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September 28, 2017

Mr. Keith Nowell
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: 3Q17 Quarterly Summary Report

Site: 76 Station No. 5191/5043
449 Hegenberger Road
Oakland, California
Fuel Leak Case No. RO0000219

Dear Mr. Nowell;

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

If you have any questions or need additional information, please call:

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Sincerely,

United Pacific



Allan Faas
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Attachment

Quarterly Summary Report, Third Quarter 2017

*76 Station No. 5191/5043
449 Hegenberger Road
Oakland, California*

*Alameda County Health Care Services
Agency Fuel Leak Case No. RO0000219*

*San Francisco Bay, Regional Water Quality
Control Board Case No. 01-1601*

GeoTracker Global ID No. T0600101476

*Antea Group Project No. I42705191
September 28, 2017*

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Quarterly Summary Report, Third Quarter 2017

76 Station No. 5191/5043
449 Hegenberger Road
Oakland, California

1.0 INTRODUCTION

Antea® Group is submitting this *Quarterly Summary Report, Third Quarter 2017*, for the referenced site in Oakland, California (**Figure 1**). The subject site is an operating 76-branded Service Station located on the southwestern corner of Hegenberger Road and Edgewater Drive in Oakland, California. Station facilities include three underground storage tanks (USTs), two dispenser islands, a station building, and a carwash. Six groundwater monitoring wells are located at the site (**Figure 2**). Well construction details are included in **Table 1**. Please refer to **Appendix A** for the history of environmental investigations and remediation activities.

This report summarizes the data obtained from the recent groundwater monitoring and sampling event conducted on August 1, 2017. Included herein are site figures, summary groundwater data tables, and a discussion of trends. This report has received a technical review by Ms. Wendy Linck, California Professional Geologist No. 6934.

1.1 Work Performed [Third Quarter 2017]

1. Antea Group submitted the *Quarterly Summary Report, Second Quarter 2017*, dated August 7, 2017 to the Alameda County Health Care Services Agency (ACHCSA).
2. Antea Group subcontractor Blaine Tech Services, Inc. (Blaine Tech) conducted the third quarter 2017 groundwater monitoring and sampling event on August 1, 2017.

1.2 Work Proposed [Fourth Quarter 2017]

1. Antea Group will submit the *Quarterly Summary Report, Third Quarter 2017* (contained herein) to the ACHCSA.
2. Blaine Tech will conduct the fourth quarter 2017 groundwater monitoring and sampling event.
3. Per ACHCSA's September 15, 2017 letter of conditional approval of Antea Group's August 7, 2017 *Work Plan – Monitoring Well Installation Addendum* (Work Plan), Antea Group will schedule a California-licensed C-57 driller to advance offsite downgradient soil boring SB-19. The objective of this boring is to close a data gap by delineating the contaminant plume in the downgradient direction relative to the site. Antea Group staff professional will oversee the drilling and will collect samples per the Work Plan and ACHCSA's requests in their September 15, 2017 letter.
4. Antea Group will submit a report which presents the results of the offsite investigation and additional information required by ACHCSA needed for site closure.

2.0 CURRENT PROJECT STATUS

Current phase of project:	Quarterly Groundwater Monitoring
Local Oversight Program (LOP) – Lead agency for cleanup oversight:	Alameda County Health Care Services Agency Case No. RO0000219
Secondary agency(s):	San Francisco Bay Regional Water Quality Control Board Case No. 01-1601
Monitoring well gauging schedule:	Quarterly: MW-3, MW-9, MW-11, MW-13, MW-15, and MW-16
Monitoring well sampling schedule:	Quarterly: MW-11, MW-13, MW-15, and MW-16 Semi-Annual (second and fourth quarters): MW-3 and MW-9
Total number of monitoring wells (Table 1):	Six (MW-3, MW-9, MW-11, MW-13, MW-15, and MW-16)
Range of well depths (total depth below ground surface, bgs) (Table 1):	13 feet to 20 feet bgs
Wells with historical measurable LNAPL (light non-aqueous phase liquid):	Former monitoring wells MW-1 and MW-6 (last measured in 1999)
Historical depth to water range, in feet below top of casing (BTOC):	Min: 0.07 (MW-9, Q1 2005) Max: 8.42 (MW-6, Q4 2010)
Historical groundwater elevation range (ft) for monitoring wells MW-1 through MW-17	Min: 2.77 (MW-3, Q3 1994) Max: 9.97 (MW-9, Q4 2016)
Local receptors:	See Appendix A
Current remediation technique	None

2.1 Regulatory Correspondence

There has been no correspondence between Antea Group and the ACHCSA during the current reporting period.

2.2 Site Remediation Activities

There have been no remedial activities during the current reporting period. Remediation was concluded in November 2016, and a request for closure was submitted in Q1 2017.

2.3 Groundwater Monitoring

During the third quarter 2017 groundwater monitoring and sampling event, six monitoring wells were gauged and purged, and four of the six monitoring wells were sampled by Blaine Tech per standard sampling protocol. Copies of Blaine Tech's field data sheets are presented as **Appendix B**. The recent gauging and sampling data are summarized below and in **Table 2**. Historical gauging and sampling data are summarized in **Tables 3, 3a, 3b, 3c, and 3d**.

Well gauging and sampling date:	August 1, 2017
Wells gauged:	MW-3, MW-9, MW-11, MW-13, MW-15, and MW-16
Wells sampled:	MW-11, MW-13, MW-15, and MW-16
Purge method:	3 well casing volumes via electric, submersible pump
Sample collection method:	Disposable bailers
Groundwater parameters measured (Appendix B):	Temperature, pH, Conductivity, Dissolved Oxygen (DO), Oxidation Reduction Potential (ORP), and Turbidity

Wells with measurable LNAPL:	None
Current depth to water range (feet BTOC):	Min: 2.97 (MW-9) Max: 4.03 (MW-13)
Current groundwater elevation range (feet):	Min: 7.03 (MW-13) Max: 7.97 (MW-9)
Change in water depths from previous event (average change for all gauged wells):	0.31 foot increase
Groundwater flow direction and gradient in foot per foot (ft/ft):	Southwest at 0.008 to 0.0008

2.3.1 Groundwater Flow Gradient and Directional Trends

The groundwater elevations calculated using the data collected during the third quarter 2017 monitoring event were used to determine a southwest groundwater flow direction and gradient of 0.008 in the north side of the site to 0.0008 in the center to south side of the site (**Figure 3**). **Table 4** summarizes historical gradients and **Figure 4** shows historical groundwater flow interpretations from 1992 to the present.

2.3.2 Groundwater Quality Data

Groundwater samples collected during the third quarter 2017 groundwater monitoring and sampling event were submitted with chain-of-custody (COC) documentation to Eurofins Calscience, Inc. (Calscience), a state of California Environmental Laboratory Accreditation Program (ELAP) certified laboratory (Certification No. 2944). The complete analytical report and Antea Group's laboratory data validation checklist are presented as **Appendix C**. Groundwater samples were analyzed for the following:

- Total petroleum hydrocarbons as diesel range organics (TPHd) [silica gel preparation] by Environmental Protection Agency (EPA) Method 8015B(M);
- Total petroleum hydrocarbons as gasoline range organics (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), tert-butyl alcohol (TBA), and ethanol by EPA Method 8260B.

Groundwater analytical results are presented in **Table 2** (current) and **Tables 3, 3a, 3b, 3c, and 3d** (historical). The following table summarizes the frequency of detection and the range of concentrations detected during the third quarter 2017 sampling event. Only constituents detected above the laboratory reporting limit are presented in the table below.

Constituents	Number of Reported Samples Above LRL of the Samples Collected	Minimum Reported Concentration, in µg/L (Sample ID)	Maximum Reported Concentration, in µg/L (Sample ID)
TPHd*	3 of 4	55 (MW-11)	300 (MW-15)
TPHg	1 of 4	140 (MW-16)	140 (MW-16)
MTBE	4 of 4	3.1 (MW-15)	12 (MW-13)

TBA	2 of 4	42 (MW-15)	65 (MW-13)
-----	--------	------------	------------

Explanations:

µg/L = Micrograms per liter

LRL = Laboratory reporting limit

* - All results for TPHd had the following qualifier: "HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard"

2.3.3 Groundwater Contaminant Trends

Graphs showing changes in TPHd, TPHg, benzene, and MTBE concentrations (as applicable per well) and changes in depth to water over time for wells MW-3, MW-9, MW-11, MW-13, MW-15, and MW-16 are included as **Appendix D**. Overall, TPHg, TPHd, benzene, and MTBE concentrations have been stable to decreasing at the monitoring well locations. The distribution of dissolved phase TPHg, benzene, and MTBE is shown on **Figure 5**. Note: benzene and MTBE concentrations did not exceed the Low-Threat Closure thresholds of 1,000 µg/L.

2.3.4 Waste Disposal Summary

Blaine Tech transported wastewater generated from purging/sampling and equipment cleaning to their bulk facility in San Jose, California. A waste manifest for this event is currently unavailable as of the date of this report. A copy of the final waste manifest will be submitted upon receipt.

2.3.5 Quality Assurance / Quality Control

Antea Group's QA/QC measures included completing a data validation checklist for the August 2017 Calscience analytical results. Antea Group's data validation checklist is included with the Calscience laboratory report in **Appendix C**.

Laboratory QA/QC Performed:	Yes (validated by Antea Group)
Laboratory Data Qualifiers:	Yes – one qualifier*
Are the data valid for their intended purpose?	Yes, the data are valid

* HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard (noted on the TPHd results for all monitoring wells)

Based on a review of the laboratory's analytical report, including their QA/QC procedures and those implemented by Antea Group, we conclude that the laboratory data obtained during this groundwater sampling event are valid for their intended purpose.

3.0 DISCUSSION

Petroleum hydrocarbon impacts to the groundwater has historically been limited to the vicinities of former monitoring wells MW-6 and MW-14 in the southwest corner of the site downgradient of the source areas and former monitoring wells MW-12 and MW-17 on the east side of the site near the dispenser islands. Historically, groundwater elevations beneath the site have ranged from approximately 2.77 feet to 9.97 feet above datum.

The excavation activities during the second and third quarters of 2016 removed the majority of the petroleum hydrocarbon impacts in soil. Regenesis brand Oxygen Release Compound® (ORC-A®) was added to the excavation

backfill to remediate the remaining constituents of concern estimated in groundwater.

During the recent monitoring event, MTBE was reported in five of the six monitoring wells; however, none of the reported concentrations exceeded the California Low-Threat Closure Policy threshold of 1,000 µg/L MTBE. Benzene was not reported in any of the six monitoring wells.

4.0 CONCLUSIONS

Targeted areas of petroleum hydrocarbon impact based on historical soil and groundwater data underwent excavation between May 2016 and August 2016, removing secondary source impacts to the extent practicable. The petroleum hydrocarbon impacts monitored and reported during the third quarter 2017, are consistent with the continued declining trends in concentrations. Remaining impact to the soil and groundwater is well below California Low-Threat Closure Policy thresholds.

Antea Group will collect a grab groundwater samples and soil from the off-site location requested by ACHCSA. A report of finding and additional information required by ACHCSA in the closure denial will be submitted in order to complete the closure process.

5.0 REMARKS

The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. For any reports cited that were not generated by Delta or Antea Group, the data from those reports is used "as is" and is assumed to be accurate. Antea Group does not guarantee the accuracy of this data for the referenced work performed nor the inferences or conclusions stated in these reports. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

Prepared by:



Jonathan Fillingame
Project Professional

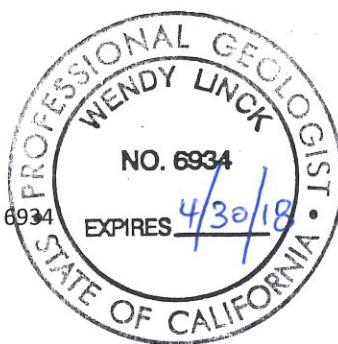
Information, conclusions, and recommendations provided by Antea Group in this document regarding the site have been prepared under the supervision of and reviewed by the licensed professional whose signature appears below.

Licensed Approver:



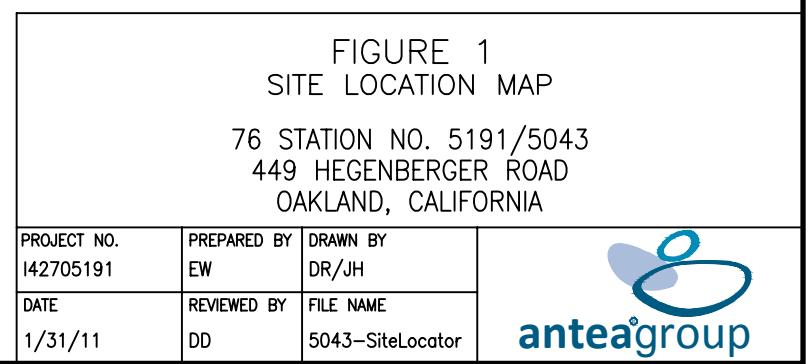
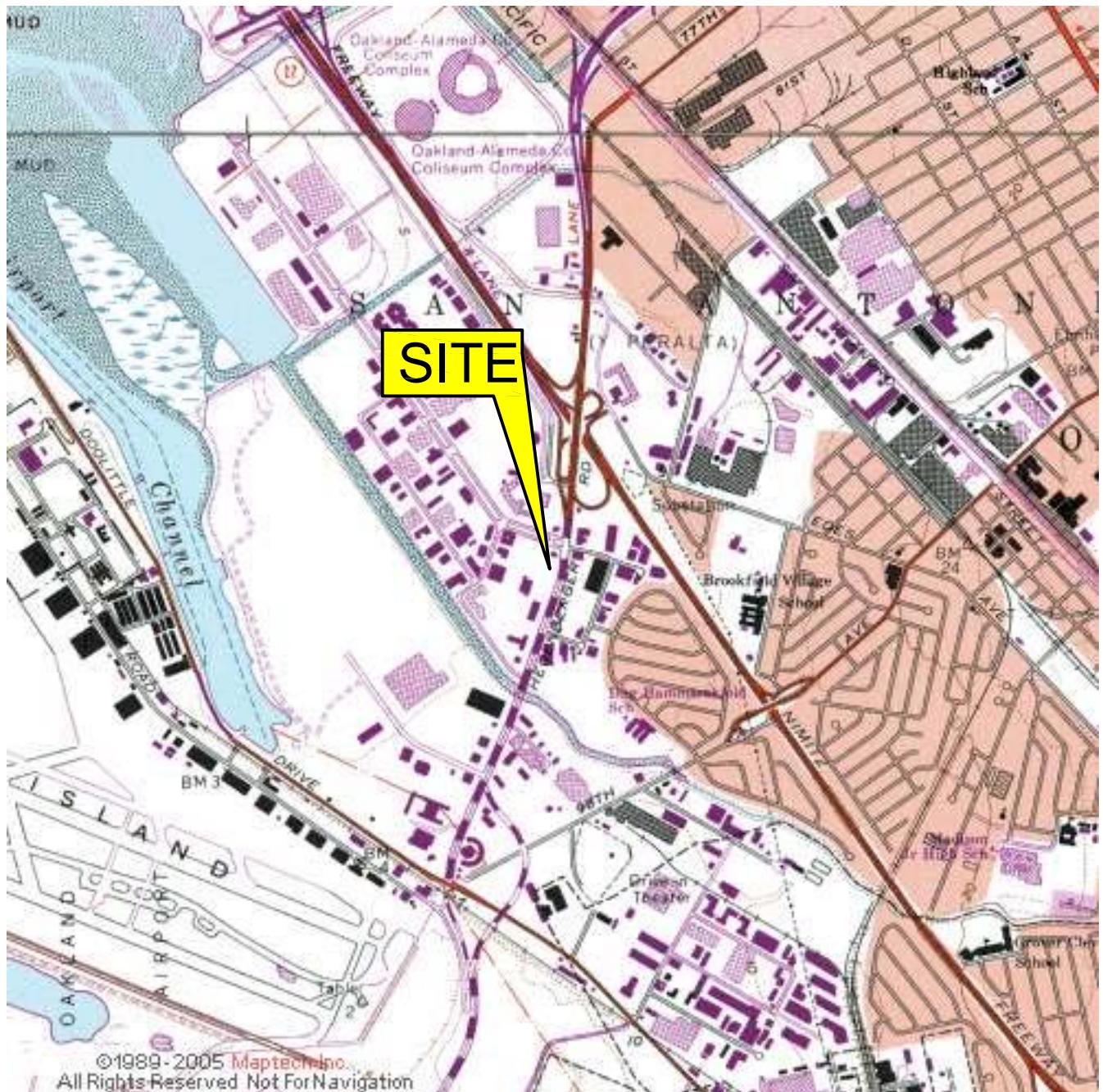
Wendy Linck, PG
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California Registered Professional Geologist No. 6934
Antea Group

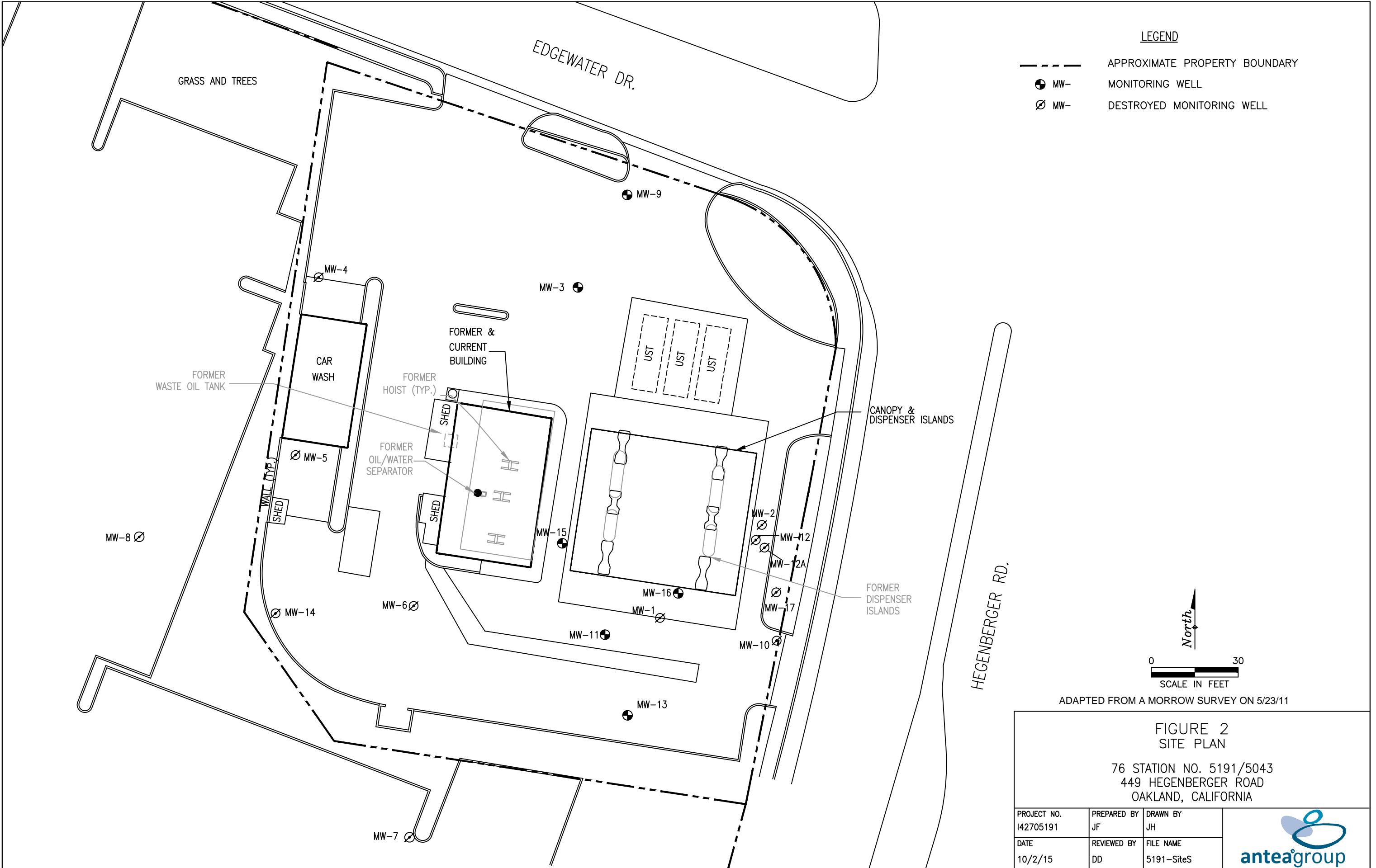
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Figures

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| Figure 4 | Historical Groundwater Flow Directions |
| Figure 5 | Dissolved Phase Concentration Map – August 1, 2017 |





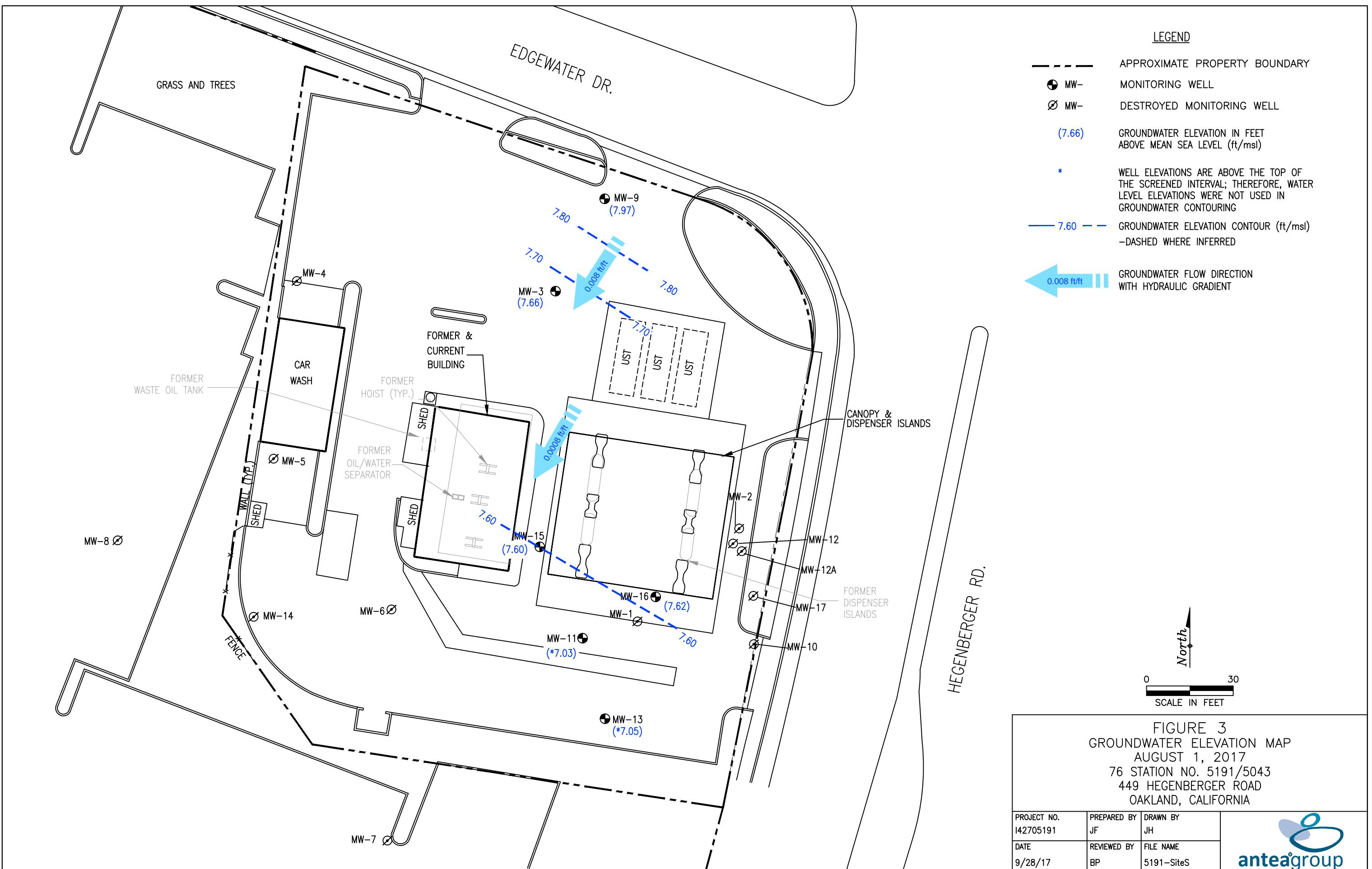
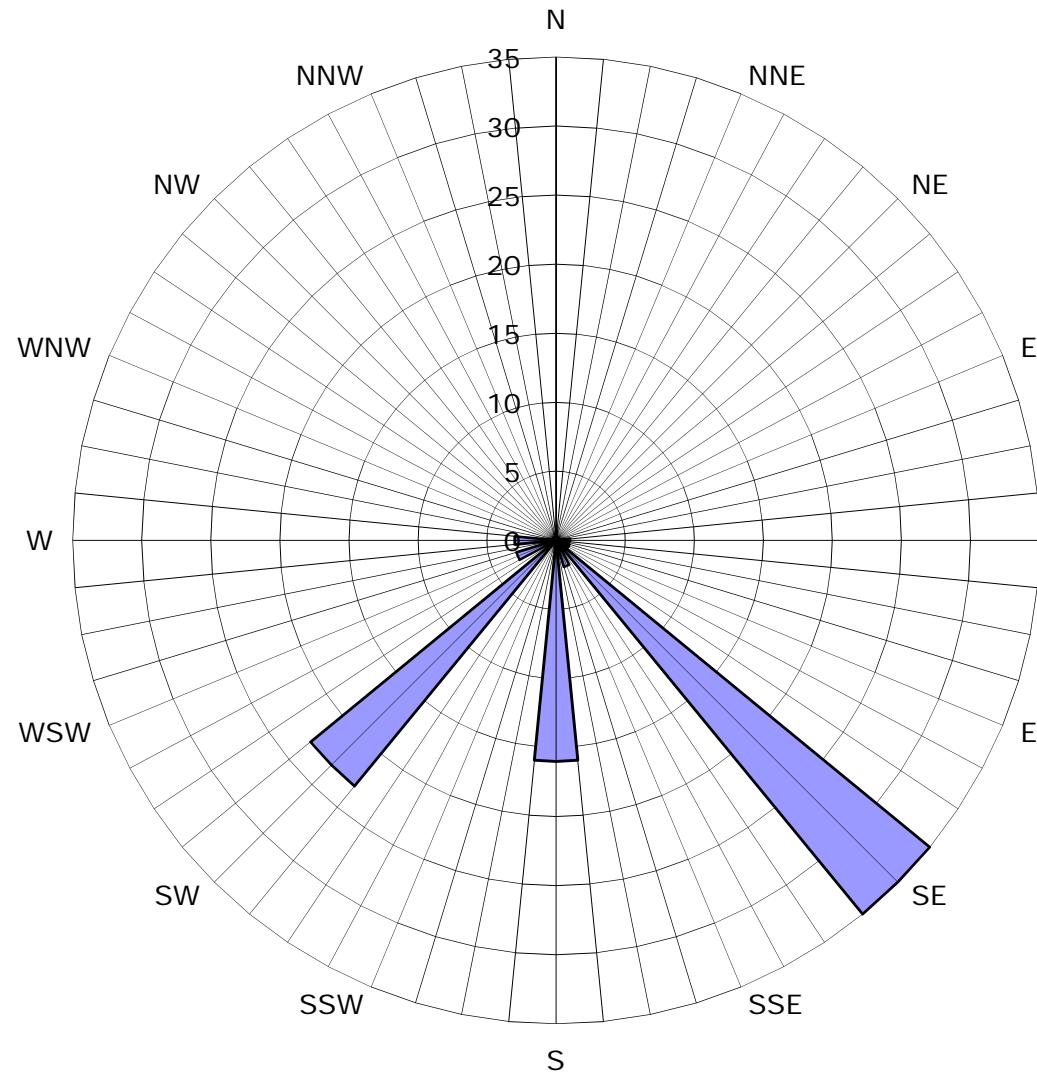
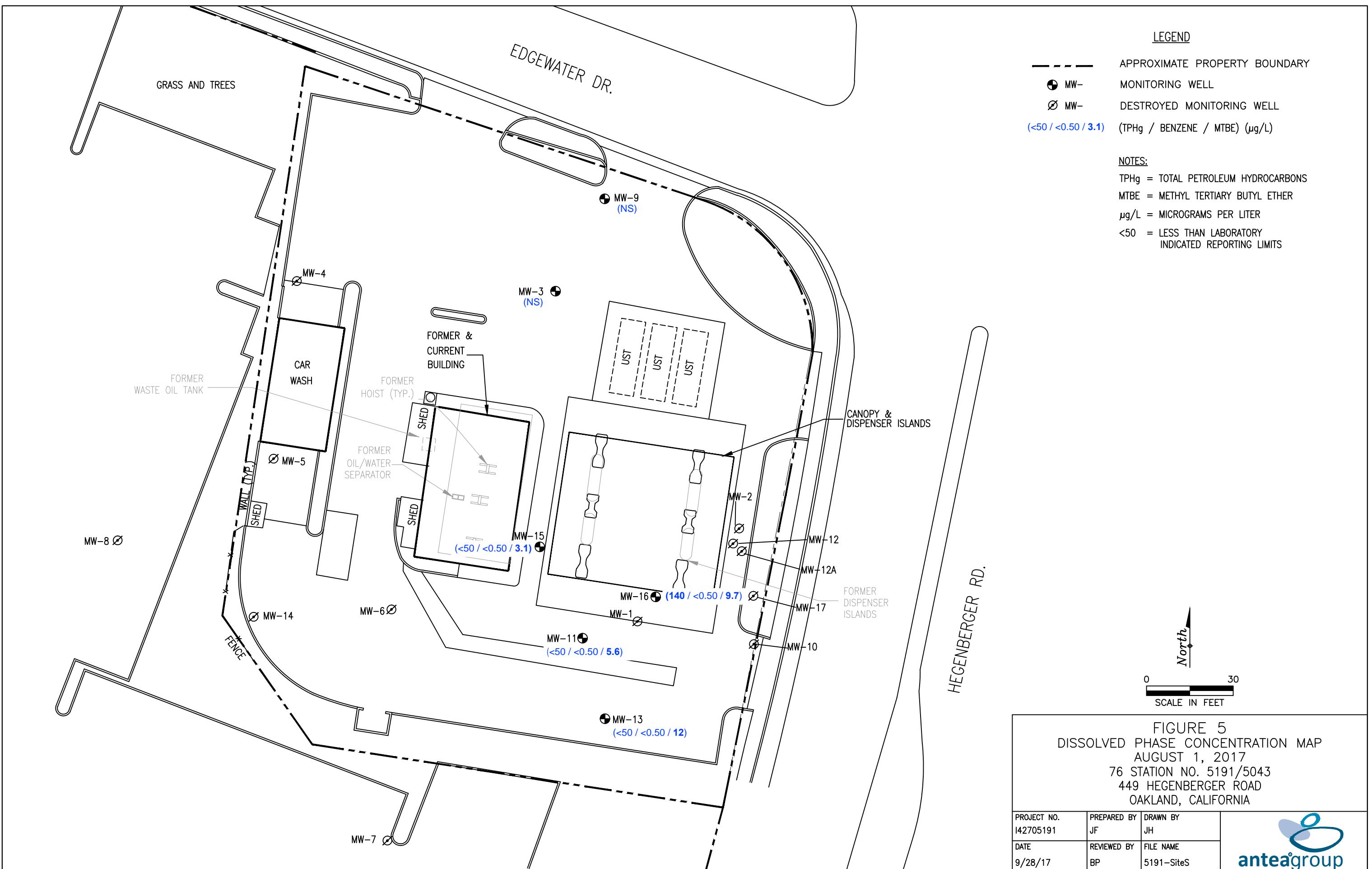


Figure 4
Historical Groundwater Flow Directions
76 Station No. 5191/5043
449 Hegenberger Road
Oakland, California



Legend
Concentric circles represent
quarterly monitoring events
Second Quarter 1992 through
Third Quarter 2017. 84 data
points shown



Tables

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TABLE 1
WELL CONSTRUCTION DETAILS



Well I.D.	Drill Date	Well		Screen		Screen Length (feet)	Comments
		Depth (feet bgs)	Diameter (inches)	Top (feet bgs)	Bottom (feet bgs)		
Monitoring Wells							
MW-1	02/05/91	13.5	2	2.0	13.0	11.0	Destroyed
MW-2	02/05/91	15.0	2	3.0	15.0	12.0	Destroyed
MW-3	02/05/91	14.0	2	2.0	14.0	12.0	
MW-4	08/21/92	13.5	2	2.5	13.5	11.0	Destroyed
MW-5	08/21/92	13.5	2	2.5	13.5	11.0	Destroyed
MW-6	08/21/92	13.5	2	2.5	13.5	11.0	Destroyed
MW-7	04/21/97	13.0	2	3.0	13.0	10.0	Destroyed
MW-8	04/21/97	15.0	2	3.0	15.0	12.0	Destroyed
MW-9	01/25/95	13.0	2	3.0	13.0	10.0	
MW-10	01/25/95	13.0	2	3.0	13.0	10.0	Destroyed
MW-11	06/22/10	20.0	4	5.0	20.0	15.0	
MW-12	06/22/10	20.0	4	5.0	20.0	15.0	Destroyed
MW-12A	06/23/10	34.0	2	30.0	34.0	4.0	Destroyed
MW-13	06/22/10	15.0	2	5.0	15.0	10.0	
MW-14	05/17/11	13.0	2	3.0	13.0	10.0	Destroyed
MW-15	05/17/11	13.0	2	3.0	13.0	10.0	
MW-16	05/17/11	13.0	2	3.0	13.0	10.0	
MW-17	05/18/11	13.0	2	3.0	13.0	10.0	Destroyed

TABLE 2
CURRENT GROUNDWATER GAUGING AND ANALYTICAL DATA
 76 STATION NO. 5191/5043
 449 HEGENBERGER ROAD
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ELEVATION DATA						GROUNDWATER ANALYTICAL DATA								
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	TBA (ug/L)	Ethanol (ug/L)
MW-3	8/1/2017	10.81	3.15	NP	--	7.66	--	--	--	--	--	--	--	--	--	--
MW-9	8/1/2017	10.94	2.97	NP	--	7.97	--	--	--	--	--	--	--	--	--	--
MW-11	8/1/2017	10.53	3.50	NP	--	7.03	--	55 HD	< 50	< 0.50	< 1.0	< 1.0	< 1.0	5.6	< 10	< 100
MW-13	8/1/2017	11.08	4.03	NP	--	7.05	--	290 HD	< 50	< 0.50	< 1.0	< 1.0	< 1.0	12	65	< 100
MW-15	8/1/2017	11.11	3.51	NP	--	7.60	--	300 HD	< 50	< 0.50	< 1.0	< 1.0	< 1.0	3.1	42	< 100
MW-16	8/1/2017	10.98	3.36	NP	--	7.62	--	< 47	140	< 0.50	< 1.0	< 1.0	< 1.0	9.7	< 10	< 100

Gauging Notes:

TOC - Top of Casing

ft - Feet

NP - LNAPL not present

LNAPL - Light non-aqueous phase liquid

* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)

-- No information available

Analytical Notes:

< - Below laboratory's indicated reporting limit

ug/L - micrograms/liter

TPHd- Total petroleum hydrocarbons as diesel (silica gel treated)

TPHg- Total petroleum hydrocarbons as gasoline, also known as Gasoline Range Organics (GRO)

MTBE- Methyl tertiary-butyl ether

TBA- Tertiary-butyl alcohol

Bold - Above the laboratory's indicated reporting limit

HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard

TABLE 3
HISTORICAL GROUNDWATER GUAGING AND ANALYTICAL DATA
76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ELEVATION DATA						GROUNDWATER ANALYTICAL DATA													
		TOC Elevation (ft)	Water Level Depth (ft)	LNAPL Depth (ft)	LNAPL Thickness (ft)	Water Level Elevation* (ft)	Qualifiers	TPHd (ug/L)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (SW8021B) (ug/L)	MTBE (SW8260B) (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)
MW-17	9/7/2011	11.52	4.56	NP	--	6.96	--	1,900	47,200	9,620	5,510	1,210	4,510	--	< 25.0	--	--	--	< 12500	--	--
MW-17	12/5/2011	11.52	4.70	NP	--	6.82	--	1,790	17,300	4,720	511	238	747	--	< 2.5	--	--	--	< 1250	--	--
MW-17	3/6/2012	11.52	4.64	NP	--	6.88	--	1,530	1,580	2,090	23.8	39.3	166	--	1.1	--	--	481	< 250	--	--
MW-17	6/11/2012	11.52	4.67	NP	--	6.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-17	6/12/2012	--	--	--	--	--	--	1,090	4,950	2,340	123	153	610	--	< 2.5	--	--	411	< 1250	--	--
MW-17	9/6/2012	11.52	4.39	NP	--	7.13	--	< 1000	18,000	4,300	170	370	1,100	--	< 10	< 10	< 10	300	< 100	< 10	110
MW-17	12/13/2012	11.52	4.20	NP	--	7.32	--	< 100	55,000	7,300	2,700	1,700	4,600	--	< 10	--	--	300	< 100	--	--
MW-17	3/14/2013	11.52	4.70	NP	--	6.82	--	< 200	63,000	13,000	5,400	3,100	8,800	--	< 15	--	--	260	< 150	--	--
MW-17	6/11/2013	11.52	4.83	NP	--	6.69	--	710	110,000	10,000	11,000	3,100	12,000	--	< 25	--	--	< 150	< 250	--	--
MW-17	9/10/2013	11.52	4.60	NP	--	6.92	--	160	36,000	8,200	510	1,200	2,400	--	< 15	--	--	320	< 150	--	--
MW-17	12/12/2013	11.52	5.00	NP	--	6.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-17	3/4/2014	11.52	3.99	NP	--	7.53	--	400	13,000	1,600	270	260	540	--	< 3.0	--	--	330	48	--	--
MW-17	6/12/2014	11.52	4.49	NP	--	7.03	--	87	17,000	3,600	410	650	1,100	--	< 3.0	--	--	300	< 30	--	--
MW-17	6/18/2014	11.52	--	--	--	--	WD	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 3a
ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

Well I.D.	Date	GROUNDWATER ANALYTICAL DATA																						
		Acetone (ug/L)	Alkalinity, Bicarbonate (mg/L)	Alkalinity, Hydroxide (CaCO) (mg/L)	Alkalinity, Total A2320B (mg/L)	Alkalinity, Total as CaCO3 A2320B (mg/L)	Antimony (ug/L)	Arsenic (mg/L)	Arsenic (ug/L)	Barium (ug/L)	Beryllium (ug/L)	Biochemical Oxygen Demand (ug/L)	Bromate (mg/L)	Bromide (mg/L)	Cadmium (mg/L)	Cadmium (ug/L)	Chemical Oxygen Demand (ug/L)	Chloride (ug/L)	Chromium (mg/L)	Chromium (ug/L)	Chromium, Hexavalent (ug/L)	Cobalt (ug/L)	Coliform, Total MPN/100ML	E. Coli MPN/100ML
MW-6	3/14/2011	18.4	--	--	--	--	< 60.0	--	22.7	216	< 5.0	32,200	--	--	--	< 5.0	173,000	204,000	--	--	--	< 50.0	--	--
MW-6	6/2/2011	< 5.0	828	< 1	828	< 1	< 60.0	--	22.0	191	< 5.0	45,100	< 0.005	2.1	--	< 5.0	121,000	149,000	--	4.3	< 2	< 50.0	42,000	< 100
MW-6	9/6/2012	--	--	--	--	650	--	--	--	--	--	--	--	--	--	--	--	--	--	< 10	--	--	--	
MW-6	3/4/2014	--	--	--	--	--	--	0.031	--	--	--	--	--	< 0.0010	--	--	--	--	< 0.0050	--	--	--	--	
MW-9	3/14/2011	< 5.0	--	--	--	--	< 60.0	--	< 20.0	< 100	< 5.0	7,160	--	--	--	< 5.0	11,500	34,700	--	--	--	< 50.0	--	--
MW-9	6/2/2011	< 5.0	226	< 1	226	< 1	< 60.0	--	< 20.0	< 100	< 5.0	4,170	< 0.005	2	--	< 5.0	15,100	32,400	--	2.4	< 0.2	< 50.0	2	< 1
MW-10	9/6/2012	--	--	--	--	561	--	--	--	--	--	--	--	--	--	--	--	0.017	--	< 10	--	--	--	
MW-12	3/14/2011	< 5.0	--	--	--	--	< 60.0	--	< 20.0	< 100	< 5.0	< 2000	--	--	--	< 5.0	80,100	8,240,000	--	--	--	< 50.0	--	--
MW-12	6/2/2011	< 5.0	905	< 1	905	< 1	< 60.0	--	< 20.0	< 100	< 5.0	7,240	< 0.05	33	--	< 5.0	191,000	7,260,000	--	3.3	< 2	< 50.0	210	< 1
MW-12	9/6/2012	--	--	--	--	806	--	--	--	--	--	--	--	--	--	--	--	< 0.0050	--	< 10	--	--	--	
MW-12	3/4/2014	--	--	--	--	--	--	< 0.015	--	--	--	--	--	--	0.0018	--	--	< 0.0050	--	--	--	--	--	
MW-14	9/6/2012	--	--	--	--	1,720	--	--	--	--	--	--	--	--	--	--	--	0.024	--	< 10	--	--	--	
MW-17	9/6/2012	--	--	--	--	2,820	--	--	--	--	--	--	--	--	--	--	--	0.038	--	< 10	--	--	--	

TABLE 3c
ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
76 STATION NO. 5191/5041
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA											
		Selenium (ug/L)	Silver (mg/L)	Silver (ug/L)	Sulfate E300 (mg/L)	Sulfate E300 (ug/L)	Sulfate E300.1 (mg/L)	Sulfate E300.1 (ug/L)	Thallium (ug/L)	Total Organic Carbon (mg/L)	Vanadium (ug/L)	Zinc (mg/L)	Zinc (ug/L)
MW-3	12/17/2009	--	--	--	--	--	< 0.5	--	--	--	--	--	--
MW-14	6/2/2011	--	--	--	--	56,300	--	--	--	--	--	--	--
MW-14	6/12/2012	--	--	--	--	439,000	--	--	--	--	--	--	--
MW-15	6/2/2011	--	--	--	--	62,700	--	--	--	--	--	--	--
MW-15	6/12/2012	--	--	--	--	42,100	--	--	--	--	--	--	--
MW-16	6/2/2011	--	--	--	--	8,740	--	--	--	--	--	--	--
MW-16	6/12/2012	--	--	--	--	19,900	--	--	--	--	--	--	--
MW-17	6/2/2011	--	--	--	--	3,920,000	--	--	--	--	--	--	--
MW-17	6/12/2012	--	--	--	--	2,520,000	--	--	--	--	--	--	--

TABLE 3d
ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA												
		1,2,4-Trimethylbenzene (ug/L)	1,3,5-Trimethylbenzene (ug/L)	Isopropylbenzene (ug/L)	Naphthalene (ug/L)	o-Xylene (ug/L)	m,p-Xylenes (ug/L)	n-Butylbenzene (ug/L)	n-Propylbenzene (ug/L)	p-Isopropyltoluene (ug/L)	sec-Butylbenzene (ug/L)	Oil & Grease (HEM) (ug/L)	Phenolics (ug/L)	Cyanide (ug/L)
MW-3	6/11/2015	--	--	--	--	< 5.0	< 5.0	--	--	--	--	--	--	--
MW-6	3/4/2014	--	--	--	--	--	1,400	--	--	--	--	1.6	< 0.1	< 0.02
MW-6	3/4/2014	3000	860	200	990	300	--	100	530	22	53	--	--	--
MW-6	6/11/2015	--	--	--	--	2,000	5,800	--	--	--	--	--	--	--
MW-9	6/11/2015	--	--	--	--	< 2.0	< 2.0	--	--	--	--	--	--	--
MW-11	6/11/2015	--	--	--	--	< 1.0	< 1.0	--	--	--	--	--	--	--
MW-12	3/4/2014	--	11	--	--	--	< 2.0	--	--	--	--	1.9	0.1	< 0.02
MW-12	3/4/2014	3.7	< 2.0	< 2.0	< 2.0	< 2.0	--	< 2.0	< 2.0	< 2.0	< 2.0	--	--	--
MW-13	6/11/2015	--	--	--	--	< 5.0	< 5.0	--	--	--	--	--	--	--
MW-14	6/11/2015	--	--	--	--	< 5.0	470	--	--	--	--	--	--	--
MW-15	6/11/2015	--	--	--	--	< 1.0	< 1.0	--	--	--	--	--	--	--
MW-16	6/11/2015	--	--	--	--	< 5.0	< 5.0	--	--	--	--	--	--	--

GAUGING AND ANALYTICAL NOTES FOR CURRENT AND PAST DATA

76 STATION NO. 5191/5043

449 HEGENBERGER ROAD

OAKLAND, CALIFORNIA

Gauging Notes:

* - Corrected for Light non-aqueous phase liquid (LNAPL) if present (assumes LNAPL specific gravity = 0.75)

-- - No Information Available

ft - Feet

LNAPL - Light non-aqueous phase liquid

NP - Not present

TOC - Top of Casing

Analytical Notes:

< - Below laboratory's indicated reporting limit

ug/L - micrograms/liter

1,2-DCA - 1,2-Dichloroethane

1n - The TPHg result for this sample did not match the laboratory standard for gasoline. This is likely due to the presence of MTBE in the sample.

2V - The detection of Ethanol is biased high likely due to the presence of interfering compounds

A - Lower boiling hydrocarbons present, atypical for Diesel Fuel.

Bold - Above the laboratory's indicated reporting limit

EDB - 1,2-Dichloroethane

HD - The chromatographic pattern was inconsistent with the profile of the reference fuel standard

TPHd - Total petroleum hydrocarbons as diesel (silica gel treated)

TPHg - Total petroleum hydrocarbons as gasoline, also known as Gasoline Range Organics (GRO)

MTBE - Methyl tertiary-butyl ether

TBA - Tertiary-butyl alcohol

TABLE 4
HISTORICAL GROUNDWATER GRADIENT AND FLOW DIRECTION DATA

76 STATION NO. 5191/5043
449 HEGENBERGER ROAD
OAKLAND, CALIFORNIA



Quarterly Summary Report, Third Quarter 2017

76 Station No. 5191/5043

449 Hegenberger Road, Oakland, CA

Antea Group Project No. I42705191



Appendix A

Previous Investigation and Site History Summary

PREVIOUS INVESTIGATION AND SITE HISTORY SUMMARY

October 1991 - Four soil samples were collected from the product pipe trenches at depths of approximately 3 feet below ground surface (bgs) during a dispenser island modification. The product pipe trenches were subsequently excavated to the groundwater depth at 4 to 4.5 feet bgs.

February 1992 - Three monitoring wells, MW-1 through MW-3, were installed at the site to depths ranging from 13.5 to 15 feet bgs.

August 1992 - Three additional monitoring wells, MW-4 through MW-6, were installed at the site to a depth of 13.5 feet bgs.

September 1994 - One 280-gallon waste-oil UST was removed from the site. The UST was made of steel, and no apparent holes or cracks were observed in the UST. One soil sample was collected from beneath the former UST at a depth of approximately 9 feet bgs. No petroleum hydrocarbons were reported.

January 1995 - Two additional monitoring wells, MW-9 and MW-10, were installed to depths of 13 and 15 feet bgs. In addition, monitoring wells MW-4 and MW-5 were destroyed by over-drilling the wells and backfilling with neat cement.

March 1995 - Two 10,000-gallon gasoline USTs and one 10,000-gallon diesel UST were removed from the site. Groundwater was encountered in the tank cavity at a depth of approximately 8.5 feet bgs. Soil samples contained total petroleum hydrocarbons as diesel (TPHd) and benzene, and TPH as gasoline (TPHg). Approximately 125,000 gallons of groundwater were pumped from the site for remediation and properly disposed off-site. Four fuel dispenser islands and associated product piping were also removed. Based on the results of the confirmation samples, the product dispenser islands were over excavated to approximately 6 feet bgs.

March-April 1995 - During demolition activities of the former station building, soil samples were collected from two excavations, which were subsequently over excavated. Confirmation samples contained petroleum hydrocarbons. An additional area on the south side of the former station building was excavated based on photo-ionization detector (PID) readings. Two monitoring wells, MW-1 and MW-2, were destroyed in order to allow for over excavation activities to extend to an area adjacent to the dispenser islands in the southeastern quadrant of the site. The excavated areas were subsequently backfilled with clean-engineered fill.

April 1997 - Two additional monitoring wells, MW-7 and MW-8, were installed off-site to the south and east on the neighboring property to a depth of 13 feet bgs. In addition, monitoring well MW-3, which was damaged during site renovation activities, was fully drilled out and reconstructed in the same borehole.

October 2003 - Site environmental consulting responsibilities were transferred to TRC.

April 8-9, 2005 - TRC conducted a 24-hour dual phase extraction (DPE) test at the site using monitoring well MW-6. The 24-hour DPE test was only moderately successful at removing vapor-phase petroleum hydrocarbons from the subsurface; therefore, TRC recommended DPE no longer be considered a viable remedial alternative for the site.

October 2007 - Site environmental consulting responsibilities were transferred to Delta Consultants.

December 2009 - Delta advanced two borings, B-4 and B-5, to depths of 20 feet bgs and 32 feet bgs, respectively. Analytical results from the soil and groundwater samples collected from these two borings indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

June 2010 – Delta installed two 4-inch diameter monitoring/extraction wells, MW-11 and MW-12, and two 2-inch diameter monitoring wells, MW-12A and MW-13, at the site. Analytical results from the soil and groundwater samples collected from the MW-12 and MW-12A boring locations indicated that the soil and the groundwater were impacted by petroleum hydrocarbons at these locations.

May 2011 – Antea Group (formally Delta Consultants) installed four 2-inch diameter monitoring wells, MW-14 through MW-17, and advanced one soil boring, B-6, at the site. All four monitoring wells were installed with ten feet of screen from 3 feet bgs to 13 feet bgs. Analytical results of soil samples collected during the monitoring well installation reported TPHg concentrations ranging from 1.0 milligrams per kilogram (mg/kg) (MW-14d13) to 2,490 mg/kg (B-6d9), benzene concentrations ranging from 0.67 mg/kg (B-6d21) to 26.4 mg/kg (B-6d9), toluene concentrations ranging from 0.2 mg/kg (MW-14d10) to 73.9 mg/kg (B-6d9), ethylbenzene concentrations ranging from 0.037 mg/kg (MW-14d13) to 58.1 mg/kg (B-6d9), total xylenes concentrations ranging from 0.066 mg/kg (MW-14d13) to 230 mg/kg (B-6d9), methyl tertiary-butyl ether (MTBE) concentrations ranging from 0.015 mg/kg (MW-15d13) to 0.19 mg/kg (MW-15d8), tertiary-butyl alcohol (TBA) concentrations ranging from 0.014 mg/kg (MW-16d8 and B-6d21) to 0.16 mg/kg (MW-15d8), and lead concentrations ranging from 5.5 mg/kg (MW-16d13) to 16.3 mg/kg (MW-17d9). Diesel range organics (DRO) and DRO with silica gel concentrations were reported; however, all of the results did not match the laboratory standard for diesel. Concentrations of DRO ranged from 2.9 mg/kg (MW-17d13) to 258 mg/kg (B-6d14) and DRO with silica gel concentrations ranged from 2.5 mg/kg (MW-17d13) to 250 mg/kg (B-6d14).

March 2012 – Antea Group advanced five soil borings (HPB-1 through HPB-5) at the site. The borings were advanced using direct push technology. The borings were used to obtain a hydraulic profile of the substrate beneath the site. The data obtained during the investigation will be used to determine the best path forward in terms of remediation.

July 2013 – Antea Group advanced ten soil borings (SB-1 through SB-10) at the site. The borings were advanced using direct push technology. The borings were used to delineate petroleum hydrocarbon impacted soil around

monitoring well MW-6. Results of the investigation can be found in the *Site Investigation Report*, dated January 9, 2014.

June 2014 – Antea Group destroyed monitoring wells MW-10, MW-12, MW-12A, and MW-17 by pressure grouting. The wells were destroyed in preparation for on-site soil excavation activities.

September 2014 – Antea Group advanced two (2) cone penetration test (CPT) borings CPT-1 and CPT-2 in preparation for soil excavations on site. Soil and groundwater samples were not collected. Data from the CPT borings was used to help design shoring for excavations. Antea Group advanced three (3) off-site soil borings, SB-13 through SB-15. Soil and grab-groundwater samples were collected from the borings.

July 2015 – Antea Group destroyed on-site monitoring wells MW-6 and MW-14 in preparation for on-site soil excavation activities. On-site soil borings were advanced for waste characterization (WC-1 to WC-3) and delineate soil (SB-16 to SB-18) concentrations in the vicinity of the proposed soil excavation. Two off-site soil borings were advanced (SB-11 and SB-12) for delineation down-gradient.

January 2015 – Antea Group destroyed off-site monitoring wells MW-7 and MW-8 by drill-out.

May through July 2016 – Antea Group performed a series of remedial excavations on-site. The excavation focused on removing soil from two areas of hydrocarbon impact to the soil (secondary source areas) identified during previous investigations, one on the east side of the site between the dispensers and Hegenberger Road, and the other in the southwest corner of the site. A total of 1665 tons of soil were removed from the site during excavation activities. Approximately 1,400 pounds of OCR-A was spread throughout the entire excavation area to facilitate in-situ aerobic biodegradation.

SENSITIVE RECEPTORS

April 24, 2006, TRC completed a sensitive receptor survey for the site. According to the Department of Water Resources (DWR) records, three water supply wells are located within one-half mile of the site. The closest well is an irrigation well, reported to be, approximately 1,080 feet southeast of the site. In addition, two surface water bodies were observed within a one-half mile radius of the site. San Leandro Creek is located approximately 1,400 feet southwest of the site and flows into the San Leandro Bay. Elmhurst Creek is located approximately 2,220 feet north of the site and also flows into the San Leandro Bay.

Current Consultant: **Antea Group**

Quarterly Summary Report, Third Quarter 2017

76 Station No. 5191/5043

449 Hegenberger Road, Oakland, CA

Antea Group Project No. I42705191



Appendix B

Blaine Tech Groundwater Sampling Field Data Sheets

Well-Head Inspection & Well Gauging Form

Antea Group Project No:		Site Address:											
site # 2705191		449 Hegenberger, Oakland											
Field Technician:		(Print Full Name & Company*)				Date:		Weather:					
Wesley Sherman Shunkley / BLAINE TECH SERV.						08/01/2017		sunny					
Well Condition													
Sample Order	Field Point	Bolts	Seal	Lid Secure	Well Casing Dia.	Time Gauged	Depth to Water (Feet)	Depth to Bottom (Feet)	LNAPL Thickness (Feet)	Comments			
1	MW-3	X	/	✓	V	V	N	2	0823	3.15	13.93		- 1/2 bolts
1	MW-9	✓	✓	✓	✓	✓	N	2	0803	2.97	12.51		
1	MW-11	✓	✓	✓	✓	✓	N	4	0829	3.50	19.48		
2	MW-13	✓	✓	✓	✓	✓	N	2	0809	4.03	14.52		
3	MW-15	✓	✓	✓	✓	✓	N	2	0834	3.51	12.73		
4	MW-16	✓	✓	✓	✓	✓	Y	2	0834 (vis)	3.36	12.64		
									0816				
Notes: _____										** All well caps opened at least 15 minutes or longer before gauging wells:			
										CIRCLE ONE: YES or NO**			

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*Form provided by Antea Group

Note: Use G=good and P=poor for well condition

Page 1 of 1

Groundwater Sampling Form

Site Address:	4419 Hegenberger Rd, Oakland, CA								
Project No.:	0170801-0051	Field Technician:	WS						
Field Point:	MW-11	Date:	08/01/2017						
Depth to Water (DTW) (ft bgs):	3.50	Well Diameter (in):	2 4 6 8						
Depth to LNAPL (ft bgs):	-	Thickness of LNAPL (ft):	-						
Total Depth of Well (ft bgs):	19.48	Water Column Height (ft):	15.98						
Purging Info and Calculations:									
Purge Method:	Purge Equipment:				Sample Collection Method:				
<input checked="" type="checkbox"/> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<input checked="" type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____				<input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: <u>WTBED</u>				
Water Column Height (ft): <u>15.98</u>	X Conversion Factor (gal/ft): <u>0.65</u>	= Casing Volume (gal): <u>10.38</u>							
Casing Volume (gal): <u>10.38</u>	X Specified Volumes: <u>3</u>	= Calculated Purge (gal): <u>31.14</u>							
Conversion Factors (gal/ft): 2" = 0.17 4" = 0.66 6" = 1.5 8" = 2.6 Other = radius ² * 0.163									
Purge: <u>31.14</u>	Start Time: <u>0906</u>	Stop Time: <u>0943</u>							
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)	
Pre-Purge				-61		4.15			
0910	21.9	7.53	682	-54	74	2.54	5.25		
0913	21.8	7.17	1602	-46	60	0.46	10.50		
0916	22.1	7.17	1592	-57	46	0.23	15.75		
0919	22.8	7.12	1607	-65	31	0.24	21.0		
0922	22.4	7.10	1611	-66	25	0.25	26.25		
0925	22.6	7.10	1616	-68	22	0.24	31.50		
Post-Purge				-68		0.24			
Did Well dewater?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	Total Purge volume (gal): <u>31.50</u>						
Other Comments:	<i>Purged through flow cell *sampled at end due to on-site traffic</i>								
Sample Info:									
Sample ID:	MW-11-20170831			Sample Date and Time: <u>08/01/2017 @ 0930</u>					
Selected Analysis:	Sce (ac)								
This form was provided by Antea Group and completed by: (Print Full Name) <u>Wesley Sherman-Shockley</u> , an employee of Blaine Tech Services, Inc.									
Signature:	<u>Wesley Sherman-Shockley</u>		Date:	<u>08/01/2017</u>					

Groundwater Sampling Form

Site Address:	4419 Hegenerger Rd. Oakland, CA		
Project No:	170801-WSi	Field Technician:	WS
Field Point:	MW-13	Date:	08/01/2017
Depth to Water (DTW) (ft bgs):	4.03	Well Diameter (in):	② 4 6 8
Depth to LNAPL (ft bgs):	-	Thickness of LNAPL (ft):	-
Total Depth of Well (ft bgs):	14.52	Water Column Height (ft):	10.49

Purging Info and Calculations:

Purge Method:	Purge Equipment:	Sample Collection Method:
<input checked="" type="checkbox"/> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<input checked="" type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____	<input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing <input checked="" type="checkbox"/> Other: WIBD
Water Column Height (ft): 10.49	X Conversion Factor (gal/ft): 16	= Casing Volume (gal): 1.67
Casing Volume (gal): 1.67	X Specified Volumes: 3	= Calculated Purge (gal): 5.01
Conversion Factors (gal/ft): 2" = 0.17 4" = 0.66 6" = 1.5 8" = 2.6 Other = radius ² * 0.163		

Purge:	Start Time:	Stop Time: 0951						
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
Pre-Purge				74		2.97		
0946	22.7	7.30	1624	-41	19	0.61	1.0	
0947	22.9	7.23	1617	-60	18	0.29	2.0	
0948	23.0	7.15	1620	-68	22	0.28	3.0	
0949	23.1	7.05	1927	-72	166	0.66	4.0	
0950	23.1	7.11	3605	-106	263	0.45	5.0	
0951	23.0	7.27	3701	-123	296	0.38	6.0	
Post-Purge				-123		0.38		

Did Well dewater? Yes No

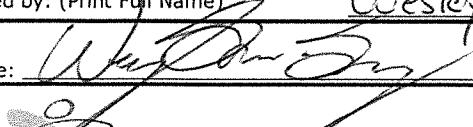
Total Purge volume (gal): 6.0

Other Comments:	Purged through flow cell * HCl reaction observed in VOA vials.
-----------------	--

Sample Info:

Sample ID:	MW-13.20170831	Sample Date and Time:	08/01/2017 @ 1000
Selected Analysis:	See COC		

This form was provided by Antea Group and completed by: (Print Full Name) Wesley Sherman-Shockley, an employee of Blaine Tech Services, Inc.

Signature:  Date: 08/01/2017


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Antea™ Group, 1-800-477-7411

LNAPL = light non-aqueous phase liquids
bgs = below ground surface
ORP = Oxidation-Reduction Potential
D.O. = dissolved oxygen

gal = gallon/s
temp = temperature
NTU = Nephelometric Turbidity Units
mV = millivolts

Groundwater Sampling Form

Site Address:	449 Hegenberger Rd. Oakland, CA							
Project No.:	170801-W031	Field Technician:	WS					
Field Point:	MW-15	Date:	08/01/2017					
Depth to Water (DTW) (ft bgs):	3.51	Well Diameter (in):	(2) 4 6 8					
Depth to LNAPL (ft bgs):	~	Thickness of LNAPL (ft):	~					
Total Depth of Well (ft bgs):	12.73	Water Column Height (ft):	9.21					
Purging Info and Calculations:								
Purge Method:	Purge Equipment:			Sample Collection Method:				
<input checked="" type="checkbox"/> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<input checked="" type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible Peristaltic Pump Bladder Pump Other: _____			<input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: W/BD				
Water Column Height (ft): 9.21	X Conversion Factor (gal/ft): 0.16	= Casing Volume (gal): 1.47						
Casing Volume (gal): 1.47	X Specified Volumes: 3	= Calculated Purge (gal): 4.41						
Conversion Factors (gal/ft): 2" = 0.17 4" = 0.66 6" = 1.5 8" = 2.6 Other = radius ² * 0.163								
Purge:	Start Time:	Stop Time: 1020						
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
Pre-Purge				32		3.13		
1021	21.6	7.47	3659	-76	486	1.88	0.75	
1022	21.5	7.40	3655	-98	379	2.21	1.50	
1023	21.6	7.39	3634	-103	274	2.41	2.25	
1024	21.6	7.40	3624	-104	324	2.62	3.00	
1025	21.6	7.40	3617	-102	274	2.83	3.75	
1026	21.5	7.41	3607	-101	326	3.08	4.50	
Post-Purge				-101		3.08		
Did Well dewater?	Yes <input type="radio"/>	Total Purge volume (gal): 4.50						
Other Comments:	Purged through flow cell *sampled out of order due to on-site traffic							
Sample Info:								
Sample ID:	MW-15-20170801			Sample Date and Time: 08/01/2017 @ 1035				
Selected Analysis:								
This form was provided by Antea Group and completed by: (Print Full Name) Wesley Sherman Shockey, an employee of Blaine Tech Services, Inc.								
Signature:	Date: 08/01/2017							

Groundwater Sampling Form

Site Address:	4449 Hegenberger Rd, Oakland, CA							
Project No.:	170801-ws1	Field Technician:	WS					
Field Point:	MW-16	Date:	08/01/2017					
Depth to Water (DTW) (ft bgs):	3.36	Well Diameter (in):	(2) 4 6 8					
Depth to LNAPL (ft bgs):	—	Thickness of LNAPL (ft):	—					
Total Depth of Well (ft bgs):	12.64	Water Column Height (ft):	9.28					
Purging Info and Calculations:								
Purge Method:	Purge Equipment:			Sample Collection Method:				
<input checked="" type="checkbox"/> Low-Flow <input checked="" type="checkbox"/> 3 casing volumes Other: _____	<input checked="" type="checkbox"/> Disposable Bailer <input checked="" type="checkbox"/> Electric Submersible <input checked="" type="checkbox"/> Peristaltic Pump <input checked="" type="checkbox"/> Bladder Pump Other: _____			<input checked="" type="checkbox"/> Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing <input checked="" type="checkbox"/> Other: WIBED				
Water Column Height (ft): 9.28	X Conversion Factor (gal/ft): 0.16	= Casing Volume (gal): 1.48						
Casing Volume (gal): 1.48	X Specified Volumes: 3	= Calculated Purge (gal): 4.44						
Conversion Factors (gal/ft): 2" = 0.17 4" = 0.66 6" = 1.5 8" = 2.6 Other = radius ² * 0.163								
Purge:	Start Time:	Stop Time:						
Time	Temp (°C)	pH	Conductivity (µS/cm)	ORP (mV)	Turbidity (NTU)	D.O. (mg/L)	Volume Purged (gal)	Water Level (for Low-Flow only)
Pre-Purge				63		7.16		
1057	21.7	7.47	3568	-80		0.84	0.75	
1058	21.8	7.42	3518	-99		0.76	1.50	
1059	21.8	7.39	3575	-109		0.73	2.25	
1100	21.8	7.36	3555	-108		0.71	3.00	
1101	21.8	7.81	3567	-117		0.70	3.75	
1102	21.9	7.29	3550	-109		0.65	4.50	
Post-Purge				-109		0.65		
Did Well dewater?	Yes <input checked="" type="radio"/>	Total Purge volume (gal): 4.50						
Other Comments:	Purged through flow cell							
Sample Info:								
Sample ID:	MW-16-20170831			Sample Date and Time: 8/1/17 @ 1110				
Selected Analysis:	See Col							
This form was provided by Antea Group and completed by: (Print Full Name) Wesley Sherman-Shankle, an employee of Blaine Tech Services, Inc.								
Signature:	Date: 08/01/2017							

LNAPL = light non-aqueous phase liquids
 bgs = below ground surface
 ORP = Oxidation-Reduction Potential
 D.O. = dissolved oxygen

gal = gallon/s
 temp = temperature
 NTU = Nephelometric Turbidity Units
 mV = millivolts



COP ELT CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page:
Cooler #1 of
of

Required Lab Information:

Required Project Information:

Required Invoice Information:

Lab Name:	Calscience	Site ID #:	2705191	Task:	WG_O_20170831	Send Invoice to:	Sandy Hayes					
Address:	7440 Lincoln Way	AnteaGrp proj#			Address:	11010 White Rock Road, Suite 140						
Garden Grove, CA 92841			Site Address		Rancho Cordova CA 95670	Phone #:	916-638-2085	Turn around time (days)	10			
Lab PM:	Terri Chang		City	Oakland	State	CA 94621	Reimbursement project?	Non-reimbursement project?	Y	Mark one		
Phone/Fax:	714-895-5494		AG PM Name:	Dacre Bush		Send EDD to	agdataview.us@anteagroup.com			NJ Reduced Deliverable Package?		
Lab PM email	Terrichang@eurofinsus.com		Phone/Fax:	805-295-9071		CC Hardcopy report to	Mana.Or@anteagroup.com			MA MCP Cert?	CT RCP Cert?	Mark One
Applicable Lab Quote #:		AG PM Email:	Dacre.Bush@anteagroup.com		CC Hardcopy report to	Jonathan.Fillingame@anteagroup.com David.Sisak@anteagroup.com			Lab Project ID (lab use)			

3Q17 GW Sampling Event

ITEM #	SAMPLE ID Character per box. Z, 0-9 / -, BE UNIQUE	One (A) Samples IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE	G=GRAB C=COMP	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED (Y/N)	Preservatives							Comments/Lab Sample I.D.
			MATRIX WATER GROUNDRATER WATER WATER FREE PRODUCT SOIL DIE SLIME DUST AMMVENT AIR AIR SOX GAS	MATRIX WP WATER WATER WATER WATER IF SO OT ANIMAL TISSUE DW SW AC GS							H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ SO ₄ Methanol Other	8015TPBieselW50Lice Gel 8269GC1Ms GRO 8269BenzKetBA 82695Hanol						
1	MW-11_20170831		WG	GRAB 08/01/2017	0930	5	9	3				X	X	X	X			
2	MW-13_20170831		WG		1000							X	X	X	X			
3	MW-15_20170831		WG		1035							X	X	X	X			
4	MW-16_20170831		WG	↓	1110	↓		↓	↓			X	X	X	X			
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Additional Comments/Special Instructions:

Global ID: T0600101476

RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	Sample Receipt Conditions				
<i>W.D.S. BTS</i>		8/1/17						Y/N	Y/N	Y/N		
								Y/N	Y/N	Y/N		
								Y/N	Y/N	Y/N		
								Y/N	Y/N	Y/N		
SHIPPING METHOD: (mark as appropriate)				SAMPLER NAME AND SIGNATURE					Temp in °C	Samples on Ice?	Sample Intact?	Trip Blank?
UPS	COURIER	FEDEX	PRINT Name of SAMPLER:									
US MAIL			SIGNATURE of SAMPLER:									

TEST EQUIPMENT CALIBRATION LOG

ANTEA COP/ELT BILL OF LADING

SOURCE RECORD **BILL OF LADING**
FOR NON-HAZARDOUS PURGEWATER RECOVERED
FROM GROUNDWATER WELLS AT ANTEA COP/ELT
FACILITIES IN THE STATE OF CALIFORNIA. THE NON-
HAZARDOUS PURGE- WATER WHICH HAS BEEN
RECOVERED FROM GROUND- WATER WELLS IS
COLLECTED BY THE CONTRACTOR, MADE UP INTO
LOADS OF APPROPRIATE SIZE AND HAULED BY BLAINE
TECH SERVICES TO THEIR FACILITY IN SAN JOSE AND
SACRAMENTO, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 20360 1680 Rogers Ave, San Jose (phone [310] 885-4455x103). Blaine Tech Services, Inc. is authorized by ANTEA COP/ELT to recover, collect, apportion into loads, and haul the Non-Hazardous Well Purgewater that is drawn from wells at the ANTEA COP/ELT facility indicated below and to deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one ANTEA COP/ELT facility to BTS; from one ANTEA COP/ELT facility to BTS via another ANTEA COP/ELT facility; or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of ANTEA COP/ELT..

This Source Record **BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the ANTEA COP/ELT facility described below:

Site Number: 2705191

449	Hegenburger Rd.	Oakland	CA
street number	street name	city	state
WELL I.D.	GALS.	WELL I.D.	GALS.

MW-11 / 31.50	/	/
MW-13 / 6.00	/	/
MW-15 / 4.50	/	/
MW-16 / 4.50	/	/
/	/	/
/	/	/
/	/	/
/	/	/
added equip. rinse water / 4.00	any other adjustments /	/
TOTAL GALS.		loaded onto BTS vehicle # <u>62</u>
RECOVERED <u>50.50</u>		
BTS event # <u>170801-W51</u>	time	date <u>8/11/17</u>
signature <u>WP-S</u>	*****	
REC'D AT <u>BTS San José</u>	time <u>1240</u>	date <u>8/11/17</u>
unloaded by signature <u>WP-S</u>	*****	

Quarterly Summary Report, Third Quarter 2017

76 Station No. 5191/5043

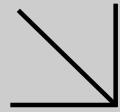
449 Hegenberger Road, Oakland, CA

Antea Group Project No. I42705191



Appendix C

Certified Laboratory Analytical Report and Data Validation Form



WORK ORDER NUMBER: 17-08-0211



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Antea Group

Client Project Name: 2705191

Attention: Dacre Bush

11010 White Rock Road, Suite 140
Rancho Cordova, CA 95670-6001

A handwritten signature in black ink, appearing to read "Terri Chang".

Approved for release on 08/10/2017 by:
Terri Chang
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.



Calscience

Contents

Client Project Name: 2705191
Work Order Number: 17-08-0211

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	3.2 GC/MS GRO/EPA 8260B Volatile Organics (Aqueous)	7
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7	Chain-of-Custody/Sample Receipt Form.	20

Work Order Narrative

Work Order: 17-08-0211

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/03/17. They were assigned to Work Order 17-08-0211.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



Sample Summary

Client:	Antea Group 11010 White Rock Road, Suite 140 Rancho Cordova, CA 95670-6001	Work Order:	17-08-0211
		Project Name:	2705191
		PO Number:	
		Date/Time Received:	08/03/17 08:30
		Number of Containers:	20

Attn: Dacre Bush

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
MW-11_20170831	17-08-0211-1	08/01/17 09:30	5	Aqueous
MW-13_20170831	17-08-0211-2	08/01/17 10:00	5	Aqueous
MW-15_20170831	17-08-0211-3	08/01/17 10:35	5	Aqueous
MW-16_20170831	17-08-0211-4	08/01/17 11:10	5	Aqueous

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 3510C
 Method: EPA 8015B (M)
 Units: ug/L

Project: 2705191

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11_20170831	17-08-0211-1-D	08/01/17 09:30	Aqueous	GC 46	08/08/17	08/10/17 06:21	170808B06S

Comment(s): - The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qualifiers
TPH as Diesel	55	46	1.00	SG,HD

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	111	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13_20170831	17-08-0211-2-D	08/01/17 10:00	Aqueous	GC 46	08/08/17	08/10/17 06:43	170808B06S

Comment(s): - The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qualifiers
TPH as Diesel	290	46	1.00	SG,HD

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	87	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-15_20170831	17-08-0211-3-D	08/01/17 10:35	Aqueous	GC 46	08/08/17	08/10/17 07:03	170808B06S

Comment(s): - The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qualifiers
TPH as Diesel	300	46	1.00	SG,HD

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	121	68-140	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-16_20170831	17-08-0211-4-D	08/01/17 11:10	Aqueous	GC 46	08/08/17	08/10/17 07:24	170808B06S

Comment(s): - The sample extract was subjected to Silica Gel treatment prior to analysis.

Parameter	Result	RL	DF	Qualifiers
TPH as Diesel	ND	47	1.00	SG

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	97	68-140	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 3510C
 Method: EPA 8015B (M)
 Units: ug/L

Project: 2705191

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-15-304-1810	N/A	Aqueous	GC 46	08/08/17	08/10/17 05:19	170808B06S
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
TPH as Diesel		ND		50		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
n-Octacosane		118		68-140			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-11_20170831	17-08-0211-1-B	08/01/17 09:30	Aqueous	GC/MS W	08/07/17	08/07/17 20:24	170807L004

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	5.6	1.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	ND	50	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	104	78-126		
1,2-Dichloroethane-d4	102	75-135		
Toluene-d8	99	80-120		
Toluene-d8-TPPH	98	88-112		
1,4-Bromofluorobenzene	101	80-120		

 RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

Page 2 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-13_20170831	17-08-0211-2-B	08/01/17 10:00	Aqueous	GC/MS W	08/07/17	08/07/17 20:54	170807L004

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	12	1.0	1.00	
Tert-Butyl Alcohol (TBA)	65	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	ND	50	1.00	
<hr/>				
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	106	78-126		
1,2-Dichloroethane-d4	102	75-135		
Toluene-d8	100	80-120		
Toluene-d8-TPPH	99	88-112		
1,4-Bromofluorobenzene	101	80-120		

 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-15_20170831	17-08-0211-3-B	08/01/17 10:35	Aqueous	GC/MS W	08/07/17	08/07/17 21:23	170807L004

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	3.1	1.0	1.00	
Tert-Butyl Alcohol (TBA)	42	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	ND	50	1.00	
<hr/>				
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	108	78-126		
1,2-Dichloroethane-d4	102	75-135		
Toluene-d8	99	80-120		
Toluene-d8-TPPH	99	88-112		
1,4-Bromofluorobenzene	100	80-120		

 Return to Contents

 RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-16_20170831	17-08-0211-4-C	08/01/17 11:10	Aqueous	GC/MS W	08/08/17	08/08/17 13:03	170808L006

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	9.7	1.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	140	50	1.00	
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	106	78-126		
1,2-Dichloroethane-d4	100	75-135		
Toluene-d8	99	80-120		
Toluene-d8-TPPH	98	88-112		
1,4-Bromofluorobenzene	101	80-120		

 RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-767-7886	N/A	Aqueous	GC/MS W	08/07/17	08/07/17 12:59	170807L004

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	ND	50	1.00	
<hr/>				
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	101	78-126		
1,2-Dichloroethane-d4	101	75-135		
Toluene-d8	99	80-120		
Toluene-d8-TPPH	98	88-112		
1,4-Bromofluorobenzene	101	80-120		

 RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Units: ug/L

Project: 2705191

Page 6 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-767-7887	N/A	Aqueous	GC/MS W	08/08/17	08/08/17 12:33	170808L006

Parameter	Result	RL	DF	Qualifiers
Benzene	ND	0.50	1.00	
Ethylbenzene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
p/m-Xylene	ND	1.0	1.00	
o-Xylene	ND	1.0	1.00	
Xylenes (total)	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	10	1.00	
Ethanol	ND	100	1.00	
Gasoline Range Organics (C6-C12)	ND	50	1.00	
<hr/>				
Surrogate	Rec. (%)	Control Limits	Qualifiers	
Dibromofluoromethane	101	78-126		
1,2-Dichloroethane-d4	99	75-135		
Toluene-d8	98	80-120		
Toluene-d8-TPPH	98	88-112		
1,4-Bromofluorobenzene	100	80-120		

 RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Quality Control - Spike/Spike Duplicate

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Project: 2705191 Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
17-08-0281-3	Sample	Aqueous	GC/MS W	08/07/17	08/07/17 15:28	170807S001				
17-08-0281-3	Matrix Spike	Aqueous	GC/MS W	08/07/17	08/07/17 14:28	170807S001				
17-08-0281-3	Matrix Spike Duplicate	Aqueous	GC/MS W	08/07/17	08/07/17 14:58	170807S001				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	61.04	122	60.12	120	75-125	2	0-20	
Ethylbenzene	ND	50.00	56.09	112	56.66	113	75-129	1	0-20	
Toluene	ND	50.00	59.02	118	59.00	118	75-125	0	0-20	
p/m-Xylene	ND	100.0	114.2	114	114.3	114	75-133	0	0-20	
o-Xylene	ND	50.00	57.20	114	57.45	115	75-134	0	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	53.38	107	52.19	104	64-136	2	0-20	
Tert-Butyl Alcohol (TBA)	ND	250.0	258.8	104	266.2	106	75-136	3	0-20	
Ethanol	ND	500.0	513.2	103	529.6	106	29-179	3	0-25	

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - Spike/Spike Duplicate

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Project: 2705191 Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number				
17-08-0277-4	Sample	Aqueous	GC/MS W	08/08/17	08/08/17 14:32	170808S001				
17-08-0277-4	Matrix Spike	Aqueous	GC/MS W	08/08/17	08/08/17 15:01	170808S001				
17-08-0277-4	Matrix Spike Duplicate	Aqueous	GC/MS W	08/08/17	08/08/17 15:31	170808S001				
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	58.69	117	58.50	117	75-125	0	0-20	
Ethylbenzene	ND	50.00	55.20	110	54.93	110	75-129	1	0-20	
Toluene	ND	50.00	58.38	117	58.29	117	75-125	0	0-20	
p/m-Xylene	ND	100.0	110.4	110	110.0	110	75-133	0	0-20	
o-Xylene	ND	50.00	56.13	112	55.94	112	75-134	0	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	49.48	99	50.52	101	64-136	2	0-20	
Tert-Butyl Alcohol (TBA)	ND	250.0	293.2	117	290.1	116	75-136	1	0-20	
Ethanol	ND	500.0	547.5	109	534.6	107	29-179	2	0-25	

Quality Control - LCS/LCSD

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 3510C
 Method: EPA 8015B (M)

Project: 2705191 Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-15-304-1810	LCS	Aqueous	GC 46	08/08/17	08/10/17 05:40	170808B06S			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	2000	1993	100	2062	103	69-123	3	0-30	

Quality Control - LCS/LCSD

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Project: 2705191 Page 2 of 3

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-767-7886	LCS	Aqueous		GC/MS W	08/07/17	08/07/17 11:30	170807L004			
099-12-767-7886	LCSD	Aqueous		GC/MS W	08/07/17	08/07/17 12:00	170807L004			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	50.00	54.97	110	N/A	N/A	80-120	N/A	0-20		
Ethylbenzene	50.00	50.96	102	N/A	N/A	80-123	N/A	0-20		
Toluene	50.00	53.55	107	N/A	N/A	80-120	N/A	0-20		
p/m-Xylene	100.0	104.9	105	N/A	N/A	75-123	N/A	0-25		
o-Xylene	50.00	52.81	106	N/A	N/A	74-122	N/A	0-25		
Methyl-t-Butyl Ether (MTBE)	50.00	51.29	103	N/A	N/A	69-129	N/A	0-22		
Tert-Butyl Alcohol (TBA)	250.0	256.4	103	N/A	N/A	69-129	N/A	0-25		
Ethanol	500.0	539.3	108	N/A	N/A	42-168	N/A	0-20		
Gasoline Range Organics (C6-C12)	1000	1111	111	1084	108	65-135	2	0-30		

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

Antea Group Date Received: 08/03/17
 11010 White Rock Road, Suite 140 Work Order: 17-08-0211
 Rancho Cordova, CA 95670-6001 Preparation: EPA 5030C
 Method: GC/MS / EPA 8260B
 Project: 2705191 Page 3 of 3

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-12-767-7887	LCS	Aqueous		GC/MS W	08/08/17	08/08/17 11:04	170808L006			
099-12-767-7887	LCSD	Aqueous		GC/MS W	08/08/17	08/08/17 11:34	170808L006			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	50.00	55.38	111	N/A	N/A	80-120	N/A	0-20		
Ethylbenzene	50.00	51.59	103	N/A	N/A	80-123	N/A	0-20		
Toluene	50.00	55.12	110	N/A	N/A	80-120	N/A	0-20		
p/m-Xylene	100.0	105.6	106	N/A	N/A	75-123	N/A	0-25		
o-Xylene	50.00	53.49	107	N/A	N/A	74-122	N/A	0-25		
Methyl-t-Butyl Ether (MTBE)	50.00	49.67	99	N/A	N/A	69-129	N/A	0-22		
Tert-Butyl Alcohol (TBA)	250.0	255.1	102	N/A	N/A	69-129	N/A	0-25		
Ethanol	500.0	537.8	108	N/A	N/A	42-168	N/A	0-20		
Gasoline Range Organics (C6-C12)	1000	1134	113	1097	110	65-135	3	0-30		

RPD: Relative Percent Difference. CL: Control Limits

Sample Analysis Summary Report

Work Order: 17-08-0211

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 8015B (M)	EPA 3510C	972	GC 46	1
GC/MS / EPA 8260B	EPA 5030C	867	GC/MS W	2



Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Work Order: 17-08-0211

Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



COP ELT CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Page: 1 of
Cooler #: _____ of _____

17-08-0211

3Q17 GW Sampling Event

Required Lab Information:

Required Project Information:

Required Invoice Information:

Lab Name:	Calscience	Site ID #:	2705191	Task:	WG_Q_20170831	Send Invoice to:	Sandy Hayes	
Address:	7440 Lincoln Way	AnteaGrp proj#				Address:	11010 White Rock Road, Suite 140	Turn around time (days) 10
Garden Grove, CA 92841		Site Address	449 Hegenberger	City/State	Rancho Cordova CA 95670	Phone #:	916-638-2085	QC level Required: Standard
Lab PM:	Terri Chang	City	Oakland	State	CA 94621	Reimbursement project?		Special
Phone/Fax:	714-895-5494	AG PM Name:	Dacre Bush	Send EDD to:	agdataview.us@anteagroup.com	Non-reimbursement project?	Y	Mark one
Lab PM email	Terrichang@eurofinsus.com	Phone/Fax:	805-295-9071	CC Hardcopy report to:	Mana.Or@anteagroup.com	MA MCP Cert?		CT RCP Cert?
Applicable Lab Quote #:		AG PM Email:	Dacre.Bush@anteagroup.com	CC Hardcopy report to:	Jonathan.Fillingame@anteagroup.com David.Sisak@anteagroup.com	Lab Project ID (lab use)		Mark One

ITEM #	SAMPLE ID Character per box. Z, 0-9 / , -) One (A- Samples IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	SAMPLE DATE	SAMPLE TIME	# OF CONTAINERS	FIELD FILTERED? (Y/N)	Preservatives							Comments/Lab Sample I.D.
		MATRIX	MATRIX							W	WS	WQ	W	WS	WQ	W	
1	MW-11_20170831	WG	GRAB	08/01/2017	0930	5		2		H ₂ SO ₄							X X X X
2	MW-13_20170831	WG			1000			1		HNO ₃							X X X X
3	MW-15_20170831	WG			1035			1		HCl							X X X X
4	MW-16_20170831	WG			1110			1		NaOH							X X X X
5										Na ₂ S ₂ O ₈							
6										Methanol							
7										Other							
8																	
9																	
10																	
11																	
12																	

Additional Comments/Special Instructions:

RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	Sample Receipt Conditions		
<i>W/D S</i> <i>BTS</i>		8/1/17	1220	<i>Karen</i> - (cc)		8/1/17	1220	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>222 BTS</i>		8-27	1250	<i>Tomally GC</i>		8/2/17	1250	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Tomally to GSO</i>		8/2/17	1730	<i>M Tait</i>		8/3/17	0830	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SHIPPING METHOD: (mark as appropriate) SAMPLER NAME AND SIGNATURE								Temp in °C	Samples on Ice?	Sample intact?
UPS	COURIER	FEDEX	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:	DATE Signed	Time:				
US MAIL										

Global ID: T0600101476



800-322-5555 www.gso.com

(0211)

Ship From
 CAL SCIENCE- CONCORD
 ALAN KEMP
 5063 COMMERCIAL CIRCLE
 #H
 CONCORD, CA 94520

Tracking #: 537091268

NPS



Ship To
 CEL
 SAMPLE RECEIVING
 7440 LINCOLN WAY
 GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

A

COD: \$0.00
 Weight: 0 lb(s)
Reference:
 APTIM, ANTEA GROUP (BTS), PORT COSTA
Delivery Instructions:

D92845A



Signature Type: REQUIRED

70312528

Print Date: 8/2/2017 4:10 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

SAMPLE RECEIPT CHECKLIST

COOLER OF

CLIENT: ANTEA GROUP

DATE: 08/03/2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.2 °C (w/ CF): 2.4 °C; Blank Sample Sample(s) outside temperature criteria (PM/APM contacted by: _____) Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: Air FilterChecked by: 15

CUSTODY SEAL:

Cooler	<input checked="" type="checkbox"/> Present and Intact	<input type="checkbox"/> Present but Not Intact	<input type="checkbox"/> Not Present	<input type="checkbox"/> N/A	Checked by: <u>15</u>
Sample(s)	<input type="checkbox"/> Present and Intact	<input type="checkbox"/> Present but Not Intact	<input checked="" type="checkbox"/> Not Present	<input type="checkbox"/> N/A	Checked by: <u>1050</u>

SAMPLE CONDITION:

Yes No N/A Chain-of-Custody (COC) document(s) received with samples COC document(s) received complete Sampling date Sampling time Matrix Number of containers No analysis requested Not relinquished No relinquished date No relinquished timeSampler's name indicated on COC Sample container label(s) consistent with COC Sample container(s) intact and in good condition Proper containers for analyses requested Sufficient volume/mass for analyses requested Samples received within holding time

Aqueous samples for certain analyses received within 15-minute holding time

 pH Residual Chlorine Dissolved Sulfide Dissolved Oxygen Proper preservation chemical(s) noted on COC and/or sample container

Unpreserved aqueous sample(s) received for certain analyses

 Volatile Organics Total Metals Dissolved MetalsContainer(s) for certain analysis free of headspace Volatile Organics Dissolved Gases (RSK-175) Dissolved Oxygen (SM 4500) Carbon Dioxide (SM 4500) Ferrous Iron (SM 3500) Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: VOA VOAh VOAna₂ 100PJ 100PJna₂ 125AGB 125AGBh 125AGBp 125PB 125PBznna 250AGB 250CGB 250CGBs 250PB 250PBN 500AGB 500AGJ 500AGJs 500PB 1AGB 1AGBna₂ 1AGBs 1PB 1PBna _____ _____ _____ _____Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (_____) EnCores® (_____) TerraCores® (_____) _____Air: Tedlar™ Canister Sorbent Tube PUF _____ Other Matrix (_____) : _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1050s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, zwna = Zn (CH₃CO₂)₂ + NaOHReviewed by: SD

Is the Data Valid?
(circle)
Yes / No

Preservation Temperature
(if Known): 2.2 °C

Antea Group Lab Validation Sheet

Project/Client: COP/ELT

Project #: 142705191

Date of Validation: 8/31/17 Date of Analysis: 8/10/17 Sample Date: 8/1/17

Completed By: Jon F. Signature: *Jonathan F. DiPietro*

Analytical Lab Used and Report # (if any): Eurofins Calscience 17-08-0211

- | Circle or Highlight Yes/No below |
|--|
| 1. Was the analysis the one requested?
<input checked="" type="checkbox"/> Yes / No |
| 2. Do the sample number(s) on the chain-of-custody (COC) match the one(s) that appear on the laboratory data sheet?
<input checked="" type="checkbox"/> Yes / No |
| 3. Were samples prepared (extracted, filtered, etc.) within EPA holding times?
<input checked="" type="checkbox"/> Yes / No |
| 4. Once prepared/extracted, were the samples analyzed within the EPA holding times?
<input checked="" type="checkbox"/> Yes / No |
| 5. Were Laboratory blanks performed, if so, were they below non-detect?
<input checked="" type="checkbox"/> Yes / No |
| 6. Are the units correct? (i.e., soil samples in mg/kg or ug/g, water samples mg/L, ug/L, and air samples in volume mg/m ³ ,etc.)
<input checked="" type="checkbox"/> Yes / No |
| 7. Were appropriate Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples included in the laboratory batch sample?
<input checked="" type="checkbox"/> Yes / No |
| 8. In lieu of MS/ MSD, were surrogate spike (SS) or surrogate spike duplicate (SSD) samples included in the laboratory batch samples?
Yes / No <input checked="" type="checkbox"/> N/ |
| 9. Were MS/ MSD (or SS/SSD) within the acceptable range of % recovery (i.e., approx 80-120% depending on analyte)?
<input checked="" type="checkbox"/> Yes / No |
| 10. Were MS/MSD (or SS/SSD) values used to calculate Relative Percent Difference (RPD)?
<input checked="" type="checkbox"/> Yes / No |
| 11. Were Relative Percent Difference values within the acceptable range (i.e. ± 25%)?
<input checked="" type="checkbox"/> Yes / No |

If any answer is no, explain why and what corrective action was taken:

Quarterly Summary Report, Third Quarter 2017

76 Station No. 5191/5043

449 Hegenberger Road, Oakland, CA

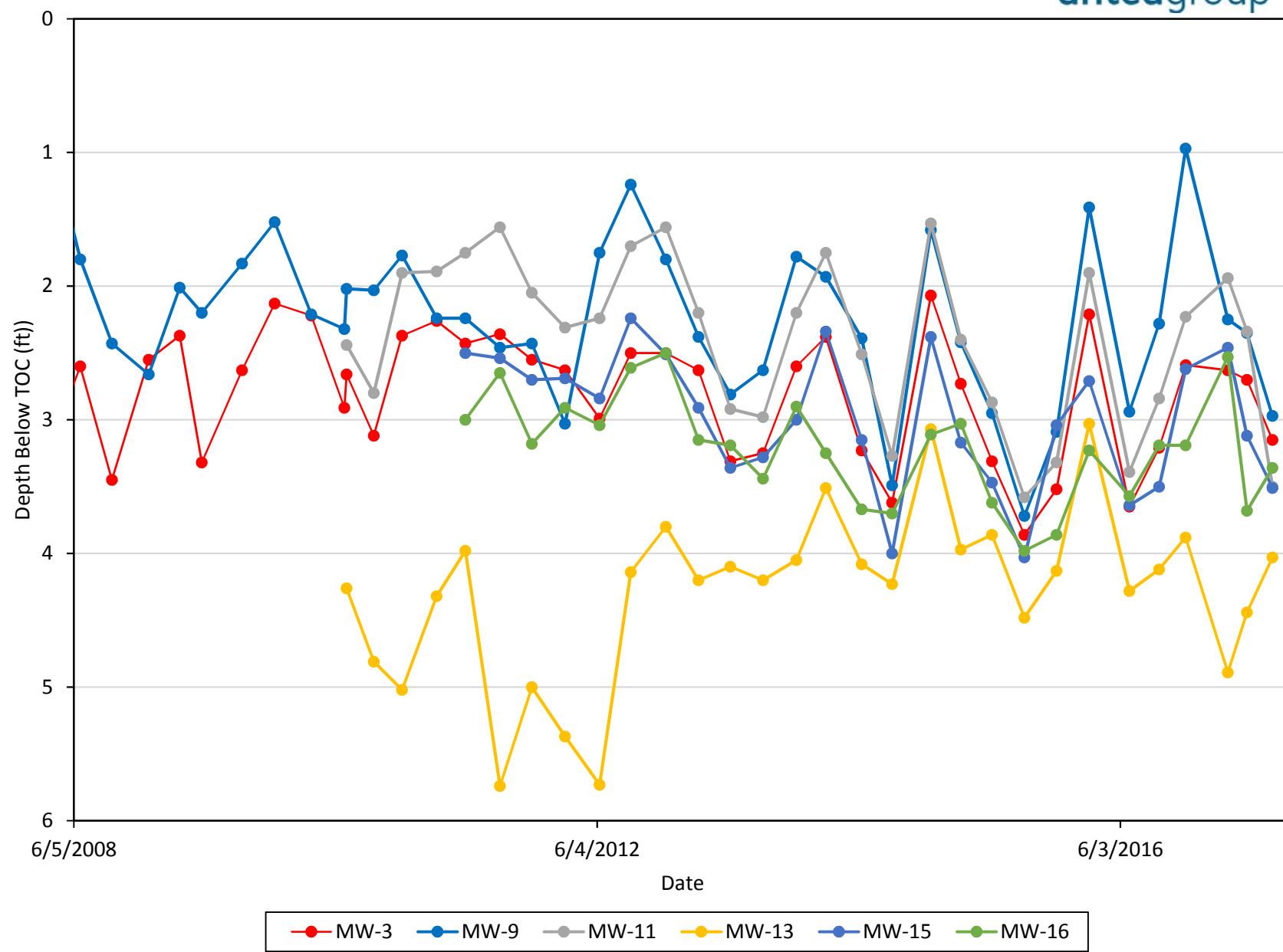
Antea Group Project No. I42705191



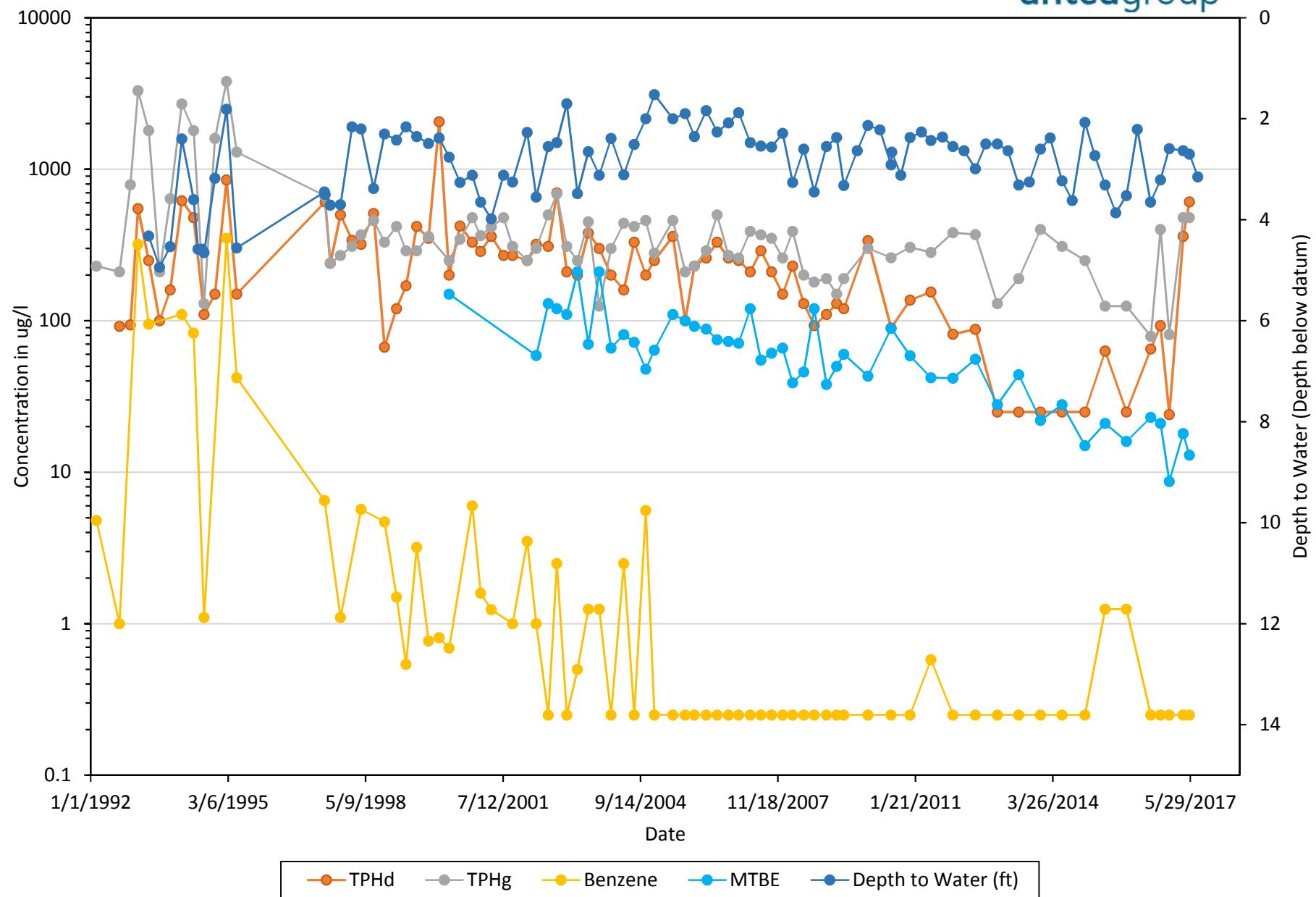
Appendix D

Time Series Graphs

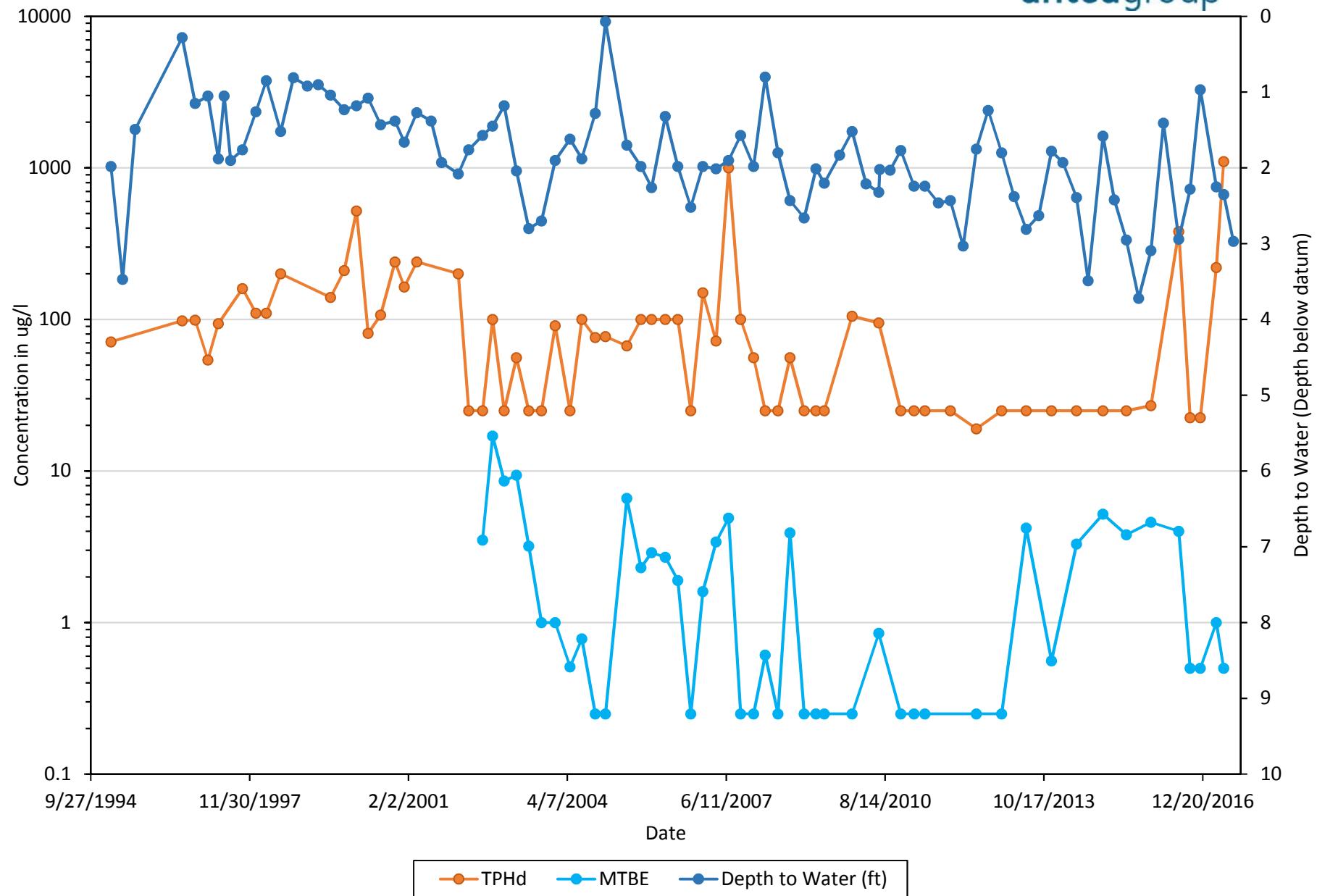
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Depth to Water Versus Time



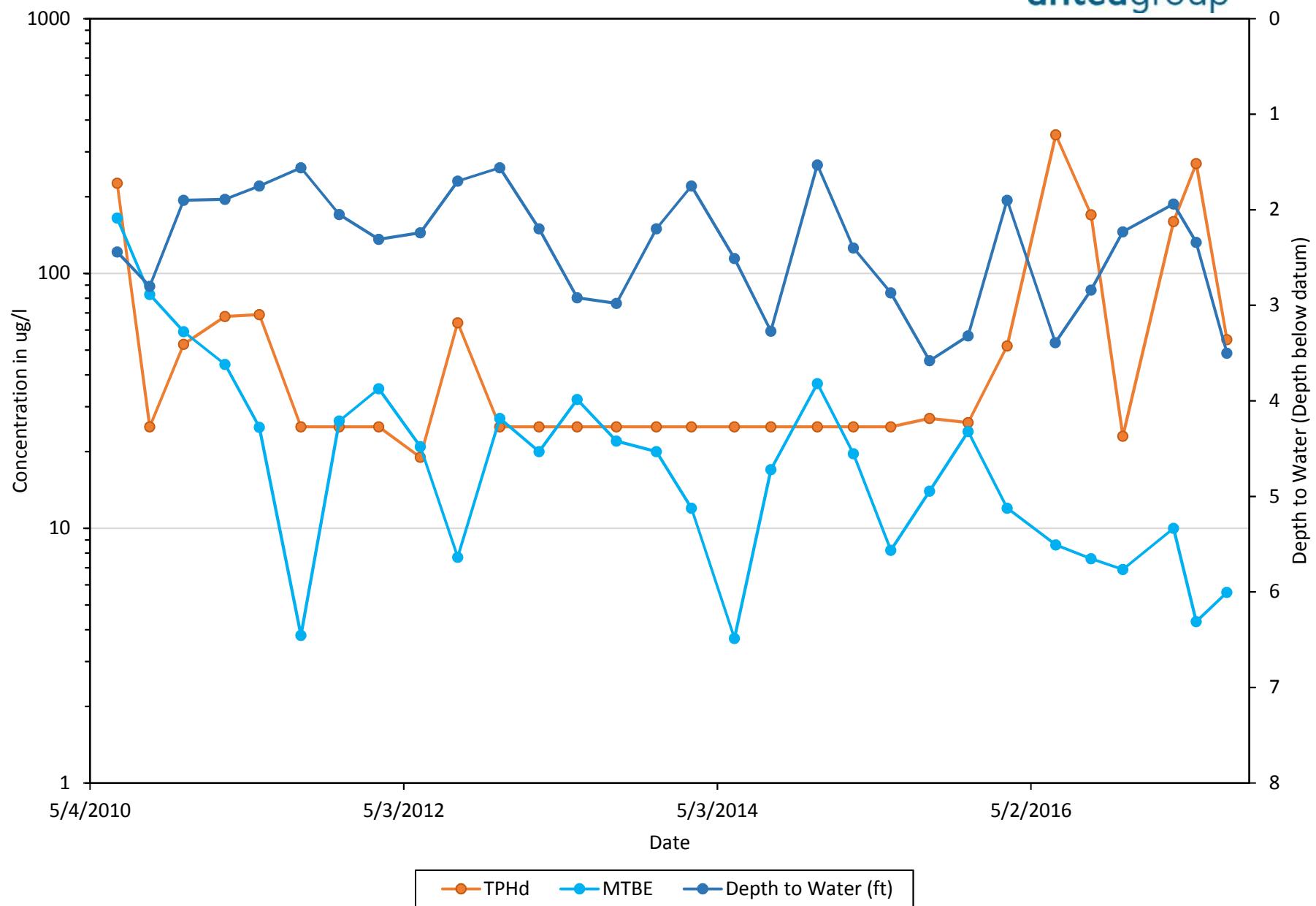
MW-3
 TPHd, TPHg, Benzene, & MTBE Concentrations
 and Depth to Water Versus Time



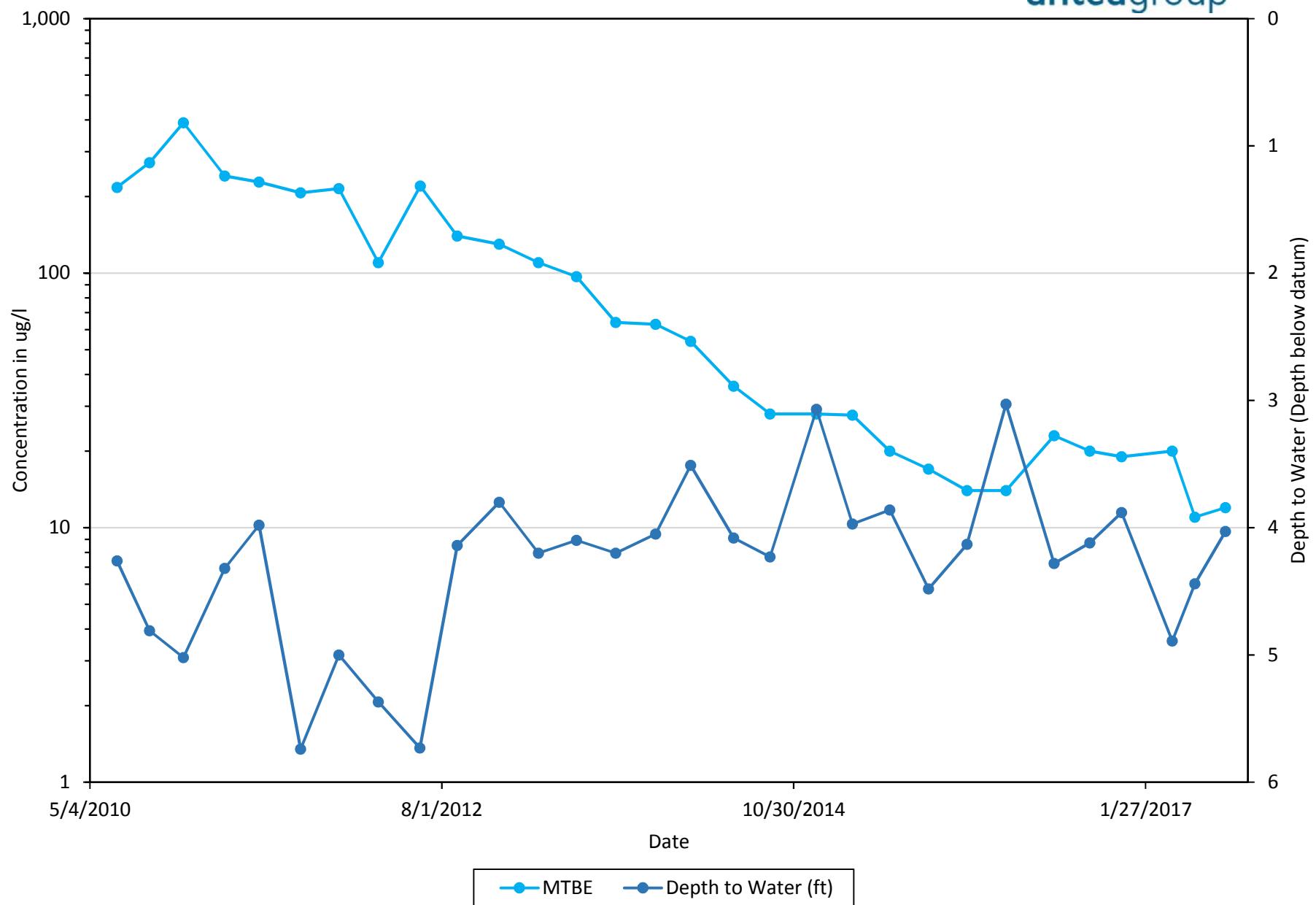
MW-9
TPHd & MTBE Concentrations
and Depth to Water Versus Time



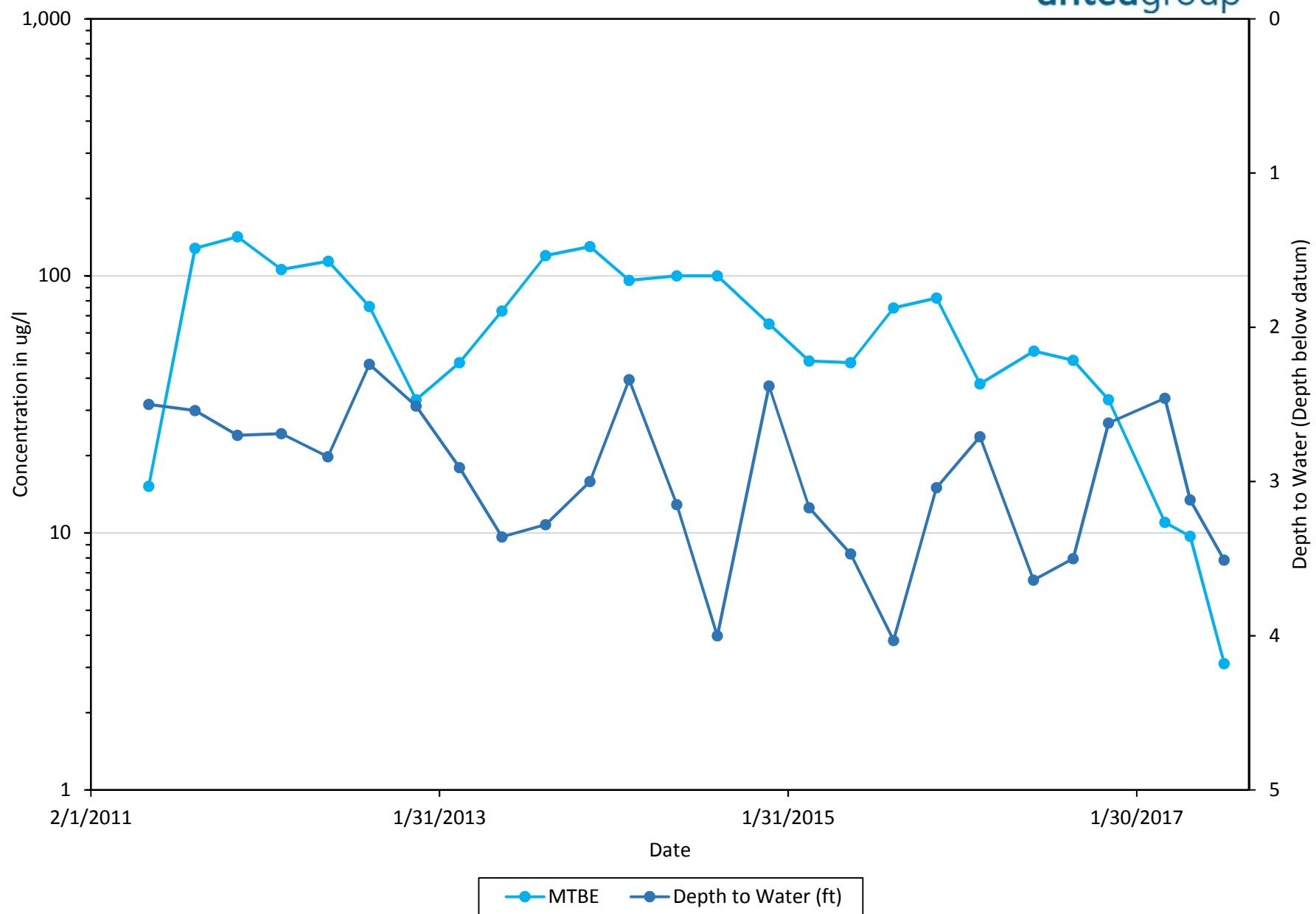
MW-11
MTBE Concentrations
and Depth to Water Versus Time



MW-13
MTBE Concentrations
and Depth to Water Versus Time



MW-15
MTBE Concentrations
and Depth to Water Versus Time



MW-16
MTBE & TPHd Concentrations
and Depth to Water Versus Time

