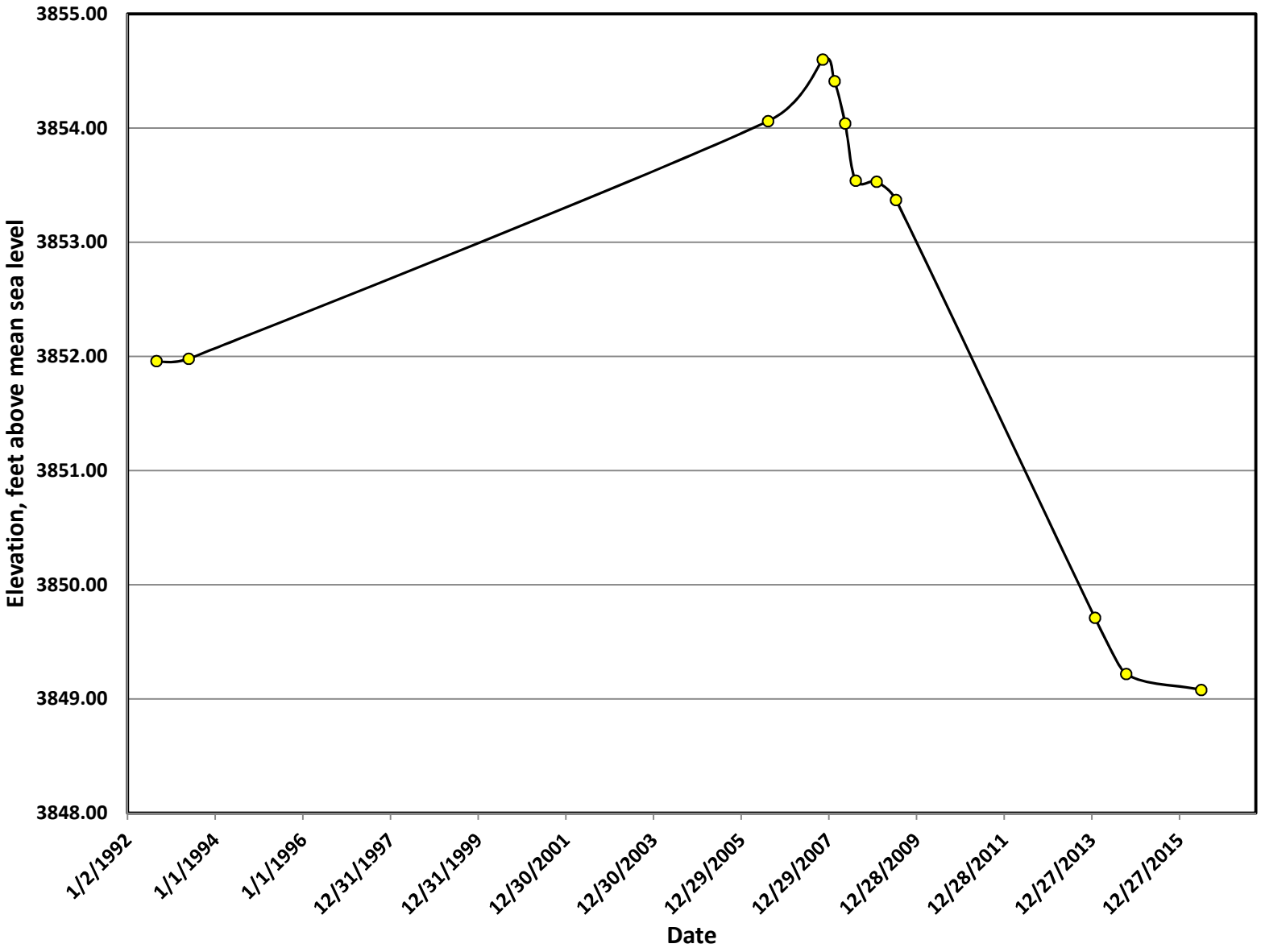


Golder Associates

Water Level Hydrograph
Well W-8



Water Level Hydrograph
Well W-9



APPENDIX C
FIELD FORMS

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☒ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-5 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Walstad Oil Co.	2. Project Location Golder & Associates Walstad Oil Co. Lovington 66 424 S. Main Lovington, NM	3. Date 06/23/16
4. Technician CM Barnhill, PG		
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR-2015	9. Location of Well (Site, Description) Monitor Well W-5

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 10:35	Date: 06/23/16 Time: 10:51	Date: Time:
10. Total Depth of Well (from TOC) 64.85	15. Total Depth of Well (from TOC)	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 59.39	16. Water Level (from TOC) 59.84'	21. Water Level (from TOC)

12. Water Column Height 5.46'	Nom Dia	x = gal/ft Sch 40	Sch 80	17. 3 Well Volumes 2.62 Gallons
13. Well Diameter 2" SCH40 PVC MW	2"	0.16	0.1534	18. 5 Well Volumes 4.36 Gallons
14. Well Volume (gal) (s) w.e. height) 0.87	4"	0.65	0.5972	19. Purge Volume 2.75
	6"	1.47	1.3540	
	8"	2.61	2.3720	

22. Size and Type of Pump or (Bailer): 1.5" X 3.0' poly Disposible Bailer T.P. Twine

Final Field Analysis

23. Total Amount of Water Removed 2.75 Gallons	24. Was Well Pumped Dry? Yes (No)	25. Was water added to well? (No) Yes If yes, source:	26. Was the Groundwater Sampled (Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-5, 06/23/16 @10:50 CMBC 3x40mL VOA's/HCl, 8260

27. Final Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL	Removed	Flow Rate	Observations	Photo Roll #,
10:49	20.66	1.902	6.41	Turbid	59.84	2.75 Gal	0.25 GPM	Slight Turbid	

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: Clear H2O - To Slight Turbid Slight HC odor

29. Purgewater disposal method: ON Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
10:41	21.70	1.846	6.94	Clear	59.39'	Purge Parameters	8.17	0.25	0.8/115.6
10:44	21.24	1.847	6.67	Clear	—	1.0	8.12	0.25	10.4/119.7
10:46	20.78	1.891	6.72	Slight Turbid	—	2.0	8.57	0.25	7.5/102.6
10:49	20.66	1.902	6.41	Slight Turbid	59.84	2.75	8.60	0.25	20.9/105.0

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: [signature] PG Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☒ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-8 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Wolstad Oil Co.	2. Project Location Golder & Associates Wolstad Oil / Co. Lovington 66	3. Date 06/23/2016
4. Technician CM Barnhill, PG	424 S. Main Lovington, NM	
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR-2015	9. Location of Well (Site, Description) Monitor Well W-8

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 11:58	Date: 06/23/16 Time: 12:12	Date: Time:
10. Total Depth of Well (from TOC) 65.26'	15. Total Depth of Well (from TOC) /	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 60.05'	16. Water Level (from TOC) 60.61'	21. Water Level (from TOC)

12. Water Column Height 5.21'	Nom Dia / x = gal/ft: Sch 40 / Sch 80 2" 0.16 0.1534 4" 0.65 0.5972 6" 1.47 1.3540 8" 2.61 2.3720	17. 3 Well Volumes 2.50 Gallons	22. Size and Type of Pump or Bailer 1.5" x 3.0' poly Disposable, Bailer T.P. Twine
13. Well Diameter 2" SCH 40 PVC MW		18. 5 Well Volumes 4.16 Gallons	
14. Well Volume (gal) (s) w.e. height) 0.83		19. Purge Volume 2.75	

Final Field Analysis

23. Total Amount of Water Removed 2.75 Gallons	24. Was Well Pumped Dry? Yes (No)	25. Was water added to well? (No) Yes If yes, source:	26. Was the Groundwater Sampled (Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-8, 06/23/16 CMB @ 12:09 3x40mL VOA's/HCl/8260

27. Final Parameters

Time	Temp C	Conductivity mS/cm	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
12:08	21.96	1.426	6.66	Turbid	60.61	2.75 Gal.	0.25 GPM	Gray Black Strong odor

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: GRAY Black Turbid - Strong Hydrocarbon Odor

29. Purgewater disposal method: ON Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity mS/cm	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
12:04	22.58	0.447	7.36	Clear Strong HC Odor	60.05	Initial parameters	7.29	0.25	-30.6/-184.4
12:05	21.05	1.430	6.91	gray black	—	1.0	8.08	0.25	3.2/-262.9
12:07	20.85	1.412	6.75	gray black Strong odor	—	2.0	8.36	0.25	6.9/-281.8
12:08	21.96	1.426	6.66	" " "	60.61'	2.75	7.88	0.25	9.5/-298.5

(1) Note volume and physical character of sediments removed
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: Clayton M Barnhill PG | Date: 06/23/2016

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☒ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-9 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Walstad Oil Co.	2. Project Location Golder & Associates Walstad Lovington GG 424 South Main Lovington, NM	3. Date 06/23/16
4. Technician CM Barnhill, PG		
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR - 2015	9. Location of Well (Site, Description) Monitor Well W-9

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 13:01	Date: 06/23/16 Time: 13:15	Date: / Time:
10. Total Depth of Well (from TOC) 64.88'	15. Total Depth of Well (from TOC) /	20. Total Depth of Well (from TOC) /
11. Water Level (from TOC) 59.64'	16. Water Level (from TOC) 60.06'	21. Water Level (from TOC) /

12. Water Column Height 5.24'	Nom Dia / x = gal/ft: Sch 40 / Sch 80 2" 0.16 0.1534 4" 0.65 0.5972 6" 1.47 1.3540 8" 2.61 2.3720	17. 3 Well Volumes 2.51 Gallons	22. Size and Type of Pump or Bailer 1.5" x 3.0' poly Disposable Bailer T.P. Twine
13. Well Diameter 2" SCH 40 PVC MW		18. 5 Well Volumes 4.19 Gallons	
14. Well Volume (gal) (s) w.e. height) 0.83		19. Purge Volume 2.75 Gallons	

Final Field Analysis

23. Total Amount of Water Removed 2.75 Gallons	24. Was Well Pumped Dry? Yes (No)	25. Was water added to well? (No) Yes If yes, source:	26. Was the Groundwater Sampled (Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-9, 06/23/16 CMB @ 13:12 3x40mL VOA's/HCl/826

27. Final Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL	Removed	Flow Rate	Observations	Photo Roll #,
13:11	20.02	1.528	6.43	TURBID	60.06'	2.75 Gal	0.25 GPM	TURBID	

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: gray Black TURBID Strong HC odor

29. Purgewater disposal method: ON GROUND Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
13:07	21.28'	1.437	6.80	Clear Strong odor	59.64'	Initial parameters	8.34	0.25	4.4/-289.6
13:08	20.76	1.419	6.73	gray Black	—	1	8.35	0.25	8.0/-297.2
13:09	20.50	1.498	6.70	" " "	—	2	8.67	0.25	8.3/-302.5
13:11	20.02	1.528	6.43	" " "	60.06'	2.75	7.83	0.25	23.3/-277.3

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: [signature] PG — Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☒ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-11 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Walstad Oil Co.	2. Project Location Golder & Associates Walstad Oil Co - Lovington 66	3. Date 06/23/2016
4. Technician CM Barnhill, PG	424 S. Main Lovington, NM	
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR - 2015	9. Location of Well (Site, Description) Monitor Well W-11

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 11:11	Date: 06/23/16 Time: 11:24	Date: Time:
10. Total Depth of Well (from TOC) 65.17	15. Total Depth of Well (from TOC)	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 59.53'	16. Water Level (from TOC) 60.31'	21. Water Level (from TOC)

12. Water Column Height 5.64'	Nom Dia / x = gal/ft: Sch 40 / Sch 80 (2") 0.16 / 0.1534 4" 0.65 / 0.5972 6" 1.47 / 1.3540 8" 2.61 / 2.3720	17. 3 Well Volumes 2.70 Gallons	22. Size and Type of Pump or (Bailer) 1.5" x 3.0' Poly Disposible Bailer T.P. Twine
13. Well Diameter 2" SCH 40 PVC MW		18. 5 Well Volumes 4.51 Gallons	
14. Well Volume (gal) (s) w.e. height) 0.90		19. Purge Volume 2.75 Gallons	

Final Field Analysis

23. Total Amount of Water Removed 2.75 Gallons	24. Was Well Pumped Dry? Yes (No)	25. Was water added to well? (No) Yes If yes, source:	26. Was the Groundwater Sampled (Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-11, 06/23/16 CMBC 11:22 3x 40mL VOA's HCl

27. Final Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL	Removed	Flow Rate	Observations (Photo Roll #)
11:21	21.67	1.528	6.69	Turbid	60.31	2.75 Gal	0.25 gpm	Turbid Slight HC odor

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: Turbid Fine Silt - Slight HC odor

29. Purgewater disposal method: On Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
11:15	22.56	1.594	6.72	Clear	59.53	Initial purge	7.61	0.25	7.8/-97.0
11:17	21.70	1.603	6.69	Turbid Fine Silt	—	1.0	7.99	0.25	9.0/-200.5
11:20	21.44	1.548	6.66	" " "	—	2.0	8.16	0.25	10.1/-214.7
11:21	21.67	1.528	6.69	Turbid Fine Silt	60.31'	2.75	7.97	0.25	9.0/-213.0

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: [signature] PG — Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☒ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-14 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Walsted Oil Co.	2. Project Location Golder & Associates Walsted Oil Co. Lovington 66	3. Date 06/23/2016
4. Technician CM Barahill, PG	424 S. Main Lovington, NM	
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR-2015	9. Location of Well (Site, Description) Monitor well W-14

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 11:32	Date: 06/23/16 Time: 11:47	Date: Time:
10. Total Depth of Well (from TOC) 64.51'	15. Total Depth of Well (from TOC)	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 58.93'	16. Water Level (from TOC) 59.12	21. Water Level (from TOC)

12. Water Column Height 5.58'	Nom Dia / x = gal/ft Sch 40 / Sch 80 2" 0.16 0.1534 4" 0.65 0.5972 6" 1.47 1.3540 8" 2.61 2.3720	17. 3 Well Volumes 2.67 Gallons	22. Size and Type of Pump or Bailer 1.5" x 3.0' Poly Disposable Bailer Tip, Twine
13. Well Diameter 2" SCH 40 PVC MW		18. 5 Well Volumes 4.46 Gallons	
14. Well Volume (gal) (s) w.e. height) 0.89		19. Purge Volume 2.75 Gallons	

Final Field Analysis

23. Total Amount of Water Removed	24. Was Well Pumped Dry?	25. Was water added to well?	26. Was the Groundwater Sampled?
2.75 Gallons	Yes (No)	(No) Yes If yes, source:	(Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-14, 06/23/16 CMB @ 11:45 3x40 mL VOA's/HgCl2/8260

27. Final Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
11:44	22.25	1.605	6.61	gray Black Turbid	59.12'	2.75 Gal	0.25 GPM	Gray Black Strong HC odor

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: GRAY Black TURBID Strong HC odor

29. Purgewater disposal method: ON Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
11:39	22.82	1.631	6.65	clear Strong HC odor	58.93'	Init. field parameters	7.43	0.25	11.4/-276.8
11:41	21.63	1.647	6.58	" "	—	1.0	8.06	0.25	13.8/-286.3
11:42	21.58	1.602	6.58	gray Black Strong HC odor	—	2.0	8.16	0.25	13.8/-284.9
11:44	22.25	1.605	6.61	gray Black Turbid Strong HC odor	59.12	2.75	7.75	0.25	12.1/-269.1

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: Christopher M. Barahill PG — Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well	Type of Data	Well No.
☒ MW ☐ Production ☐ Other _____	☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	W-16 Sheet 1 of 1 Sheets

1. Project	2. Project Location	3. Date
GW Monitoring 2016 Walstad Oil Co.	Golder & Associates Walstad Oil Co. Lovington 66	06/23/16
4. Technician	424 S. main Lovington, NM	
CM Barnhill, PG		
7. Method Pumping Surging Air Lift (Bailing) Other	**8. Manufacturer's Designation of Rig** DSR-2015	**9. Location of Well (Site, Description)** Monitor Well W-16

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 12:35	Date: 06/23/16 Time: 12:49	Date: Time:
10. Total Depth of Well (from TOC) 64.91'	15. Total Depth of Well (from TOC)	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 58.40'	16. Water Level (from TOC) 58.72'	21. Water Level (from TOC)

12. Water Column Height	Nom Dia	x = gal/ft Sch 40	Sch 80	17. 3 Well Volumes	22. Size and Type of Pump or Bailer
6.51'				3.12 Gallons	
13. Well Diameter 2" SCH 40 PVC MW	(2")	~~0.16~~	0.1534	18. 5 Well Volumes 5.20 Gallons	1.5" x 3.0' Poly Disposable Bailer, Tie, Twine
14. Well Volume (gal) (s) w.e. height) 1.04	4"	0.65	0.5972	19. Purge Volume 3.25 Gallons	
	6"	1.47	1.3540		
	8"	2.61	2.3720		

Final Field Analysis

23. Total Amount of Water Removed	24. Was Well Pumped Dry?	25. Was water added to well?	26. Was the Groundwater Sampled (Yes) No
3.25 Gallons	Yes (No)	(No) Yes If yes, source:	If yes, what was the sample number & Date: Sampling Personnel? W-16, 06/23/16 CMB @12:48 3x40mL VOA's/HgCl2/8260

27. Final Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
12:47	21.89	2.137	6.59	TURBID	58.72'	3.25 Gal.	0.25 GPM	TURBID

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: TURBID GRAY Black - fine Silt

29. Purgewater disposal method: ON Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (mS/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
12:41	22.75	2.171	6.71	Clear No odor	58.40'	~~Initial~~ parameters	7.16	0.25	6.6/-257.7
12:42	21.52	2.150	6.65	TURBID	—	1	8.08	0.25	10.8/-223.3
12:44	20.83	2.132	6.62	" " " Gray Black	—	2	8.46	0.25	12.3/-206.9
12:47	21.89	2.137	6.59	" " "	58.72'	3.25	7.92	0.25	14.1/-180.0

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: Christopher M. Barnhill PG — Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well: ☒ MW ☐ Production ☐ Other _____	Type of Data: ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-19, Sheet 1 of 1 Sheets
1. Project: GW Monitoring 2016 Walstad Oil Co.	2. Project Location: Golder & Associates Walstad Lovington 66 424 South Main Lovington, NM	3. Date: 06/23/16
4. Technician: CM Barnhill, PG		
7. Method: Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig: DSR-2015	9. Location of Well (Site, Description): Monitor well W-19

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 13:29	Date: 06/23/16 Time: 13:41	Date: Time:
10. Total Depth of Well (from TOC): 65.32'	15. Total Depth of Well (from TOC):	20. Total Depth of Well (from TOC):
11. Water Level (from TOC): 59.94'	16. Water Level (from TOC): 60.25'	21. Water Level (from TOC):

12. Water Column Height: 5.38'	Nom Dia (x = gal/ft): Sch 40 / Sch 80	17. 3 Well Volumes: 2.58 Gallons	22. Size and Type of Pump or (Bailer): 1.5" x 3.0' poly Disposable Baiker, Tip, Tume
13. Well Diameter: 2" SCH 40 PVC MW	(2") 0.16 / 0.1534; 4" 0.65 / 0.5972; 6" 1.47 / 1.3540; 8" 2.61 / 2.3720	18. 5 Well Volumes: 4.30 Gallons	
14. Well Volume (gal) (s) w.e. height: 0.86		19. Purge Volume: 2.75 Gallons	

Final Field Analysis

23. Total Amount of Water Removed	24. Was Well Pumped Dry?	25. Was water added to well?	26. Was the Groundwater Sampled?
2.75 Gallons	Yes (No)	(No) Yes If yes, source:	(Yes) No If yes, what was the sample number & Date: W-19, 06/23/16 Sampling Personnel? CMB @ 13.39 3x40mL VOA's/HCl/826

27. Final Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
13:38	21.52	1.232	6.17	TURBID	60.25'	2.75 Gal	0.25 GPM	TURBID

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: TURBID Fine Silt

29. Purgewater disposal method: ON GROUND Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
13:33	22.53	0.933	7.23	Clear to dark	59.94'	Initial parameters	7.76	0.25	-14.0/-211.6
13:34	21.14	1.116	6.94	TURBID	—	1.0	8.55	0.25	1.1/-194.8
13:36	20.19	1.203	6.70	TURBID	—	2.0	7.94	0.25	8.8/-202.2
13:38	21.52	1.232	6.17	TURBID	60.25'	2.75	8.03	0.25	30.5/-166.8

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: [signature] PG Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well ☑ MW ☐ Production ☐ Other _____	Type of Data ☐ Development ☑ Sampling ☐ Pump Test ☐ Other _____	Well No. W-20 Sheet 1 of 1 Sheets
1. Project GW Monitoring 2016 Walstad Oil Co.	2. Project Location Golder Associates Inc Walstad - Lovington 66 424 South Main Lovington, NM	3. Date 06/23/2016
4. Technician CM Barnhill, PG		
7. Method Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig DSR - 2016	9. Location of Well (Site, Description) Monitor Well W-20

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 13:51	Date: 06/23/16 Time: 14:05	Date: Time:
10. Total Depth of Well (from TOC) 65.33'	15. Total Depth of Well (from TOC)	20. Total Depth of Well (from TOC)
11. Water Level (from TOC) 60.68'	16. Water Level (from TOC) 60.74'	21. Water Level (from TOC)

12. Water Column Height 4.65'	Nom Dia	x = gal/ft Sch 40	Sch 80	17. 3 Well Volumes 2.23 Gallons
13. Well Diameter 2" SCH 40 PVC MW	2"	0.16	0.1534	18. 5 Well Volumes 3.72 Gallons
14. Well Volume (gal) (s) w.e. height) 0.744	4"	0.65	0.5972	19. Purge Volume 2.50 Gallons
	6"	1.47	1.3540	
	8"	2.61	2.3720	

22. Size and Type of Pump or (Bailer)
1.5" x 3.0' Disposable Bailer, Tie, Twine

Final Field Analysis

23. Total Amount of Water Removed	24. Was Well Pumped Dry?	25. Was water added to well?	26. Was the Groundwater Sampled (Yes) No
2.50 Gallons	Yes (No)	(No) Yes If yes, source:	If yes, what was the sample number & Date: Sampling Personnel? W-20, 06/23/16 CMB @ 14:03 3x40mL VOA's/HCl/8260

27. Final Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
14:02	20.14	1.139	6.30	Turbid	60.74'	2.50 gal	0.25 GPM	Turbid

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: Turbid Fine Silt

29. Purgewater disposal method: On Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
13:57	21.66	1.016	7.18	Clear	60.68'	Initial parameters	8.07	0.25	-12.6 / -123.7
13:58	19.70	1.122	7.16	Turbid Fine Silt	—	1	8.28	0.25	-10.9 / -92.3
14:00	19.25	1.134	7.09	" " "	—	2.0	7.63	0.25	-8.2 / -75.3
14:02	20.14	1.139	6.30	" " "	60.74'	2.50	8.24	0.25	-11.4 / -40.2

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: Christopher M Bull PG — Date: 06/23/16

CMB ENVIRONMENTAL & GEOLOGICAL SERVICES, INC. - WELL DATA FORM

Type Well: ☒ MW ☐ Production ☐ Other _____	Type of Data: ☐ Development ☒ Sampling ☐ Pump Test ☐ Other _____	Well No. W-21, Sheet 1 of 1 Sheets
1. Project: GW Monitoring 2016 Walstad Oil Co.	2. Project Location: Golder & Associates Walstad Lovington 66 424 South Main Lovington, NM	3. Date: 06/23/16
4. Technician: CM Barnhill, PG		
7. Method: Pumping Surging Air Lift (Bailing) Other	8. Manufacturer's Designation of Rig: DSR-2015	9. Location of Well (Site, Description): Monitor Well W-21

Water Levels

Initial	Final	Final + 24 Hours
Date: 06/23/16 Time: 14:12	Date: 06/23/16 Time: 14:25	Date: Time:
10. Total Depth of Well (from TOC): 64.99'	15. Total Depth of Well (from TOC): /	20. Total Depth of Well (from TOC): /
11. Water Level (from TOC): 59.88'	16. Water Level (from TOC): 60.15	21. Water Level (from TOC): /

12. Water Column Height: 5.11'	Nom Dia / x = gal/ft: Sch 40 / Sch 80	17. 3 Well Volumes: 2.45 Gallons	22. Size and Type of Pump or (Bailer): 1.5" x 3.0' Poly Disposable Bailer Tie. Twine
13. Well Diameter: 2" SCH 40 PVC MW	(2") 0.16 / 0.1534	18. 5 Well Volumes: 4.08 Gallons	
14. Well Volume (gal) (s) w.e. height): 0.8176	4" 0.65 / 0.5972; 6" 1.47 / 1.3540; 8" 2.61 / 2.3720	19. Purge Volume: 2.50 Gallons	

Final Field Analysis

23. Total Amount of Water Removed	24. Was Well Pumped Dry?	25. Was water added to well?	26. Was the Groundwater Sampled?
2.50 Gallons	Yes (No)	(No) Yes If yes, source:	(Yes) No If yes, what was the sample number & Date: Sampling Personnel? W-21, 06/23/16 CMB @ 14:22 3x40mL VOA's/HCl/8260

27. Final Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL	Removed	Flow Rate	Photo Roll #, Observations
14:21	21.09	1.190	6.52	TURBID	60.15'	2.50Gal	0.25GPM	TURBID

IF PETROLEUM IS IN THE WELL, DO NOT TAKE pH AND CONDUCTIVITY PARAMETERS

28. Physical Appearance and Remarks: TURBID Fine S.H

29. Purgewater disposal method: ON Ground Surface

Sampling / Development Parameters

Time	Temp C	Conductivity (ms/cm)	pH	NTUs	WL (from TOC)	Volume (gallons)	Dissolved Oxygen	Flow Rate (gpm)	pHmv/ORP
14:16	21.72	1.208	7.12	Clear H2O	59.66'	Initial parameters	8.10	0.25	-8.6 / 69.6
14:18	20.44	1.187	7.00	Clear	—	1.0	7.99	0.25	-3.8 / -50.6
14:20	19.94	1.185	6.92	TURBID Fine Silt	—	2.0	7.95	0.25	-1.3 / -44.5
14:21	21.09	1.190	6.52	" " "	60.15	2.50	7.40	0.25	-1.3 / -24.9

(1) Note volume and physical character of sediments removed.
NTU = Nephelometric turbidity units
WL = Water Level from Top of PVC Casing

Checked By: [signature] Date: 06/23/16

APPENDIX D
ANALYTICAL 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

July 08, 2016

Clay Kilmer

Golder Associates
5200 Pasadena, NE Suite C
Albuquerque, NM 87113
TEL: (505) 821-3043
FAX (505) 821-5273

RE: Golder Associates, Inc Walstad Lovington 66 OrderNo.: 1606F22

Dear Clay Kilmer:

Hall Environmental Analysis Laboratory received 10 sample(s) on 6/28/2016 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 qualifers 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Golder Associates
Client Sample ID: W-5
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 10:50:00 AM
Lab ID: 1606F22-001 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	17	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Ethylbenzene	7.5	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Methyl tert-butyl ether (MTBE)	2.1	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2,4-Trimethylbenzene	3.4	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,3,5-Trimethylbenzene	1.8	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 1:51:01 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 1:51:01 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 1:51:01 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-5
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 10:50:00 AM
Lab ID: 1606F22-001 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 1:51:01 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 1:51:01 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
n-Propylbenzene	1.0	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 1:51:01 AM	C35402
Xylenes, Total	7.0	1.5		µg/L	1	7/2/2016 1:51:01 AM	C35402
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	7/2/2016 1:51:01 AM	C35402
Surr: 4-Bromofluorobenzene	94.3	70-130		%Rec	1	7/2/2016 1:51:01 AM	C35402
Surr: Dibromofluoromethane	100	70-130		%Rec	1	7/2/2016 1:51:01 AM	C35402
Surr: Toluene-d8	97.5	70-130		%Rec	1	7/2/2016 1:51:01 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-8
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 12:09:00 PM
Lab ID: 1606F22-002 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	16000	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Toluene	7300	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Ethylbenzene	2100	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Methyl tert-butyl ether (MTBE)	16000	200		µg/L	200	7/5/2016 1:14:00 PM	R35432
1,2,4-Trimethylbenzene	1800	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,3,5-Trimethylbenzene	470	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2-Dichloroethane (EDC)	320	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2-Dibromoethane (EDB)	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Naphthalene	540	400		µg/L	200	7/2/2016 5:38:03 AM	C35402
1-Methylnaphthalene	ND	800		µg/L	200	7/2/2016 5:38:03 AM	C35402
2-Methylnaphthalene	ND	800		µg/L	200	7/2/2016 5:38:03 AM	C35402
Acetone	ND	2000		µg/L	200	7/2/2016 5:38:03 AM	C35402
Bromobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Bromodichloromethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Bromoform	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Bromomethane	ND	600		µg/L	200	7/2/2016 5:38:03 AM	C35402
2-Butanone	ND	2000		µg/L	200	7/2/2016 5:38:03 AM	C35402
Carbon disulfide	ND	2000		µg/L	200	7/2/2016 5:38:03 AM	C35402
Carbon Tetrachloride	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Chlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Chloroethane	ND	400		µg/L	200	7/2/2016 5:38:03 AM	C35402
Chloroform	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Chloromethane	ND	600		µg/L	200	7/2/2016 5:38:03 AM	C35402
2-Chlorotoluene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
4-Chlorotoluene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
cis-1,2-DCE	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
cis-1,3-Dichloropropene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2-Dibromo-3-chloropropane	ND	400		µg/L	200	7/2/2016 5:38:03 AM	C35402
Dibromochloromethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Dibromomethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,3-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,4-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Dichlorodifluoromethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1-Dichloroethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1-Dichloroethene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2-Dichloropropane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,3-Dichloropropane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
2,2-Dichloropropane	ND	400		µg/L	200	7/2/2016 5:38:03 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-8
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 12:09:00 PM
Lab ID: 1606F22-002 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Hexachlorobutadiene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
2-Hexanone	ND	2000		µg/L	200	7/2/2016 5:38:03 AM	C35402
Isopropylbenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
4-Isopropyltoluene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
4-Methyl-2-pentanone	ND	2000		µg/L	200	7/2/2016 5:38:03 AM	C35402
Methylene Chloride	ND	600		µg/L	200	7/2/2016 5:38:03 AM	C35402
n-Butylbenzene	ND	600		µg/L	200	7/2/2016 5:38:03 AM	C35402
n-Propylbenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
sec-Butylbenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Styrene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
tert-Butylbenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1,1,2-Tetrachloroethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1,2,2-Tetrachloroethane	ND	400		µg/L	200	7/2/2016 5:38:03 AM	C35402
Tetrachloroethene (PCE)	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
trans-1,2-DCE	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
trans-1,3-Dichloropropene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2,3-Trichlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2,4-Trichlorobenzene	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1,1-Trichloroethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,1,2-Trichloroethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Trichloroethene (TCE)	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Trichlorofluoromethane	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
1,2,3-Trichloropropane	ND	400		µg/L	200	7/2/2016 5:38:03 AM	C35402
Vinyl chloride	ND	200		µg/L	200	7/2/2016 5:38:03 AM	C35402
Xylenes, Total	6000	300		µg/L	200	7/2/2016 5:38:03 AM	C35402
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	200	7/2/2016 5:38:03 AM	C35402
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	200	7/2/2016 5:38:03 AM	C35402
Surr: Dibromofluoromethane	101	70-130		%Rec	200	7/2/2016 5:38:03 AM	C35402
Surr: Toluene-d8	96.6	70-130		%Rec	200	7/2/2016 5:38:03 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-9
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 1:12:00 PM
Lab ID: 1606F22-003 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	3800	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Toluene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Ethylbenzene	290	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Methyl tert-butyl ether (MTBE)	300	50		µg/L	50	7/5/2016 1:37:00 PM	R35432
1,2,4-Trimethylbenzene	120	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,3,5-Trimethylbenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2-Dichloroethane (EDC)	410	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2-Dibromoethane (EDB)	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Naphthalene	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402
1-Methylnaphthalene	ND	200		µg/L	50	7/2/2016 6:34:45 AM	C35402
2-Methylnaphthalene	ND	200		µg/L	50	7/2/2016 6:34:45 AM	C35402
Acetone	ND	500		µg/L	50	7/2/2016 6:34:45 AM	C35402
Bromobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Bromodichloromethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Bromoform	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Bromomethane	ND	150		µg/L	50	7/2/2016 6:34:45 AM	C35402
2-Butanone	ND	500		µg/L	50	7/2/2016 6:34:45 AM	C35402
Carbon disulfide	ND	500		µg/L	50	7/2/2016 6:34:45 AM	C35402
Carbon Tetrachloride	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Chlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Chloroethane	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402
Chloroform	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Chloromethane	ND	150		µg/L	50	7/2/2016 6:34:45 AM	C35402
2-Chlorotoluene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
4-Chlorotoluene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
cis-1,2-DCE	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
cis-1,3-Dichloropropene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2-Dibromo-3-chloropropane	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402
Dibromochloromethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Dibromomethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2-Dichlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,3-Dichlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,4-Dichlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Dichlorodifluoromethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1-Dichloroethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1-Dichloroethene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2-Dichloropropane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,3-Dichloropropane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
2,2-Dichloropropane	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-9
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 1:12:00 PM
Lab ID: 1606F22-003 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Hexachlorobutadiene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
2-Hexanone	ND	500		µg/L	50	7/2/2016 6:34:45 AM	C35402
Isopropylbenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
4-Isopropyltoluene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
4-Methyl-2-pentanone	ND	500		µg/L	50	7/2/2016 6:34:45 AM	C35402
Methylene Chloride	ND	150		µg/L	50	7/2/2016 6:34:45 AM	C35402
n-Butylbenzene	ND	150		µg/L	50	7/2/2016 6:34:45 AM	C35402
n-Propylbenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
sec-Butylbenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Styrene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
tert-Butylbenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1,1,2-Tetrachloroethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1,2,2-Tetrachloroethane	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402
Tetrachloroethene (PCE)	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
trans-1,2-DCE	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
trans-1,3-Dichloropropene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2,3-Trichlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2,4-Trichlorobenzene	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1,1-Trichloroethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,1,2-Trichloroethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Trichloroethene (TCE)	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Trichlorofluoromethane	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
1,2,3-Trichloropropane	ND	100		µg/L	50	7/2/2016 6:34:45 AM	C35402
Vinyl chloride	ND	50		µg/L	50	7/2/2016 6:34:45 AM	C35402
Xylenes, Total	ND	75		µg/L	50	7/2/2016 6:34:45 AM	C35402
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	50	7/2/2016 6:34:45 AM	C35402
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	50	7/2/2016 6:34:45 AM	C35402
Surr: Dibromofluoromethane	97.4	70-130		%Rec	50	7/2/2016 6:34:45 AM	C35402
Surr: Toluene-d8	94.9	70-130		%Rec	50	7/2/2016 6:34:45 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-11
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 11:22:00 AM
Lab ID: 1606F22-004
Matrix: AQUEOUS
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	1.7	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Ethylbenzene	47	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Methyl tert-butyl ether (MTBE)	34	5.0		µg/L	5	7/5/2016 2:01:00 PM	R35432
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,3,5-Trimethylbenzene	1.3	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2-Dichloroethane (EDC)	63	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 7:31:34 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 7:31:34 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 7:31:34 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-11
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 11:22:00 AM
Lab ID: 1606F22-004 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 7:31:34 AM	C35402
Isopropylbenzene	9.3	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 7:31:34 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
n-Propylbenzene	8.5	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
sec-Butylbenzene	4.1	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 7:31:34 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 7:31:34 AM	C35402
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	7/2/2016 7:31:34 AM	C35402
Surr: 4-Bromofluorobenzene	91.9	70-130		%Rec	1	7/2/2016 7:31:34 AM	C35402
Surr: Dibromofluoromethane	102	70-130		%Rec	1	7/2/2016 7:31:34 AM	C35402
Surr: Toluene-d8	91.6	70-130		%Rec	1	7/2/2016 7:31:34 AM	C35402

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
R	RPD outside accepted recovery limits
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Golder Associates
Client Sample ID: W-14
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 11:45:00 AM
Lab ID: 1606F22-005 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	32000	2000		µg/L	2E	7/2/2016 7:59:55 AM	C35402
Toluene	35000	2000		µg/L	2E	7/2/2016 7:59:55 AM	C35402
Ethylbenzene	4000	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Methyl tert-butyl ether (MTBE)	1400	200		µg/L	200	7/5/2016 2:25:00 PM	R35432
1,2,4-Trimethylbenzene	1600	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,3,5-Trimethylbenzene	410	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2-Dichloroethane (EDC)	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2-Dibromoethane (EDB)	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Naphthalene	760	400		µg/L	200	7/2/2016 8:28:22 AM	C35402
1-Methylnaphthalene	ND	800		µg/L	200	7/2/2016 8:28:22 AM	C35402
2-Methylnaphthalene	ND	800		µg/L	200	7/2/2016 8:28:22 AM	C35402
Acetone	ND	2000		µg/L	200	7/2/2016 8:28:22 AM	C35402
Bromobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Bromodichloromethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Bromoform	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Bromomethane	ND	600		µg/L	200	7/2/2016 8:28:22 AM	C35402
2-Butanone	ND	2000		µg/L	200	7/2/2016 8:28:22 AM	C35402
Carbon disulfide	ND	2000		µg/L	200	7/2/2016 8:28:22 AM	C35402
Carbon Tetrachloride	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Chlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Chloroethane	ND	400		µg/L	200	7/2/2016 8:28:22 AM	C35402
Chloroform	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Chloromethane	ND	600		µg/L	200	7/2/2016 8:28:22 AM	C35402
2-Chlorotoluene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
4-Chlorotoluene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
cis-1,2-DCE	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
cis-1,3-Dichloropropene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2-Dibromo-3-chloropropane	ND	400		µg/L	200	7/2/2016 8:28:22 AM	C35402
Dibromochloromethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Dibromomethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,3-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,4-Dichlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Dichlorodifluoromethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1-Dichloroethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1-Dichloroethene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2-Dichloropropane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,3-Dichloropropane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
2,2-Dichloropropane	ND	400		µg/L	200	7/2/2016 8:28:22 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-14
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 11:45:00 AM
Lab ID: 1606F22-005 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Hexachlorobutadiene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
2-Hexanone	ND	2000		µg/L	200	7/2/2016 8:28:22 AM	C35402
Isopropylbenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
4-Isopropyltoluene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
4-Methyl-2-pentanone	ND	2000		µg/L	200	7/2/2016 8:28:22 AM	C35402
Methylene Chloride	ND	600		µg/L	200	7/2/2016 8:28:22 AM	C35402
n-Butylbenzene	ND	600		µg/L	200	7/2/2016 8:28:22 AM	C35402
n-Propylbenzene	210	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
sec-Butylbenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Styrene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
tert-Butylbenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1,1,2-Tetrachloroethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1,2,2-Tetrachloroethane	ND	400		µg/L	200	7/2/2016 8:28:22 AM	C35402
Tetrachloroethene (PCE)	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
trans-1,2-DCE	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
trans-1,3-Dichloropropene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2,3-Trichlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2,4-Trichlorobenzene	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1,1-Trichloroethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,1,2-Trichloroethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Trichloroethene (TCE)	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Trichlorofluoromethane	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
1,2,3-Trichloropropane	ND	400		µg/L	200	7/2/2016 8:28:22 AM	C35402
Vinyl chloride	ND	200		µg/L	200	7/2/2016 8:28:22 AM	C35402
Xylenes, Total	13000	300		µg/L	200	7/2/2016 8:28:22 AM	C35402
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	200	7/2/2016 8:28:22 AM	C35402
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	200	7/2/2016 8:28:22 AM	C35402
Surr: Dibromofluoromethane	98.5	70-130		%Rec	200	7/2/2016 8:28:22 AM	C35402
Surr: Toluene-d8	95.8	70-130		%Rec	200	7/2/2016 8:28:22 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-16
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 12:48:00 PM
Lab ID: 1606F22-006 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Ethylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 8:56:46 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 8:56:46 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 8:56:46 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-16
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 12:48:00 PM
Lab ID: 1606F22-006 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 8:56:46 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 8:56:46 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 8:56:46 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 8:56:46 AM	C35402
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	7/2/2016 8:56:46 AM	C35402
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	7/2/2016 8:56:46 AM	C35402
Surr: Dibromofluoromethane	100	70-130		%Rec	1	7/2/2016 8:56:46 AM	C35402
Surr: Toluene-d8	97.9	70-130		%Rec	1	7/2/2016 8:56:46 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-19
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 1:39:00 PM
Lab ID: 1606F22-007 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	4.5	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Ethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2-Dichloroethane (EDC)	79	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 9:25:12 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 9:25:12 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 9:25:12 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2-Dichloropropane	6.4	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-19
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 1:39:00 PM
Lab ID: 1606F22-007
Matrix: AQUEOUS
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 9:25:12 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 9:25:12 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 9:25:12 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 9:25:12 AM	C35402
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	7/2/2016 9:25:12 AM	C35402
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	7/2/2016 9:25:12 AM	C35402
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	7/2/2016 9:25:12 AM	C35402
Surr: Toluene-d8	97.5	70-130		%Rec	1	7/2/2016 9:25:12 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-20
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 2:03:00 PM
Lab ID: 1606F22-008
Matrix: AQUEOUS
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Ethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 9:53:31 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 9:53:31 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 9:53:31 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-20
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 2:03:00 PM
Lab ID: 1606F22-008 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 9:53:31 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 9:53:31 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 9:53:31 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 9:53:31 AM	C35402
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	7/2/2016 9:53:31 AM	C35402
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	7/2/2016 9:53:31 AM	C35402
Surr: Dibromofluoromethane	104	70-130		%Rec	1	7/2/2016 9:53:31 AM	C35402
Surr: Toluene-d8	94.6	70-130		%Rec	1	7/2/2016 9:53:31 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-21
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 2:22:00 PM
Lab ID: 1606F22-009
Matrix: AQUEOUS
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Ethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 10:21:57 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 10:21:57 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 10:21:57 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: W-21
Project: Golder Associates, Inc Walstad Lovingto
Collection Date: 6/23/2016 2:22:00 PM
Lab ID: 1606F22-009 **Matrix:** AQUEOUS **Received Date:** 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 10:21:57 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 10:21:57 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 10:21:57 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 10:21:57 AM	C35402
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	7/2/2016 10:21:57 AM	C35402
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	7/2/2016 10:21:57 AM	C35402
Surr: Dibromofluoromethane	101	70-130		%Rec	1	7/2/2016 10:21:57 AM	C35402
Surr: Toluene-d8	96.6	70-130		%Rec	1	7/2/2016 10:21:57 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: Trip Blank
Project: Golder Associates, Inc Walstad Lovingto
Collection Date:
Lab ID: 1606F22-010
Matrix: TRIP BLANK
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Toluene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Ethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Naphthalene	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
2-Methylnaphthalene	ND	4.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Acetone	ND	10		µg/L	1	7/2/2016 10:50:28 AM	C35402
Bromobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Bromodichloromethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Bromoform	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Bromomethane	ND	3.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
2-Butanone	ND	10		µg/L	1	7/2/2016 10:50:28 AM	C35402
Carbon disulfide	ND	10		µg/L	1	7/2/2016 10:50:28 AM	C35402
Carbon Tetrachloride	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Chlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Chloroethane	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Chloroform	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Chloromethane	ND	3.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
2-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
4-Chlorotoluene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
cis-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Dibromochloromethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Dibromomethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1-Dichloroethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1-Dichloroethene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,3-Dichloropropane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
2,2-Dichloropropane	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402

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
R	RPD outside accepted recovery limits	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.

CLIENT: Golder Associates
Client Sample ID: Trip Blank
Project: Golder Associates, Inc Walstad Lovingto
Collection Date:
Lab ID: 1606F22-010
Matrix: TRIP BLANK
Received Date: 6/28/2016 11:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Hexachlorobutadiene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
2-Hexanone	ND	10		µg/L	1	7/2/2016 10:50:28 AM	C35402
Isopropylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
4-Isopropyltoluene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
4-Methyl-2-pentanone	ND	10		µg/L	1	7/2/2016 10:50:28 AM	C35402
Methylene Chloride	ND	3.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
n-Butylbenzene	ND	3.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
n-Propylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
sec-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Styrene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
tert-Butylbenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
trans-1,2-DCE	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Trichlorofluoromethane	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Vinyl chloride	ND	1.0		µg/L	1	7/2/2016 10:50:28 AM	C35402
Xylenes, Total	ND	1.5		µg/L	1	7/2/2016 10:50:28 AM	C35402
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	7/2/2016 10:50:28 AM	C35402
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	7/2/2016 10:50:28 AM	C35402
Surr: Dibromofluoromethane	101	70-130		%Rec	1	7/2/2016 10:50:28 AM	C35402
Surr: Toluene-d8	98.2	70-130		%Rec	1	7/2/2016 10:50:28 AM	C35402

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
R	RPD outside accepted recovery limits	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#: **1606F22**

08-Jul-16

Client: Golder Associates

Project: Golder Associates, Inc Walstad Lovington 66

Sample ID **rb6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095624** 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.	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
R	RPD outside accepted recovery limits	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#: **1606F22**

08-Jul-16

Client: Golder Associates

Project: Golder Associates, Inc Walstad Lovington 66

Sample ID **rb6**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095624** 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	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.4	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095639** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	116	70	130			
Toluene	19	1.0	20.00	0	97.3	70	130			
Chlorobenzene	19	1.0	20.00	0	96.2	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
R	RPD outside accepted recovery limits	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#: **1606F22**

08-Jul-16

Client: Golder Associates

Project: Golder Associates, Inc Walstad Lovington 66

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095639** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	112	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.7	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID **1606f22-001a ms2**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **W-5**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095654** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	45	1.0	20.00	17.07	139	70	130			S
Toluene	21	1.0	20.00	0.9908	97.6	70	130			
Chlorobenzene	19	1.0	20.00	0	96.3	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	103	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	112	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.5		10.00		94.5	70	130			

Sample ID **1606f22-001a msd2**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **W-5**	Batch ID: **C35402**	RunNo: **35402**
Prep Date:	Analysis Date: **7/2/2016**	SeqNo: **1095655** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	42	1.0	20.00	17.07	124	70	130	7.02	20	
Toluene	21	1.0	20.00	0.9908	98.8	70	130	1.17	20	
Chlorobenzene	19	1.0	20.00	0	94.8	70	130	1.61	20	
1,1-Dichloroethene	19	1.0	20.00	0	96.0	70	130	6.79	20	
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130	9.90	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130	0	0	
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130	0	0	
Surr: Toluene-d8	9.5		10.00		95.1	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
R	RPD outside accepted recovery limits	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#: **1606F22**

08-Jul-16

Client: Golder Associates

Project: Golder Associates, Inc Walstad Lovington 66

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R35432**	RunNo: **35432**
Prep Date:	Analysis Date: **7/5/2016**	SeqNo: **1096329** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.9	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R35432**	RunNo: **35432**
Prep Date:	Analysis Date: **7/5/2016**	SeqNo: **1096330** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.9		10.00		99.1	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **A35432**	RunNo: **35432**
Prep Date:	Analysis Date: **7/6/2016**	SeqNo: **1096381** 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			
Surr: 4-Bromofluorobenzene	10		10.00		99.5	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.8		10.00		97.8	70	130			

Sample ID **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **A35432**	RunNo: **35432**
Prep Date:	Analysis Date: **7/6/2016**	SeqNo: **1096383** 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			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.8	70	130			
Surr: Toluene-d8	9.9		10.00		98.5	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
R	RPD outside accepted recovery limits	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

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: Golder Assoc Work Order Number: 1606F22 RcptNo: 1

Received by/date: RM 06/28/16

Logged By: **Ashley Gallegos** 6/28/2016 11:15:00 AM AG

Completed By: **Ashley Gallegos** 6/28/2016 11:41:53 AM AG

Reviewed By: JO 06/28/16

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?	UPS		

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 ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

Chain-of-Custody Record

Client: Golder Associates, Inc.
ATTN: Clay Kilmer
Mailing Address: 200 Pasadena Ave, N.E. Site C, Albuquerque, NM 87113
Phone #: 505.821.3043
Email or Fax#: Clay_Kilmer@golder.com
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: Golder Associates, Inc Wolstad Lovington 66
Project #: GW Monitoring 2016
Project Manager: Clay Kilmer
Sampler: CM Barnhill, PG
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.4

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1606F22	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
3/16	10:50	H_2O	W-5	3x40mL VOA's	$HgCl_2$	-001										X		N
3/16	12:09	H_2O	W-8			-002										X		N
3/16	13:12	H_2O	W-9			-003										X		N
3/16	11:22	H_2O	W-11			-004										X		N
3/16	11:45	H_2O	W-14			-005										X		N
23/16	12:48	H_2O	W-16			-006										X		N
23/16	13:39	H_2O	W-19			-007										X		N
23/16	14:03	H_2O	W-20			-008										X		N
23/16	14:22	H_2O	W-21			-009										X		N
			Trip Blank	2x40mL VOA's	$HgCl_2$	-010										X		N

Date: 3/16 Time: 1500 Relinquished by:
Date: Time: Relinquished by:

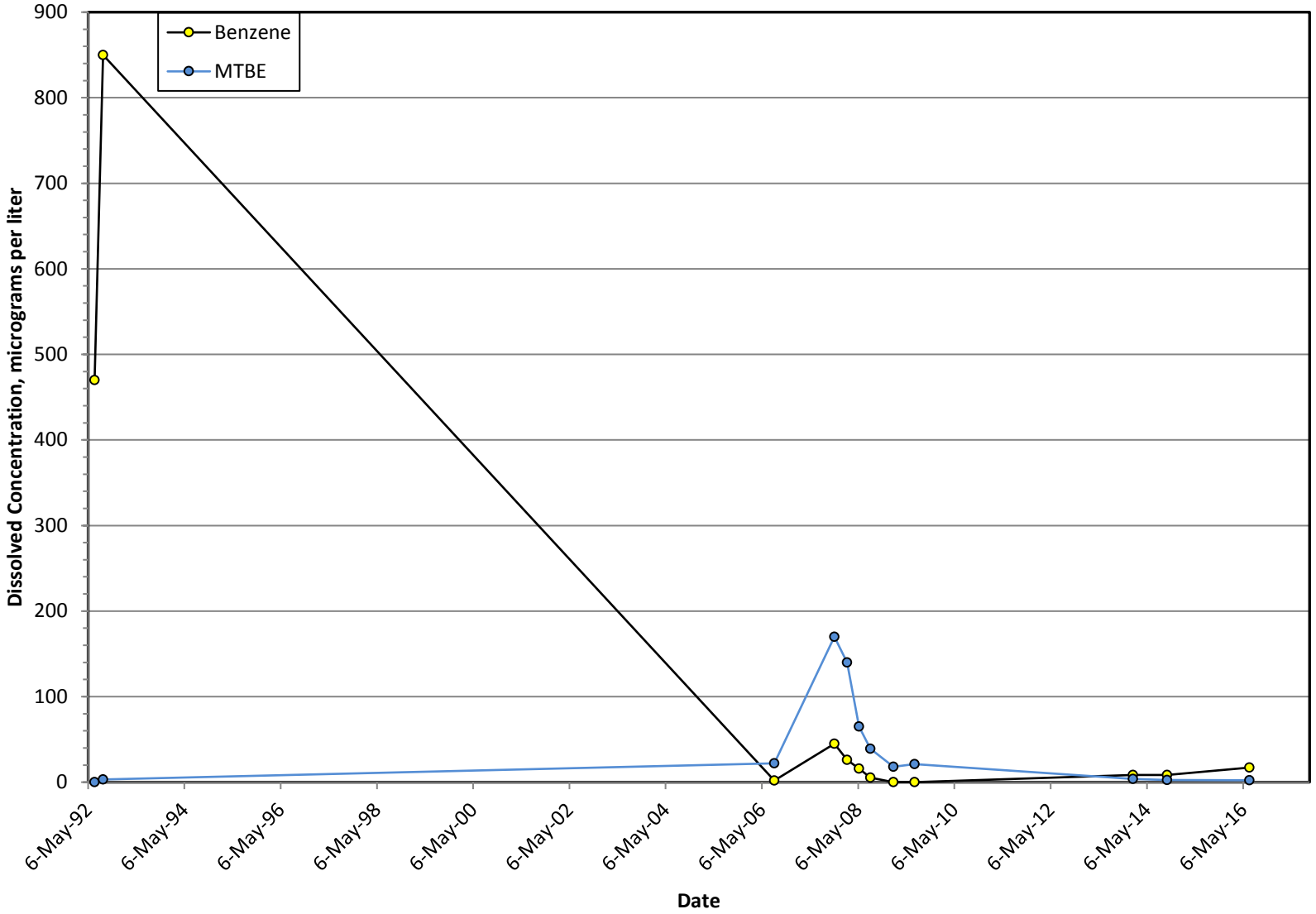
Received by: Date: 06/28/16 Time: 1115
Received by: Date: Time:

Remarks: Any Questions? Please Call Clay Kilmer @ 505.821.3043

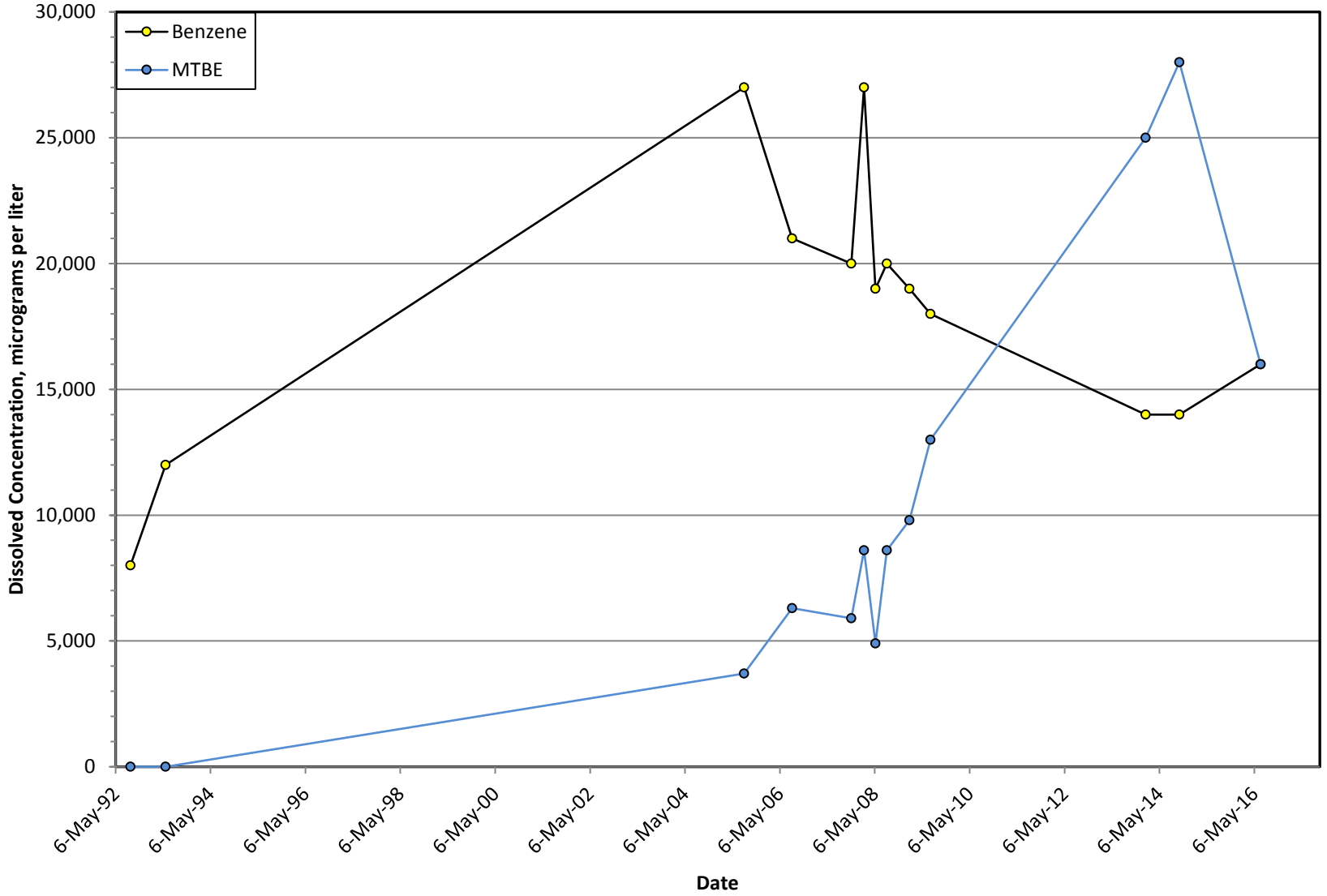
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX E
CONCENTRATION TREND PLOTS

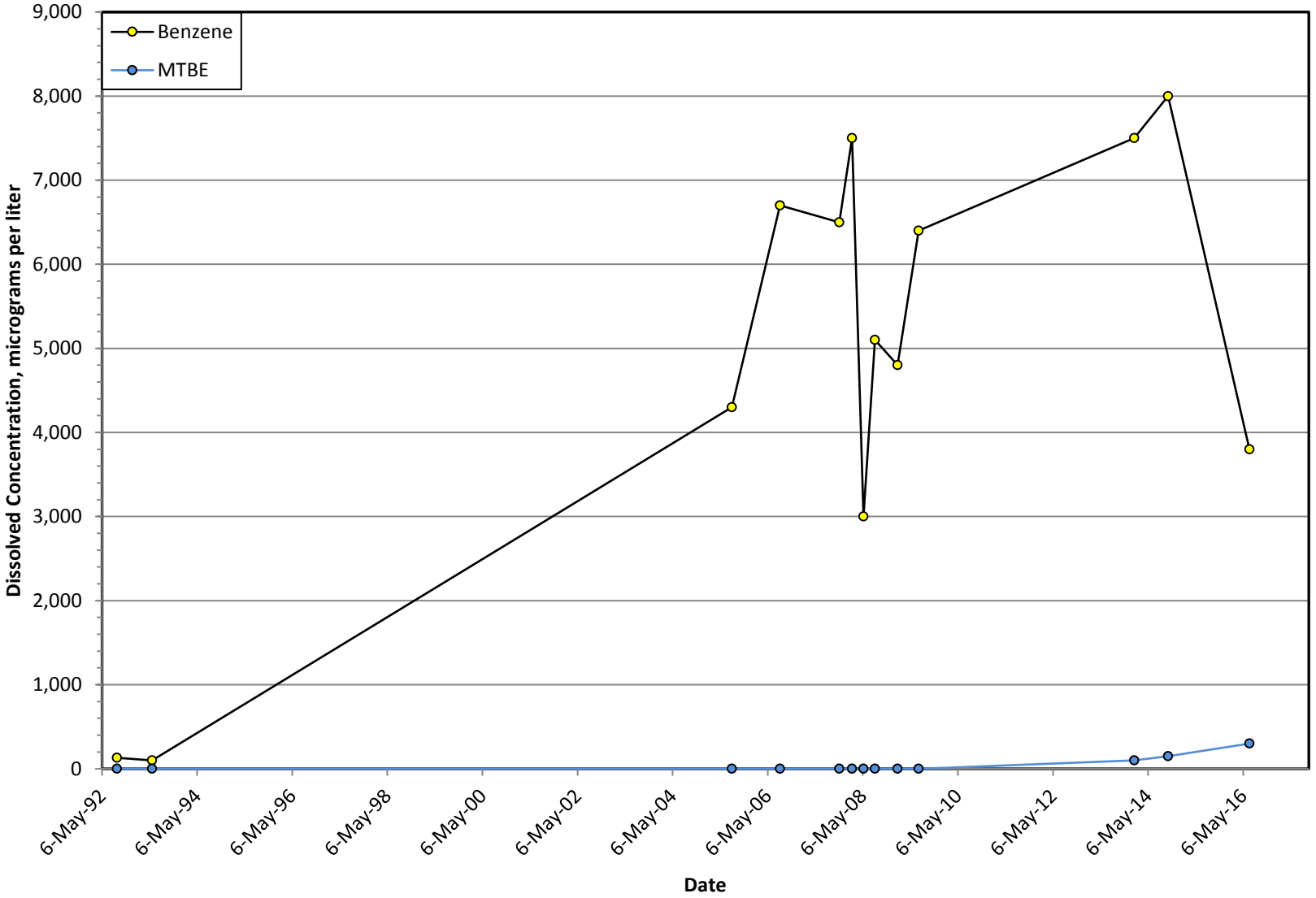
Well W-5
Dissolved VOC Trend



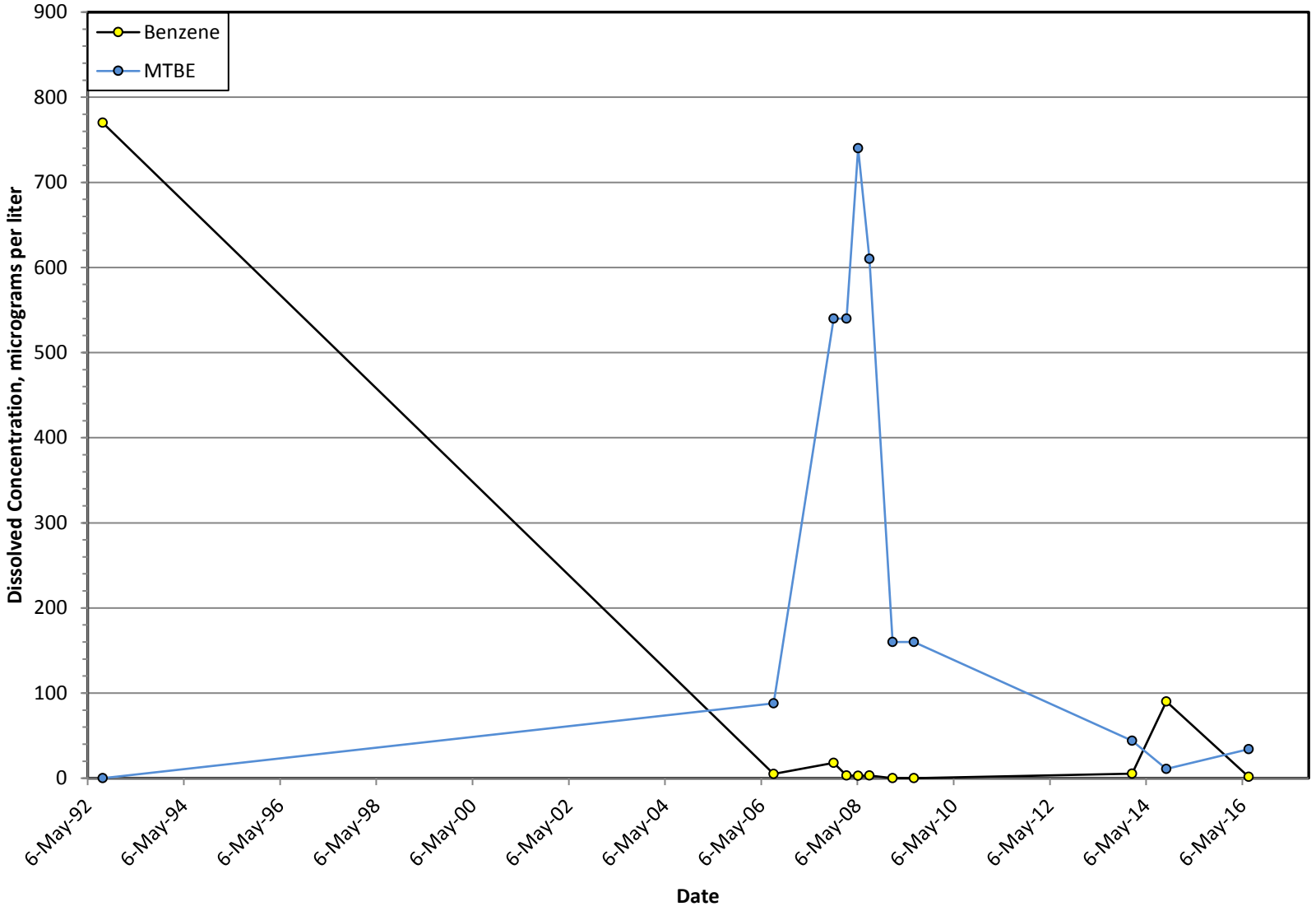
Well W-8
Dissolved VOC Trend



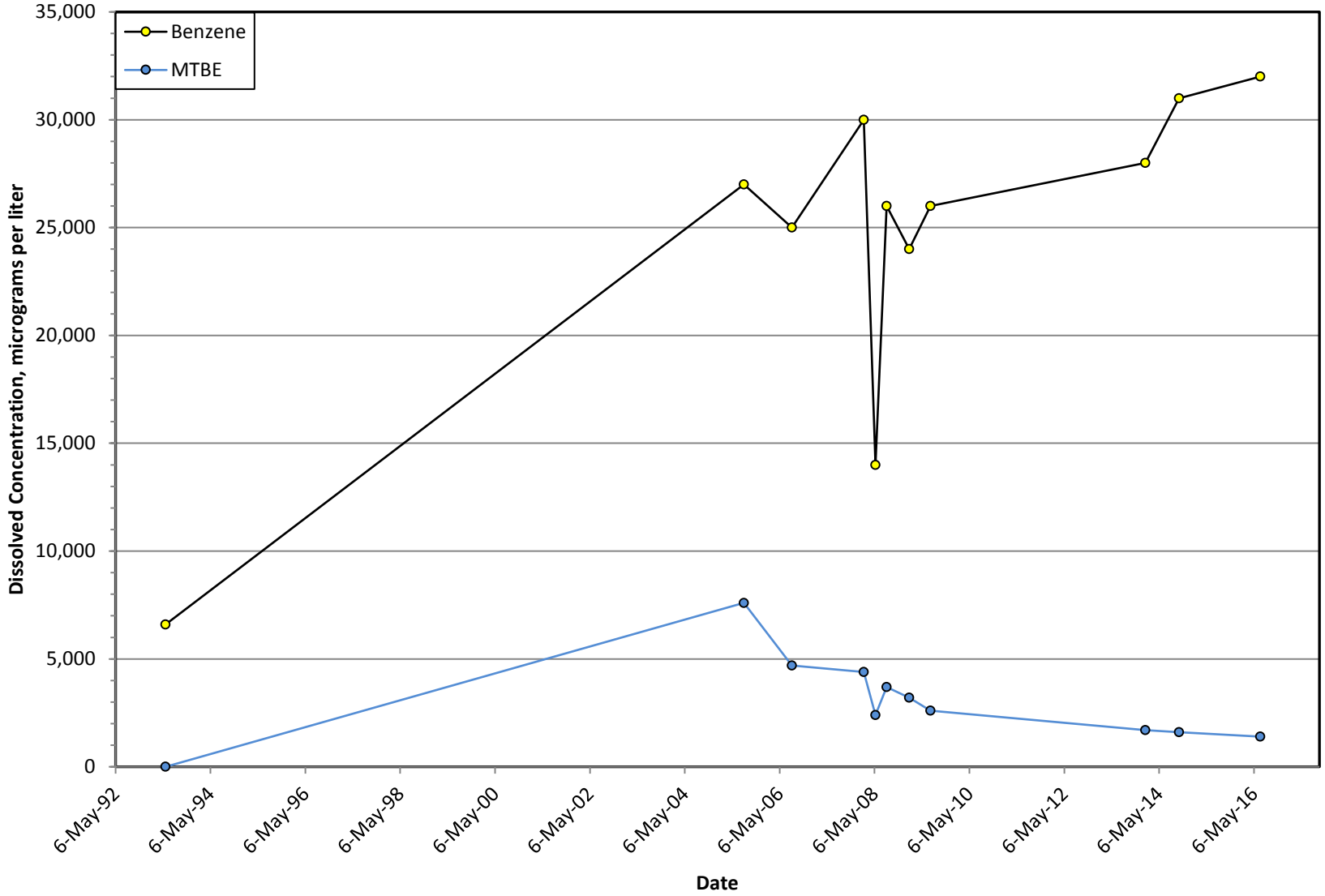
Well W-9
Dissolved VOC Trend



Well W-11
Dissolved VOC Trend

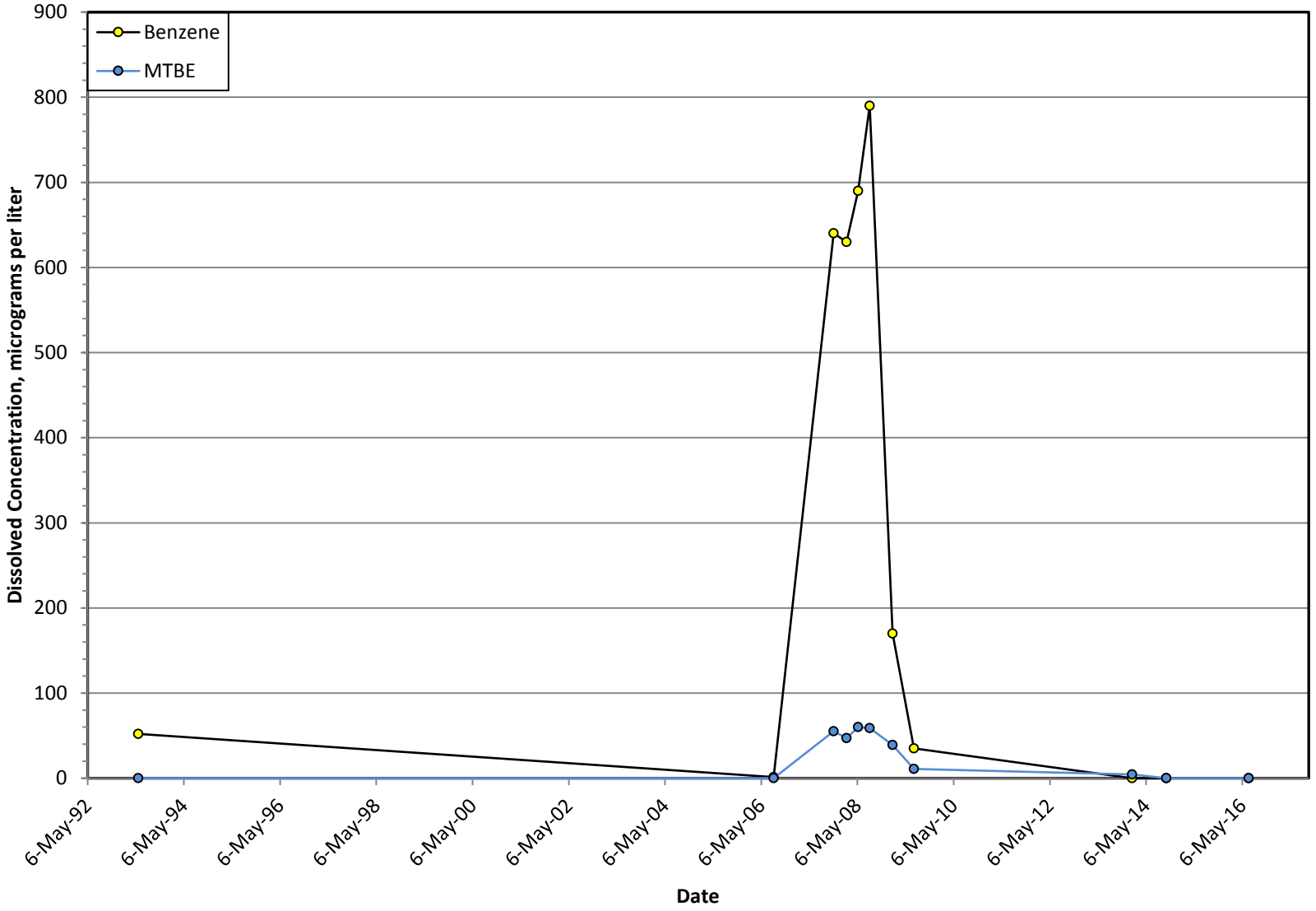


Well W-14
Dissolved VOC Trend

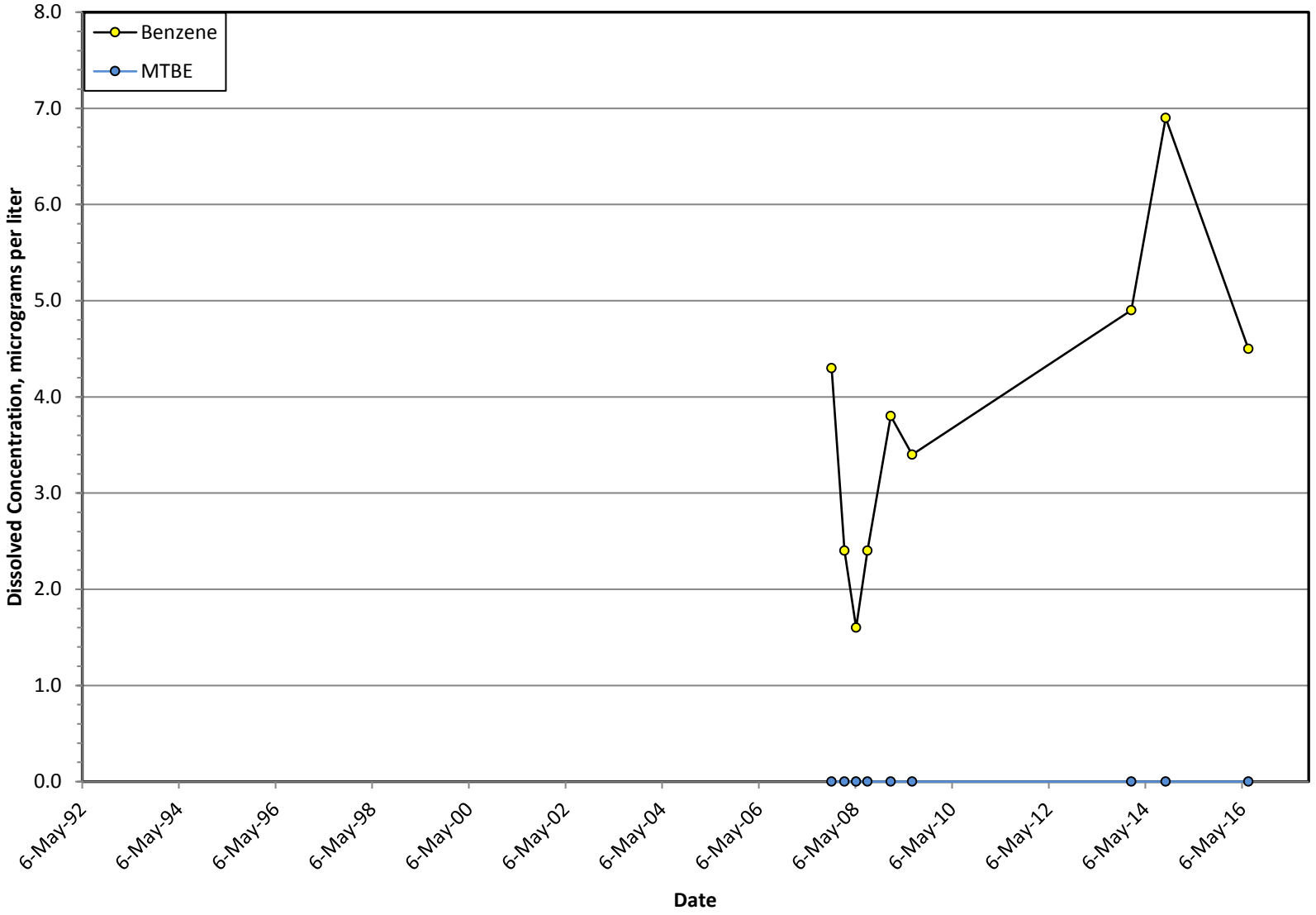


Golder Associates

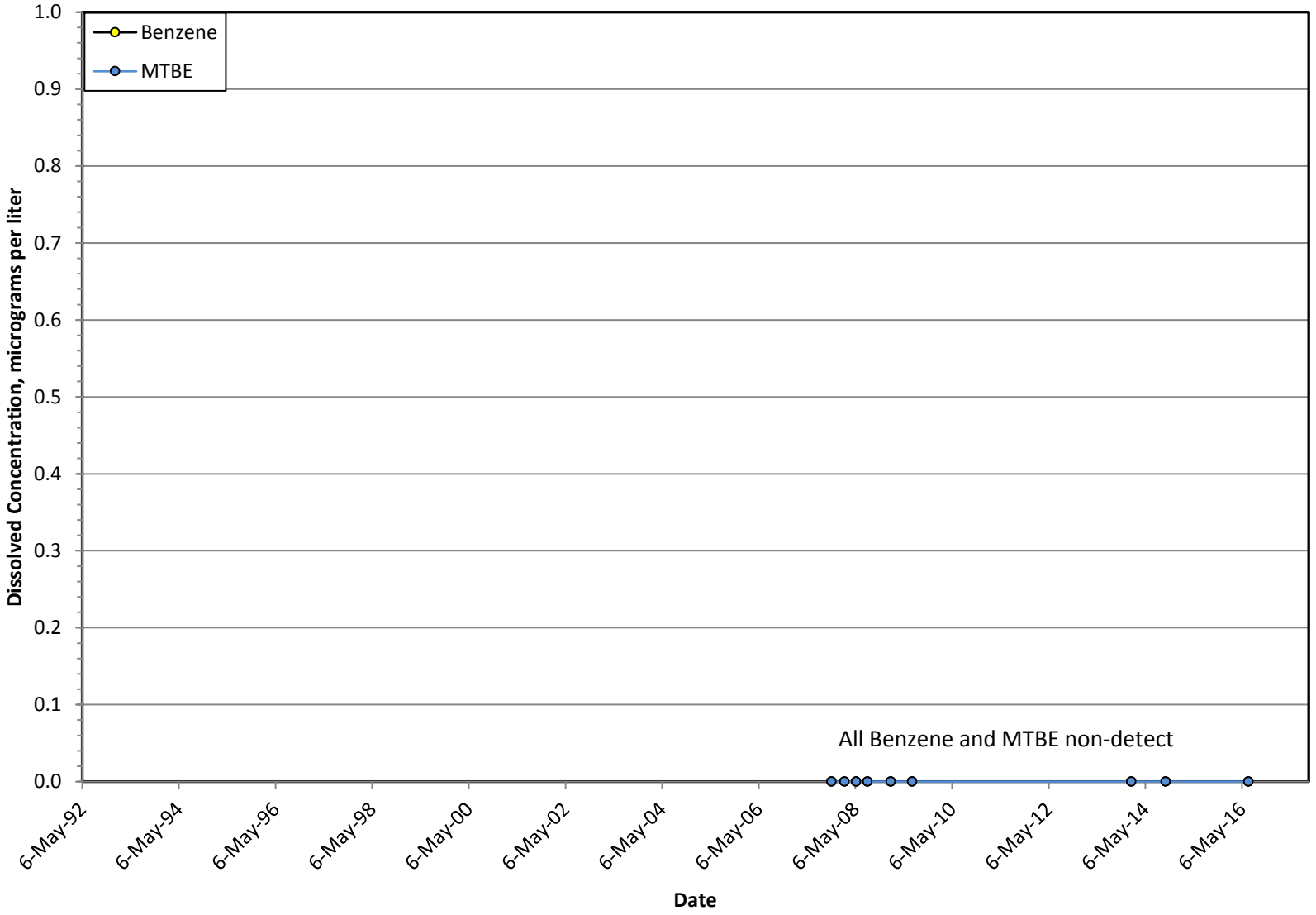
Well W-16
Dissolved VOC Trend



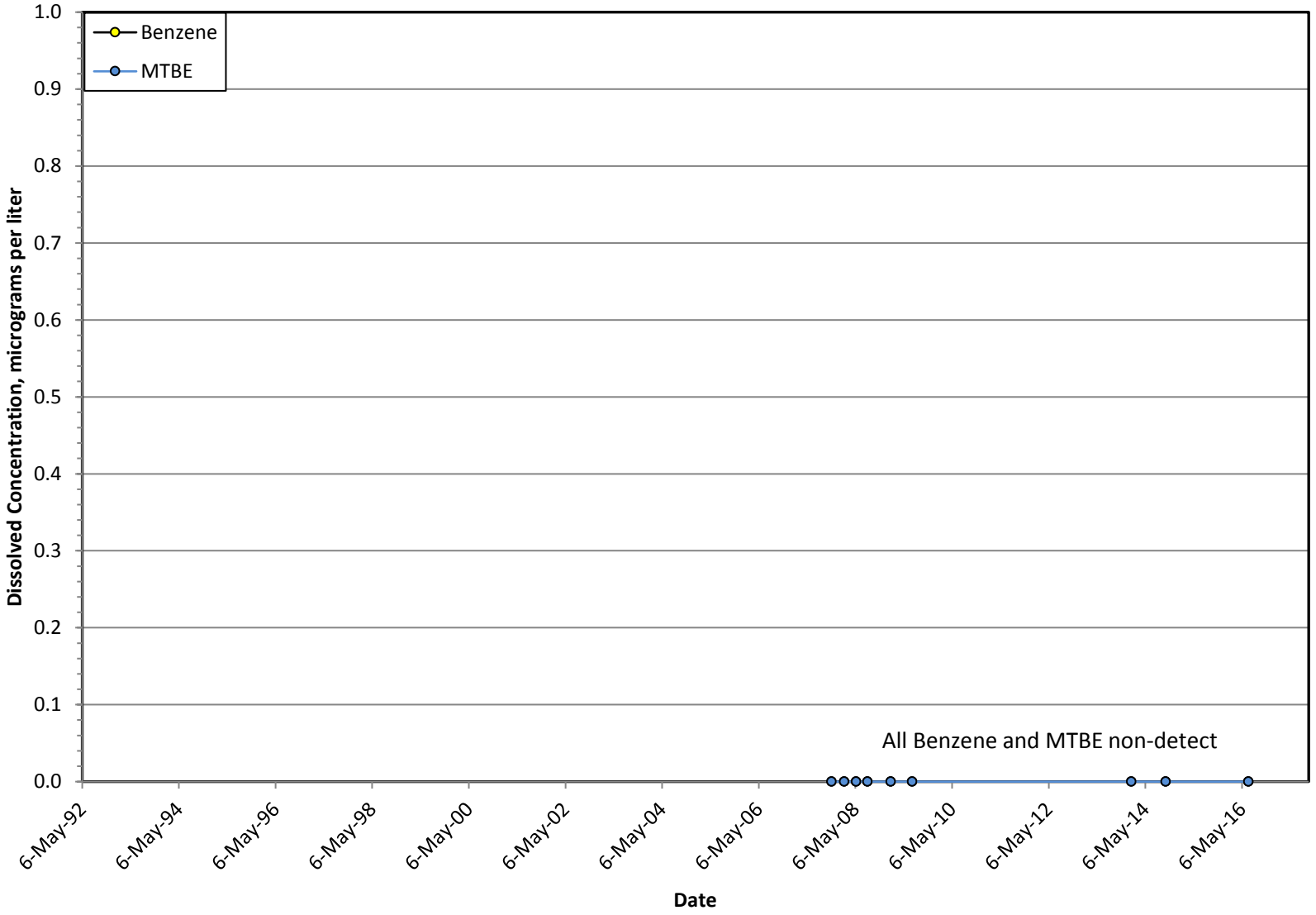
Well W-19
Dissolved VOC Trend



Well W-20
Dissolved VOC Trend



Well W-21
Dissolved VOC Trend



Established in 1960, Golder Associates is a global, employee-owned organization that helps clients find sustainable solutions to the challenges of finite resources, energy and water supply and management, waste management, urbanization, and climate change. We provide a wide range of independent consulting, design, and construction services in our specialist areas of earth, environment, and energy. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services organizations in the world.

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Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
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South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
5200 Pasadena Avenue NE, Suite C
Albuquerque, NM 87113 USA
Tel: (505) 821-3043
Fax: (505) 821-5273

Golder Associates

Engineering Earth's Development, Preserving Earth's Integrity