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April 25, 2014

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

Subject: Semi-Annual Summary Report, October 2013 through March 2014

Site: 76 Service Station No. 5325
3220 Lakeshore Avenue
Oakland, California
Fuel Leak Case No. RO0000229

Dear Mr. Nowell;

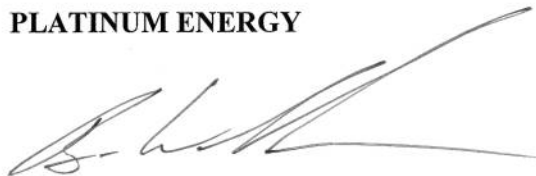
I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

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

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Platinum Energy
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Agoura Hills, California 91301
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Sincerely,

PLATINUM ENERGY



BRIAN WHALEN

Attachment

Semi-Annual Summary Report - October 2013 through March 2014

*76 Service Station No. 5325
3220 Lakeshore Avenue
Oakland, California*

*Alameda County Health Care Services Agency
Fuel Leak Case No. RO0000229*

*San Francisco Bay Regional Water Quality
Control Board
No. 01-1588*

GeoTracker Global ID No. T0600101463

Antea Group Project No. I40255325

April 25, 2014

Prepared for:
Mr. Keith Nowell
Alameda County Health Care
Services Agency
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Suite 250
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Table of Contents

1.0	INTRODUCTION	1
1.1	Work Performed: Fourth Quarter 2013 and First Quarter 2014	1
1.2	Work Proposed: Second and Third Quarter 2014.....	2
2.0	CURRENT PROJECT STATUS.....	2
2.1	Regulatory Correspondence	2
2.2	Remediation Status.....	3
2.3	Groundwater Monitoring.....	3
2.3.1	Groundwater Sample Analysis.....	4
2.3.2	Groundwater Quality Data	4
2.3.3	Contaminants of Concern.....	4
2.3.4	Waste Disposal Summary.....	5
2.3.5	Quality Assurance / Quality Control	5
3.0	LOW THREAT CLOSURE POLICY CHECKLIST	5
4.0	CONCLUSIONS AND RECOMMENDATION	6
5.0	REMARKS.....	7

Figures

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater Elevation Contour Map – March 13, 2014
Figure 4	Dissolved Phase TPHg Isoconcentration Map – March 13, 2014
Figure 5	Dissolved Phase MTBE Isoconcentration Map – March 13, 2014
Figure 6	Historical Groundwater Flow Directions

Tables

Table 1	Current Groundwater Gauging and Analytical Data
Table 2	Historical Groundwater Gauging and Analytical Data
Table 2a	Additional Historical Groundwater Analytical Data
Table 2b	Additional Historical Groundwater Analytical Data
Table 2c	Additional Historical Groundwater Analytical Data
Table 3	Historical Groundwater Gradient and Flow Directions

Attachments

- Attachment A Summary of Previous Environmental Investigations
- Attachment B Antea Group's Groundwater Sampling Procedures
- Attachment C Antea Group's Groundwater Sampling Field Data Sheets
- Attachment D Certified Laboratory Analytical Report and Data Validation Form
- Attachment E TPHg Concentration and Groundwater Elevation Graphs

1.0 INTRODUCTION

Antea™ Group is pleased to submit this *Semi-Annual Summary Report, October 2013 through March 2014* for the referenced site in Oakland, California. The site is located on the east corner of the intersection of Lakeshore Avenue and Lake Park Avenue in Oakland, CA (**Figure 1**). The site is bounded to the north by Lakeshore Avenue; to the west and southwest by Lake Park Avenue; to the southeast by a supermarket parking lot; and to the east by a pharmacy. Station facilities include a service station building with one service bay, three fuel dispenser islands, and two 12,000-gallon double-wall fiberglass, gasoline underground storage tanks (USTs) [**Figure 2**].

A summary of previous environmental investigations is presented as **Attachment A**. Antea Group's procedures for groundwater monitoring, sampling, and equipment decontamination are presented as **Attachment B**. Antea Group's groundwater monitoring and sampling field data sheets are presented as **Attachment C**. The groundwater sampling certified analytical report, chain-of-custody documentation, and data validation form are presented as **Attachment D**. Time versus total petroleum hydrocarbons as gasoline (TPHg) concentration and groundwater elevation graphs are presented as **Attachment E**.

Site summary data has been tabled in the following:

- **Table 1** summarizes the current groundwater gauging and analytical data.
- **Table 2** summarizes the historical groundwater gauging and analytical data.
- **Table 2a** summarizes additional historical groundwater analytical data.
- **Table 2b** summarizes additional historical groundwater analytical data.
- **Table 2c** summarizes additional historical groundwater analytical data.
- **Table 3** summarizes the historical groundwater gradient and flow directions.

This report summarizes the groundwater data collected to date, focusing on the most recent analytical data obtained from groundwater samples collected on March 13, 2014. This report has received a technical review by Mr. Dennis Dettloff, California Professional Geologist No.7480.

1.1 Work Performed: October 2013 through March 2014

1. Antea Group prepared and submitted the *Semi-Annual Summary Report - Second and Third Quarters 2013*, dated October 10, 2013.
2. Antea Group prepared and submitted a *Case Closure Request*, dated November 12, 2013.
3. Antea Group prepared and submitted the *Site Conceptual Model – Draft*, dated February 28, 2014.
4. Antea Group conducted the semi-annual groundwater sampling event on March 13, 2014.



1.2 Work Proposed: April through September 2014

1. Antea Group will prepare and submit the *Semi-Annual Summary Report – October 2013 through March 2014*, contained herein.
2. If regulatory closure is approved by the Alameda County Health Care Services Agency (ACHCSA), Antea Group will begin preparation of well destruction as required.
3. Antea Group will conduct the semi-annual groundwater monitoring and sampling event.

2.0 CURRENT PROJECT STATUS

Current phase of project:	Semi-Annual Groundwater Monitoring
Local Oversight Program (LOP) – Lead agency for cleanup oversight:	ACHCSA Fuel Leak Case No. RO0000229
Contact:	Mr. Keith Nowell
Secondary agency for cleanup oversight	San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) No. 01-1588
Monitoring well gauging schedule:	Semi-Annual (1 st and 3 rd quarters): U-1 through U-6
Monitoring well sampling schedule:	Semi-Annual (1 st and 3 rd quarters): U-1 through U-6
Total number of monitoring wells:	6
Range of well depths (total depth below ground surface, bgs):	21.5 to 26.5 feet
Wells with historical measurable LNAPL (light non-aqueous phase liquid):	Yes (U-1 and U-2)
Generalized site geology:	Predominantly sandy silt, with sandy materials beginning at approximately 6-10 feet below ground surface (bgs)
Historical Depth to Water Range, in feet below top of casing (BTOC):	Min: 2.71 (U-6, Q3 2007) Max: 12.81 (MW-6, Q3 2004)
Historical Groundwater Elevation Range, in feet above mean sea level:	Min: -5.13 (U-1, Q1 2014) Max: 8.85 (U-4, Q2 2012)
Local Receptors:	Lake Merritt is 0.3 miles southwest of the site
Current Remediation Technique:	None

2.1 Regulatory Correspondence

In a letter dated December 24, 2013, the ACHCSA denied the *Case Closure Request* dated November 12, 2013 and requested a meeting to discuss the Site Conceptual Model (SCM) for the site.

In an email dated January 13, 2014, the ACHCSA summarized the data gaps in the SCM discussed during the teleconference and requested a draft document to cover the data gaps to be submitted by February 14, 2014.

In an email response dated January 14, 2014, Dennis Dettloff pointed out that Ed Weyrens will be writing the SCM draft.

In an email dated February 7, 2014, Ed Weyrens requested a 2 week extension to the deadline for the draft document so that a utility location could occur and preferential pathways could be addressed at this site.

In an email dated February 7, 2014, the ACHCSA approved the extension to the draft SCM.

2.2 Remediation Status

No active remediation is currently taking place at this site.

2.3 Groundwater Monitoring

Groundwater monitoring and sampling was conducted at the site on March 13, 2014 by Antea Group per our standard sampling protocol (**Attachment B**). A total of six monitoring wells were gauged and sampled. A copy of Antea Group’s field notes are presented as **Attachment C**. Measured depths to groundwater, respective groundwater elevations, and the most recent groundwater analytical data are summarized in **Table 1**. Depth to water was measured to within 0.01 feet BTOC in monitoring wells U-1 through U-6 using a water level indicator. Historic laboratory analytical results are summarized in **Table 2, 2a, 2b, and 2c**. Gauging and sampling data from the most recent monitoring and sampling event are summarized below.

Well gauging and sampling date:	March 13, 2014
Wells gauged:	U-1 through U-6
Wells sampled:	U-1 through U-6
Purge method:	3 well casing volumes via electric, submersible pump
Sample collection method:	Disposable bailers
Groundwater parameters measured (Attachment C):	Dissolved oxygen (DO), temperature, conductivity, pH, turbidity, and oxidation-reduction potential (ORP)
Wells with measurable LNAPL:	None
Depth to Water Range (ft BTOC):	7.31 (U-2 and U-6) to 10.59 (U-3)
Groundwater Elevation Range (ft above mean sea level):	5.13 (U-1) to 7.30 (U-4)
Change in depth to water from previous event (average change for all gauged wells):	0.10 increase
Groundwater Flow Direction and Gradient in foot per foot (ft/ft):	Varies across the site

All monitoring and sampling activities for the site were conducted on March 13, 2014 by Antea Group and reviewed and certified by a California Professional Geologist.

2.3.1 Groundwater Sample Analysis

Groundwater samples collected from monitoring wells U-1 through U-6 were submitted with chain-of-custody documentation to Kiff Analytical LLC. (Kiff) in Davis, CA, a California state-certified laboratory (No. 08263CA). Groundwater samples were analyzed for the following:

- TPHg, benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), tertiary amyl-methyl ether (TAME), tertiary-butyl alcohol (TBA), di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), and ethanol by Environmental Protection Agency (EPA) Method 8260B.

2.3.2 Groundwater Quality Data

Groundwater analytical results are tabulated in **Table 1** (current) and **Table 2, 2a, 2b, and 2c** (historical). During the March 2014 sampling event, the following ranges of contaminant concentrations were reported in the specified site monitoring wells (only the constituents above the laboratory's indicated reporting limits are shown):

Constituents	Number of Reported Concentrations Above LRL of Total Samples Analyzed	Minimum Reported Concentration, in µg/L (Sample ID)	Maximum Reported Concentration, in µg/L (Sample ID)
TPHg	3 of 6	50 (U-5)	380 (U-1)
Ethylbenzene	2 of 6	0.62 (U-1)	0.90 (U-2)
Total Xylenes	1 of 6	3.7 (U-1)	3.7 (U-1)
MTBE	4 of 6	1.9 (U-6)	49 (U-2)
TBA	4 of 6	66 (U-6)	3,600 (U-2)

Key: LRL = Laboratory reporting limits; µg/L = Micrograms per liter

2.3.3 Contaminants of Concern

TPHg: TPHg was above the laboratory's indicated reporting limits in the groundwater samples collected and submitted for analysis from monitoring wells U-1 (380 µg/L), U-2 (350 µg/L), and U-5 (50 µg/L) during the current event.

Benzene: Benzene was below the laboratory's indicated reporting limits in each of the groundwater samples collected and submitted for analysis during the current event.

MTBE: MTBE was above the laboratory's indicated reporting limits in the groundwater samples collected and submitted for analysis from monitoring wells U-1 (2.3 µg/L), U-2 (49 µg/L), U-5, (4.1 µg/L), and U-6 (1.9 µg/L) during the current event.

In addition, ethylbenzene was present in the groundwater samples collected and submitted for analysis from monitoring wells U-1 (0.62 µg/L) and U-2 (0.90 µg/L), total xylenes were present in the groundwater sample collected and submitted for analysis from monitoring well U-1 (3.7 µg/L), and TBA was present in the groundwater samples collected and submitted for analysis from monitoring wells U-1 (870 µg/L), U-2 (3,600 µg/L), U-5 (100

µg/L), and U-6 (66 µg/L). All other constituents tested were below the laboratory’s indicated reporting limits in the groundwater samples collected and submitted for analysis during the current event. The March 13, 2014 groundwater analytical results and historical groundwater monitoring and analytical results are presented in **Table 1, 2, 2a, 2b, and 2c**. Kiff Laboratory’s analytical report and chain-of-custody documentation are presented as **Attachment D**.

The March 2014 groundwater elevation contour map is presented as **Figure 3**. A dissolved phase TPHg iso-concentration map is presented as **Figure 4**. A dissolved phase MTBE isoconcentration map is presented as **Figure 5**. Historical groundwater flow directions are shown on a rose diagram, presented as **Figure 6**. Historical groundwater flow directions are presented in **Table 3**. Graphs showing TPHg concentrations and groundwater elevations for monitoring wells U-1, U-2, U-5, and U-6 are presented as **Attachment E**.

2.3.4 Waste Disposal Summary

Approximately 66 gallons of waste water were generated during well purging/sampling and equipment cleaning during the March 2014 groundwater monitoring and sampling event. The waste water is being stored in a 55-gallon steel drum on-site. Subsequent to waste profiling, the waste water will be transported and disposed of at an approved waste facility.

2.3.5 Quality Assurance / Quality Control

Antea Group’s QA/QC measures included use of a detailed QA/QC data validation check on the Kiff laboratory analytical results for the March 2014 sampling event. Antea Group’s laboratory data validation checklist and the Kiff laboratory report are presented in **Attachment D**. A summary of QA/QC information follows.

Laboratory QA/QC Performed:	Yes (validated by Antea Group)
Laboratory Data Qualifiers:	None
Validity of Laboratory Data:	Data set is Valid

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 LOW THREAT CLOSURE POLICY CHECKLIST

There are a couple of items in the Low Threat Closure Policy (LTCP) checklist on GeoTracker that need to be updated.

General Criteria:

- Section “d” states: “Free Product has been removed to the maximum extent practicable: No.” However, free product has not been measured at this site since March 1998 (**Table 2**).
- Section “e” states: “A Conceptual site model that assesses the nature, extent, and mobility of the release has been developed: No.” However, Antea Group submitted the *Site Conceptual Model – Draft* on February 28, 2014.

4.0 CONCLUSIONS AND RECOMMENDATION

Petroleum hydrocarbon impacted soil has been adequately assessed vertically and laterally beneath the site. Petroleum hydrocarbon impacted groundwater has not been adequately delineated off-site to the north. However, based on the historic groundwater flow direction, predominately to the northwest, further delineation to the north does not appear to be necessary.

During the most recent groundwater monitoring and sampling event the following TBA concentrations; U-1 (870 µg/L), U-2 (3,600 µg/L), U-5 (100 µg/L), and U-6 (66 µg/L), were reported. However, the groundwater beneath the site is not currently being used as a drinking water source, there are now wells within ½ mile of the site, and the closest well is an irrigation well located 0.71 miles northeast of the site. The closest potential receptor is Lake Merritt, located approximately 1,400 feet west southwest of the site. The potential impact to the lake is to aquatic life; however, the environmental screening level (ESL) "Estuary Aquatic Habitat Goal" for TBA is 18,000 µg/L. The highest current TBA concentration at the site was reported in monitoring well U-2 at 3,600 µg/L. This is significantly below the ESL for TBA.

Groundwater trends show that petroleum hydrocarbon impact to the groundwater is stable or declining (**Attachment E**). Antea Group addressed the data gaps in the Case Closure Request with a Focused Site Conceptual Model –Draft.

Based on the data obtained during the most recent groundwater monitoring and sampling event, there is currently no risk to human or aquatic life and recommends that this site be closed under the current low threat closure policy.

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.

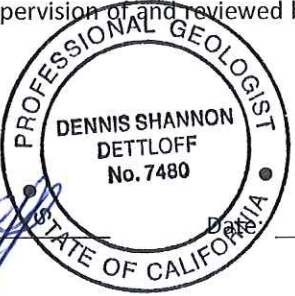
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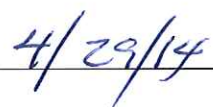

Jonathan Fillingame
Staff Geologist

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:


Dennis S. Dettloff, P.G.
Senior Project Manager
California Registered Professional Geologist No. 7480

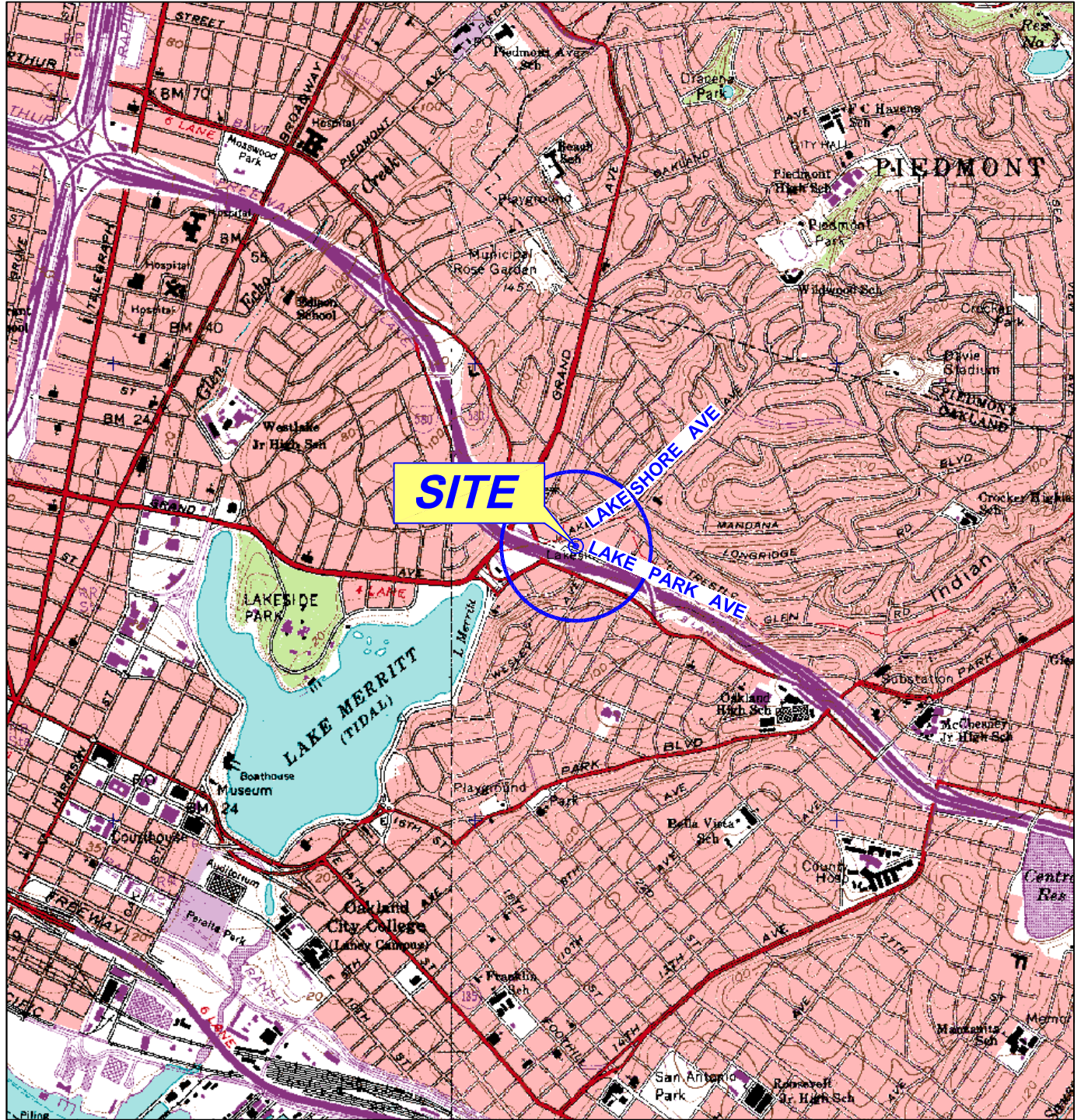




cc: GeoTracker (upload)

Figures

- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 Groundwater Elevation Contour Map – March 13, 2014
- Figure 4 Dissolved Phase TPHg Isoconcentration Map – March 13, 2014
- Figure 5 Dissolved Phase MTBE Isoconcentration Map – March 13, 2014
- Figure 6 Historical Groundwater Flow Directions



GENERAL NOTES:
 BASE MAP FROM 3-D TOPO QUADS
 OAKLAND WEST & OAKLAND EAST, CA. QUADRANGLE
 7.5 MINUTE TOPOGRAPHIC MAP

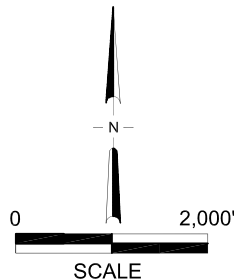
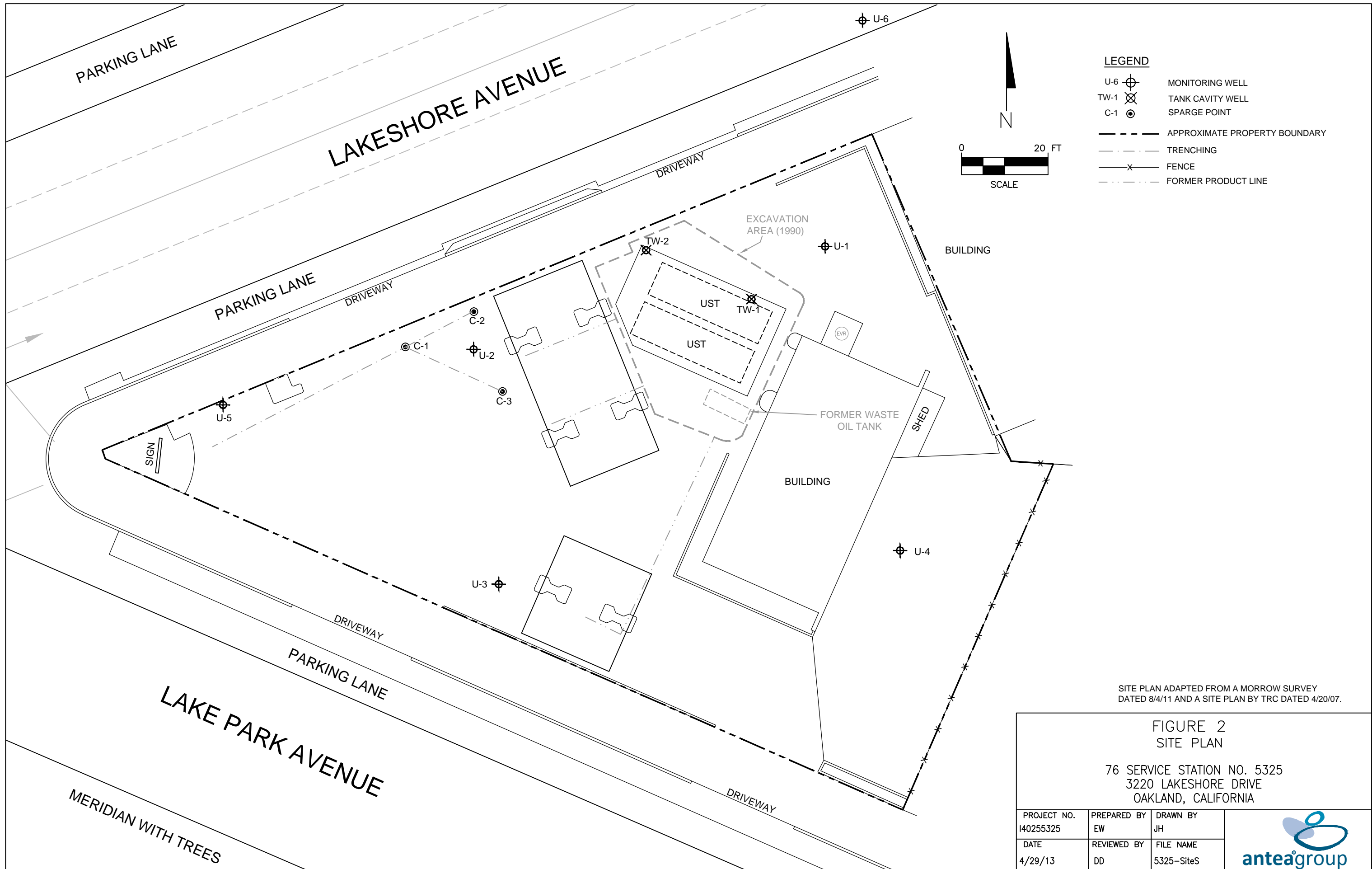


FIGURE 1 SITE LOCATION MAP

76 SERVICE STATION NO. 5325
 3220 LAKESHORE AVENUE
 OAKLAND, CALIFORNIA

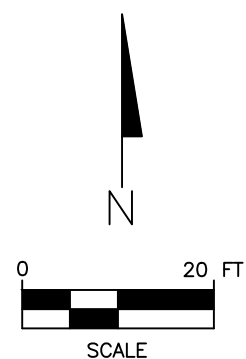
PROJECT NO. 140255325		DRAWN BY JH
FILE NO. 5325-SLM		PREPARED BY EW
DATE 28 JAN 11	REV. 2	REVIEWED BY





LEGEND

- U-6 MONITORING WELL
- TW-1 TANK CAVITY WELL
- C-1 SPARGE POINT
- APPROXIMATE PROPERTY BOUNDARY
- TRENCHING
- FENCE
- FORMER PRODUCT LINE



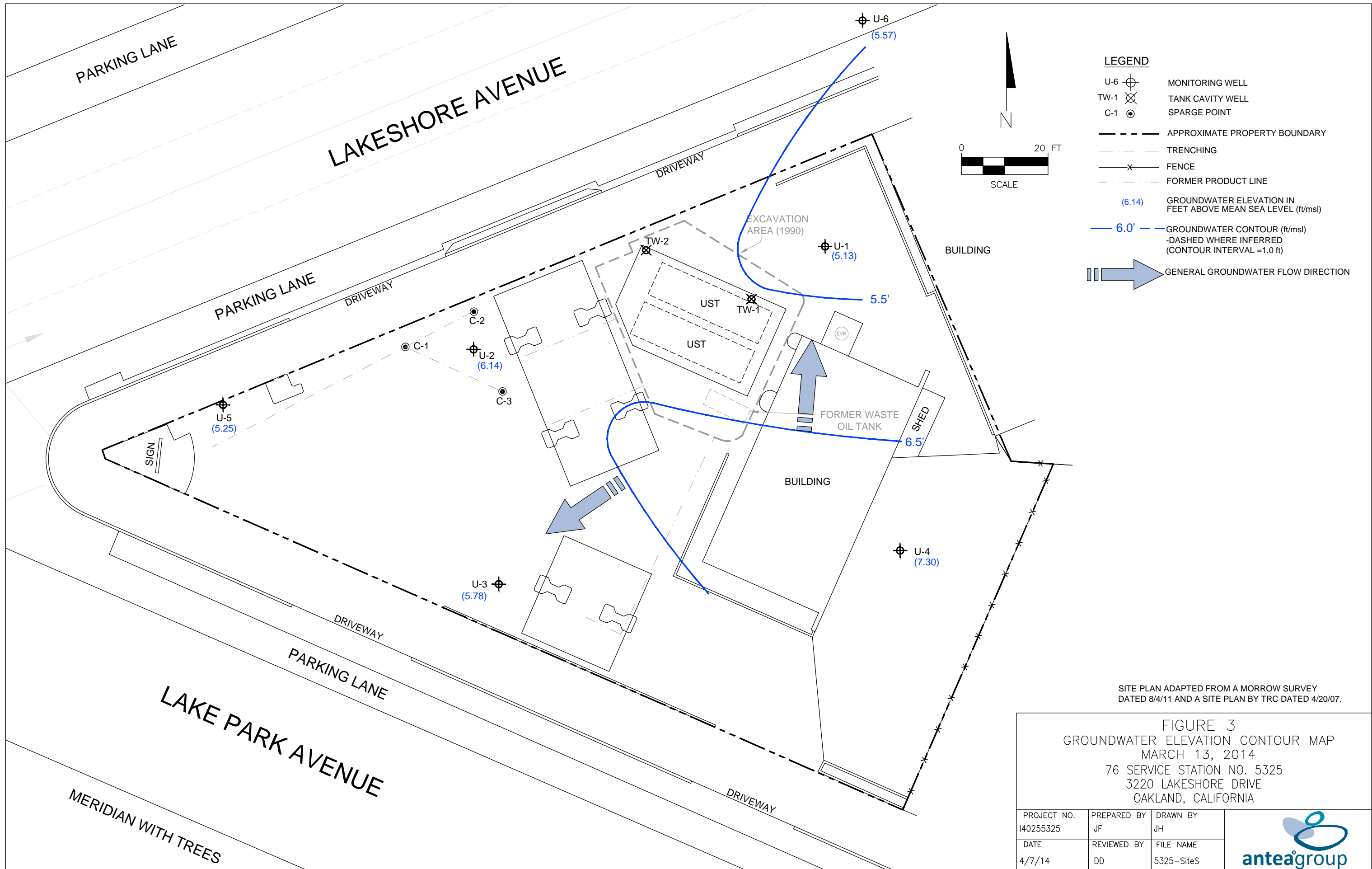
SITE PLAN ADAPTED FROM A MORROW SURVEY DATED 8/4/11 AND A SITE PLAN BY TRC DATED 4/20/07.

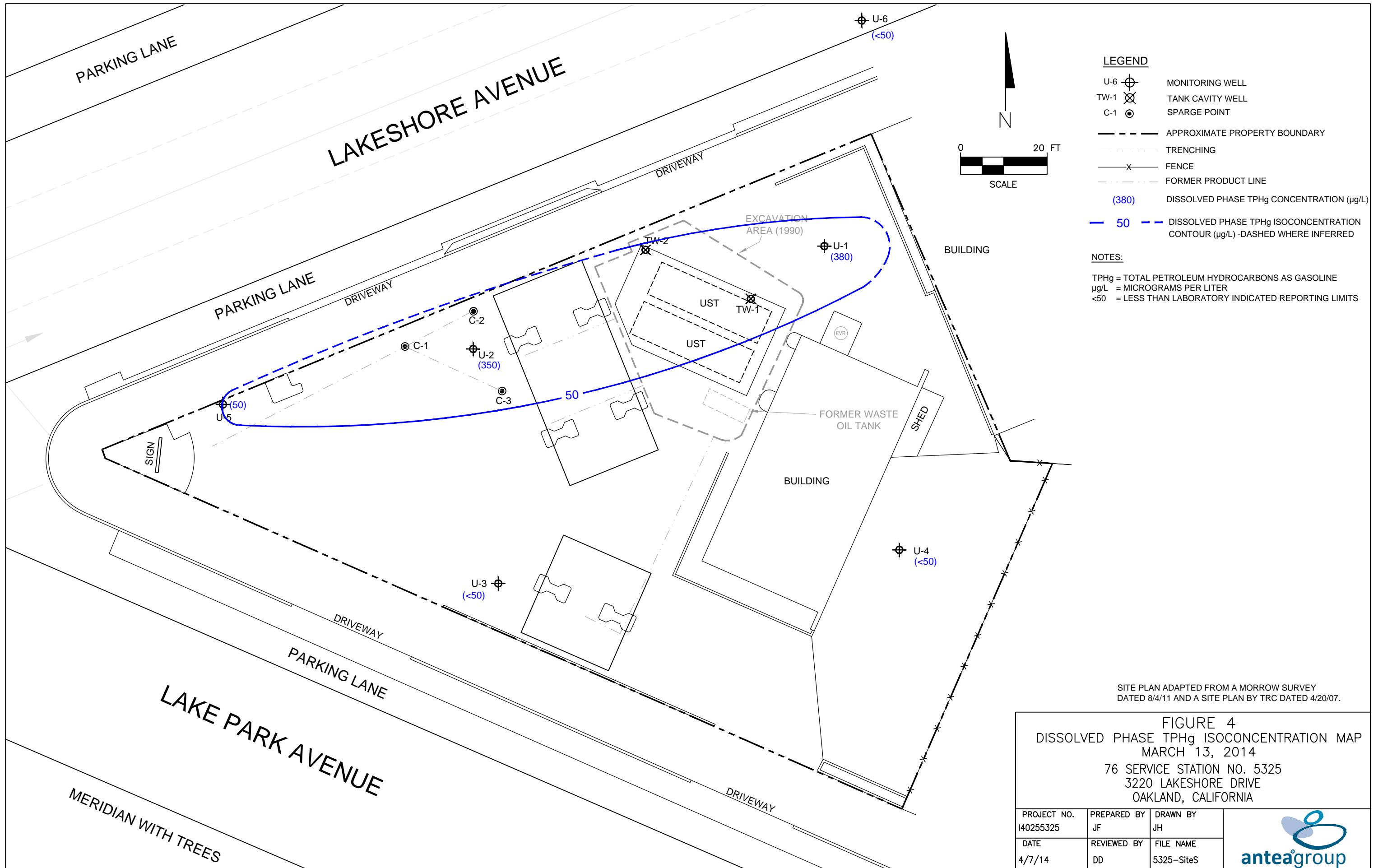
**FIGURE 2
SITE PLAN**

76 SERVICE STATION NO. 5325
3220 LAKESHORE DRIVE
OAKLAND, CALIFORNIA

PROJECT NO. 140255325	PREPARED BY EW	DRAWN BY JH
DATE 4/29/13	REVIEWED BY DD	FILE NAME 5325-SiteS







- LEGEND**
- U-6 MONITORING WELL
 - TW-1 TANK CAVITY WELL
 - C-1 SPARGE POINT
 - - - - - APPROXIMATE PROPERTY BOUNDARY
 - - - - - TRENCHING
 - x - x - FENCE
 - - - - - FORMER PRODUCT LINE
 - (380) DISSOLVED PHASE TPHg CONCENTRATION (µg/L)
 - - - 50 - - - DISSOLVED PHASE TPHg ISOCONCENTRATION CONTOUR (µg/L) -DASHED WHERE INFERRED

NOTES:
 TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
 µg/L = MICROGRAMS PER LITER
 <50 = LESS THAN LABORATORY INDICATED REPORTING LIMITS

SITE PLAN ADAPTED FROM A MORROW SURVEY DATED 8/4/11 AND A SITE PLAN BY TRC DATED 4/20/07.

FIGURE 4
 DISSOLVED PHASE TPHg ISOCONCENTRATION MAP
 MARCH 13, 2014
 76 SERVICE STATION NO. 5325
 3220 LAKESHORE DRIVE
 OAKLAND, CALIFORNIA

PROJECT NO. 140255325	PREPARED BY JF	DRAWN BY JH
DATE 4/7/14	REVIEWED BY DD	FILE NAME 5325-SiteS



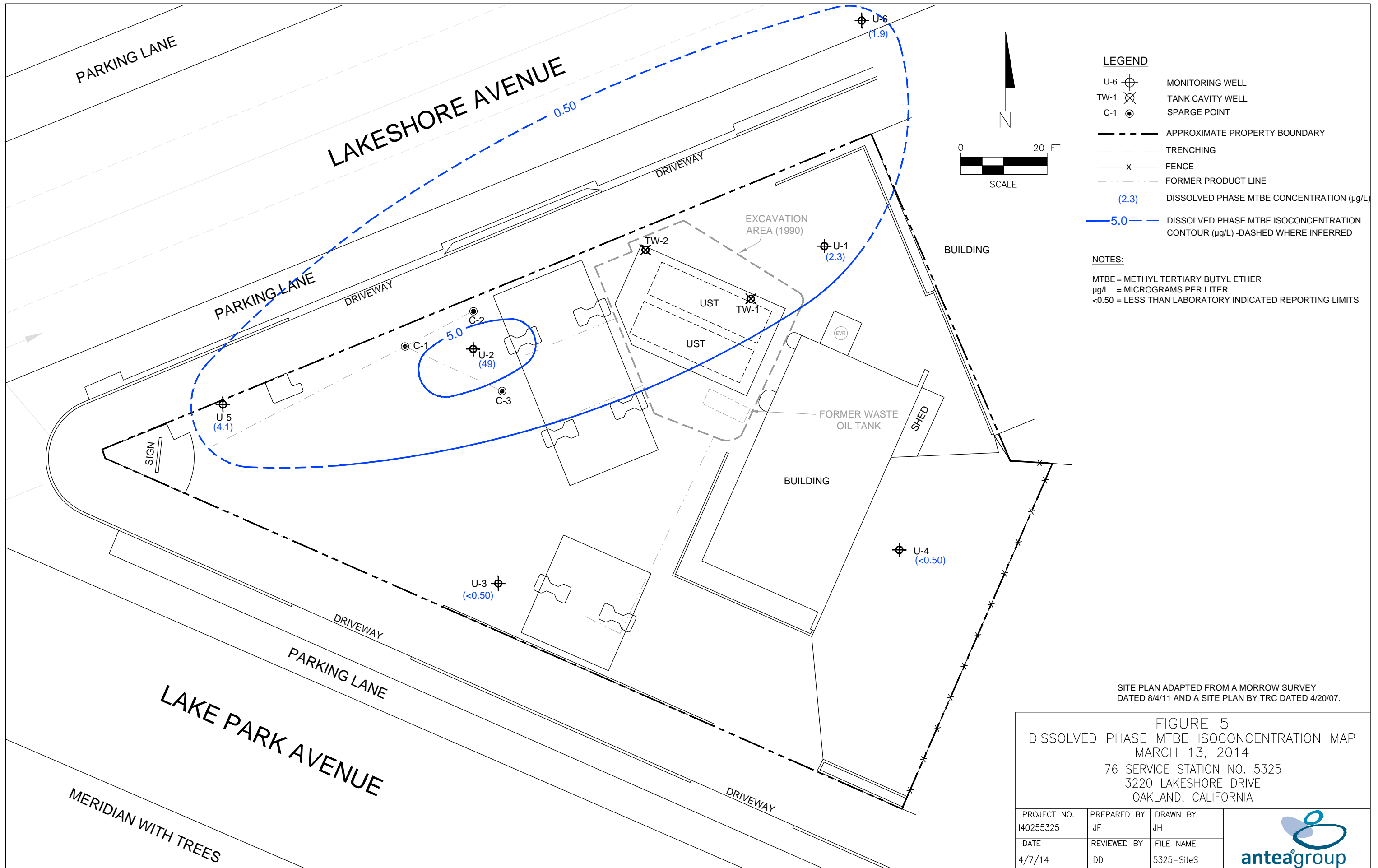
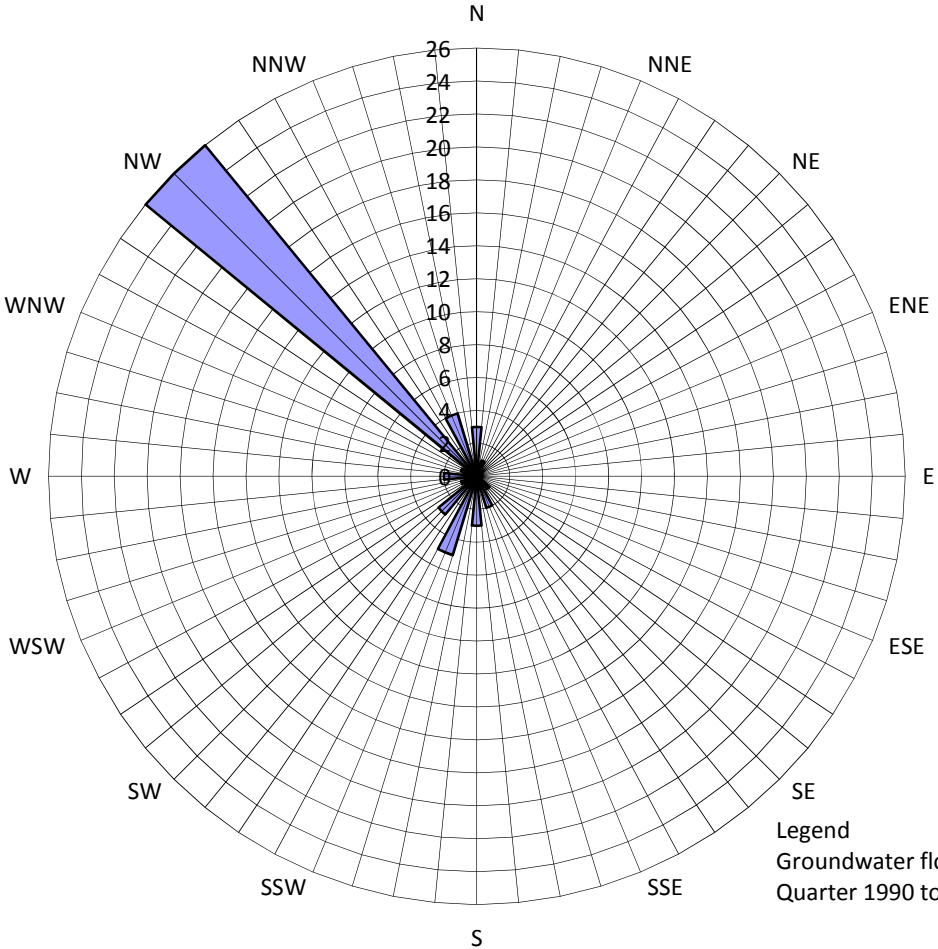


Figure 6
HISTORICAL GROUNDWATER FLOW DIRECTIONS
76 SERVICE STATION NO. 5325
3220 LAKESHORE AVENUE
OAKLAND, CALIFORNIA



Legend
Groundwater flow directions are based on data from the Third Quarter 1990 to the First Quarter 2014. 52 data points shown.

■ Groundwater Flow Direction

Tables

Table 1	Current Groundwater Gauging and Analytical Data
Table 2	Historical Groundwater Gauging and Analytical Data
Table 2a	Additional Historical Groundwater Analytical Data
Table 2b	Additional Historical Groundwater Analytical Data
Table 2c	Additional Historical Groundwater Analytical Data
Table 3	Historical Groundwater Gradient and Flow Directions

TABLE 1
CURRENT GROUNDWATER GAUGING AND ANALYTICAL DATA
76 SERVICE STATION NO. 5325
3200 LAKESHORE AVENUE
OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA												
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	Ethanol (ug/L)	1,2-Dibromoethane (EDB) (ug/L)	1,2-Dichloroethane (ug/L)
U-1	3/13/2014	14.24	9.11	NP	5.13	380	<0.50	<0.50	0.62	3.7	2.3	<0.50	<0.50	<0.50	870	<5.0	<0.50	<0.50
U-2	3/13/2014	13.45	7.31	NP	6.14	350	<0.50	<0.90	0.90	<0.90	49	<0.90	<0.90	<0.90	3,600	<9.0	<0.90	<0.90
U-3	3/13/2014	16.37	10.59	NP	5.78	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<0.50	<0.50
U-4	3/13/2014	16.55	9.25	NP	7.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<5.0	<0.50	<0.50
U-5	3/13/2014	12.77	7.52	NP	5.25	50	<0.50	<0.50	<0.50	<0.50	4.1	<0.50	<0.50	<0.50	100	<5.0	<0.50	<0.50
U-6	3/13/2014	12.88	7.31	NP	5.57	<50	<0.50	<0.50	<0.50	<0.50	1.9	<0.50	<0.50	<0.50	66	<5.0	<0.50	<0.50

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
TPHg- Total petroleum hydrocarbons as gasoline
MTBE- Methyl tertiary-butyl ether
DIPE- Di-isopropyl ether
ETBE- Ethyl tertiary-butyl ether
TAME- Tertiary-amyl methyl ether
TBA- Tertiary-butyl alcohol
Bold - Above the laboratory's indicated reporting limit

**TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
76 SERVICE STATION NO. 5325
3200 LAKESHORE AVENUE
OAKLAND, CALIFORNIA**



Well I.D.	Date	GROUNDWATER GAUGING DATA				GROUNDWATER ANALYTICAL DATA														
		TOC Elevation (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	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)	1,2-Dichloroethane (ug/L)	
U-6	6/14/2005	7.14	7.88	NP	-0.74	<100	<1.0	<1.0	<1.0	<2.0	--	20	<0.50	<0.50	<0.50	<5.0	<100	<0.5	<0.5	
	9/28/2005	7.14	10.43	NP	-3.29	150	<0.50	<0.50	<0.50	<1.0	--	4.6	<0.50	<0.50	<0.50	3,800	<250	<0.50	<0.50	
	12/29/2005	7.14	7.63	NP	-0.49	<50	<0.50	<0.50	<0.50	<1.0	--	13	<0.50	<0.50	<0.50	1,100	<250	<0.50	<0.50	
	3/27/2006	7.14	6.15	NP	0.99	<50	<0.50	<0.50	<0.50	<1.0	--	8.1	--	--	--	--	<250	--	--	
	6/12/2006	7.14	6.59	NP	0.55	<50	<0.50	<0.50	<0.50	<1.0	--	6.9	--	--	--	--	<250	--	--	
	9/21/2006	7.14	6.90	NP	0.24	<50	<0.50	<0.50	<0.50	<0.50	--	3.1	--	--	--	--	<250	--	--	
	12/21/2006	7.14	7.36	NP	-0.22	<50	<0.50	<0.50	<0.50	<0.50	--	1.2	--	--	--	--	<250	--	--	
	3/28/2007	7.14	3.48	NP	3.66	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--	
	6/27/2007	7.14	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	9/26/2007	7.14	2.71	NP	4.43	54	<0.50	<0.50	<0.50	<0.50	--	<0.50	--	--	--	--	<250	--	--	
	12/27/2007	7.14	6.96	NP	0.18	<50	<0.50	<0.50	<0.50	<1.0	--	2.4	--	--	--	--	<250	--	--	
	3/26/2008	7.14	6.55	NP	0.59	<50	<0.50	<0.50	<0.50	<1.0	--	2.3	--	--	--	--	<250	--	--	
	6/18/2008	7.14	6.71	NP	0.43	<50	<0.50	<0.50	<0.50	<1.0	--	0.59	--	--	--	--	<250	--	--	
	9/24/2008	7.14	5.50	NP	1.64	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	12/22/2008	7.14	6.48	NP	0.66	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	3/26/2009	7.14	6.09	NP	1.05	<250	<2.5	<2.5	<2.5	<5.0	--	<2.5	--	--	--	--	<1200	--	--	
	6/23/2009	7.14	4.80	NP	2.34	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	--	--	--	--	<250	--	--	
	12/3/2009	7.14	5.31	NP	1.83	<50	<0.50	<0.50	<0.50	<1.5	--	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0	
	6/28/2010	7.14	4.77	NP	2.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/30/2010	7.14	4.97	NP	2.17	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	<0.50	<0.50	<0.50	11.4	<250	<1.0	<1.0	
	12/20/2010	7.14	4.59	NP	2.55	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0	
	6/3/2011	7.14	5.26	NP	1.88	<50.0	<0.50	<0.50	<0.50	<1.5	--	<0.50	<0.50	<0.50	<0.50	<5.0	<250	<1.0	<1.0	
	12/5/2011	12.88	5.35	NP	7.53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	6/6/2012	12.88	7.03	NP	5.85	<50.0	<0.50	<0.50	<0.50	<1.5	--	0.79	<0.50	<0.50	<0.50	9.2	<250	<1.0	<1.0	
12/19/2012	12.88	7.71	NP	5.17	<50.0	<0.50	<0.50	<0.50	<0.50	--	1.5	<0.50	<0.50	<0.50	42	<5.0	<0.50	<0.50		
3/13/2013	12.88	7.90	NP	4.98	<50.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
9/13/2013	12.88	7.67	NP	5.21	<50	<0.50	<0.50	<0.50	<0.50	--	2.8	<0.50	<0.50	<0.50	37	<5.0	<0.50	<0.50		
3/13/2014	12.88	7.31	NP	5.57	<50	<0.50	<0.50	<0.50	<0.50	--	1.9	<0.50	<0.50	<0.50	66	<5.0	<0.50	<0.50		

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)
NG - Not gauged
WI - Well Inaccessible
NSVD - Not surveyed
DRY - Well is dry
-- - No information available

Analytical Notes:
< - Below Laboratory's indicated reporting limit
DRY - Well was Dry; sample could not be taken
LPH - Liquid Phase Hydrocarbons
ND - Not detected, and detection limit is not known
ug/L - micrograms/liter
WI - Well Inaccessible
TPHg- Total petroleum hydrocarbons as gasoline
MTBE- Methyl tertiary-butyl ether
DIPE- Di-isopropyl ether
ETBE- Ethyl tertiary-butyl ether
TAME- Tertiary-amyl methyl ether
TBA- Tertiary-butyl alcohol
Bold - Above the laboratory's indicated reporting limit

TABLE 2a
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
 76 SERVICE STATION NO. 5325
 3200 LAKESHORE AVENUE
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA																		
		Acetone (ug/L)	Alkalinity, Total as CaCO ₃ (ug/L)	Antimony SW6010 D (ug/L)	Antimony SW6010 T (ug/L)	Arsenic SW6010 D (ug/L)	Arsenic SW6010 T (ug/L)	Barium SW6010 D (ug/L)	Barium SW6010 T (ug/L)	Beryllium SW6010 D (ug/L)	Beryllium SW6010 T (ug/L)	Biochemical Oxygen Demand (ug/L)	Bromate (mg/L)	Bromide (mg/L)	Cadmium SW6010 D (ug/L)	Cadmium SW6010 T (ug/L)	Chemical Oxygen Demand (ug/L)	Chloride (ug/L)	Chromium E200.7 T (ug/L)	Chromium, Hexavalent (ug/L)
U-1	6/30/2010	<5.0	--	--	<60.0	--	52.5	--	293	--	<5.0	23,400	--	--	--	<5.0	113,000	43,800	--	--
	12/20/2010	<5.0	371,000	<60.0	--	32.5	--	237	--	<5.0	--	16,700	--	--	<5.0	--	41,000	46,000	--	--
	6/3/2011	<5.0	--	<60.0	--	44.0	--	224	--	<5.0	--	19,600	<0.005	0.6	<5.0	--	40,400	40,700	<5	<0.2
U-2	6/30/2010	29.5	--	--	<60.0	--	100	--	264	--	<5.0	12,300	--	--	--	<5.0	62,100	74,000	--	--
	12/20/2010	13.5	754,000	<60.0	--	46.4	--	209	--	<5.0	--	17,300	--	--	<5.0	--	65,500	61,400	--	--
	6/3/2011	<5.0	--	<60.0	--	64.4	--	190	--	<5.0	--	<2000	<0.005	1.2	<5.0	--	65,600	57,700	<5	<0.2
U-3	12/20/2010	--	312,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
U-4	6/30/2010	<5.0	--	--	<60.0	--	<10.0	--	<100	--	<5.0	<2000	--	--	--	<5.0	<5000	41,100	--	--
	12/20/2010	<5.0	352,000	<60.0	--	<20.0	--	<100	--	<5.0	--	<2000	--	--	<5.0	--	9,090	43,500	--	--
	6/3/2011	<5.0	--	<60.0	--	<20.0	--	<100	--	<5.0	--	11,500	<0.005	0.64	<5.0	--	9,530	40,600	<5	1.5
U-5	12/20/2010	--	319,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
U-6	12/20/2010	--	87,800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analytical Notes:

- < - Below Laboratory's indicated reporting limit
- DRY - Well was Dry; sample could not be taken
- LPH - Liquid Phase Hydrocarbons
- mg/L - milligrams per liter
- ug/L - micrograms/liter
- Bold** - Above the laboratory's indicated reporting limit

TABLE 2b
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
 76 SERVICE STATION NO. 5325
 3200 LAKESHORE AVENUE
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUNDWATER ANALYTICAL DATA																			
		Cobalt SW6010 D (ug/L)	Cobalt SW6010 T (ug/L)	Coliform, Total (MPN/100ML)	E. Coli (MPN/100ML)	Inorganic Carbon (mg/L)	Iron SW6010 T (ug/L)	Iron, Ferric (ug/L)	Iron, Ferrous A3500D (ug/L)	Lead SW6010 D (ug/L)	Lead SW6010 T (ug/L)	Manganese SW6010 D (ug/L)	Manganese SW6010 T (ug/L)	Mercury SW7470A D (ug/L)	Mercury SW7470A T (ug/L)	Methane (ug/L)	Molybdenum SW6010 D (ug/L)	Molybdenum SW6010 T (ug/L)	Nickel SW6010 D (ug/L)	Nickel SW6010 T (ug/L)	Nitrate as N (ug/L)
U-6	12/7/1999	--	--	--	--	--	--	--	260	--	--	--	--	--	--	--	--	--	--	--	ND
	3/13/2000	--	--	--	--	--	--	--	790	--	--	--	--	--	--	--	--	--	--	--	260
	6/21/2000	--	--	--	--	--	--	--	1,900	--	--	--	--	--	--	--	--	--	--	--	ND
	9/27/2000	--	--	--	--	--	--	--	2,600	--	--	--	--	--	--	--	--	--	--	--	ND
	12/12/2000	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	2,700
	6/6/2001	--	--	--	--	--	--	--	470	--	--	--	--	--	--	--	--	--	--	--	150
	9/24/2001	--	--	--	--	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	580
	12/10/2001	--	--	--	--	--	--	--	990	--	--	--	--	--	--	--	--	--	--	--	500
	3/11/2002	--	--	--	--	--	--	--	1,200	--	--	--	--	--	--	--	--	--	--	--	<500
	6/4/2002	--	--	--	--	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	<500
	9/3/2002	--	--	--	--	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	580
	12/3/2002	--	--	--	--	--	--	--	1,200	--	--	--	--	--	--	--	--	--	--	--	<1000
	3/4/2003	--	--	--	--	--	--	--	20,000	--	--	--	--	--	--	--	--	--	--	--	<1000
	6/18/2003	--	--	--	--	--	--	--	3,200	--	--	--	--	--	--	--	--	--	--	--	<1000
	9/24/2003	--	--	--	--	--	--	--	1.4	--	--	--	--	--	--	--	--	--	--	--	<1000
	12/2/2003	--	--	--	--	--	--	--	1,400	--	--	--	--	--	--	--	--	--	--	--	--
	3/30/2004	--	--	--	--	--	--	--	2,600	--	--	--	--	--	--	--	--	--	--	--	<1000
	6/7/2004	--	--	--	--	--	--	--	2,100	--	--	--	--	--	--	--	--	--	--	--	800
	9/9/2004	--	--	--	--	--	--	--	870	--	--	--	--	--	--	--	--	--	--	--	<1000
	12/20/2004	--	--	--	--	--	--	--	2.5	--	--	--	--	--	--	--	--	--	--	--	<1000
	3/28/2005	--	--	--	--	--	--	--	3.4	--	--	--	--	--	--	--	--	--	--	--	<1000
	6/14/2005	--	--	--	--	--	--	--	4,100	--	--	--	--	--	--	--	--	--	--	--	3,800
	9/28/2005	--	--	--	--	--	--	--	21,000	--	--	--	--	--	--	--	--	--	--	--	<200
	12/29/2005	--	--	--	--	--	--	--	8,300	--	--	--	--	--	--	--	--	--	--	--	480
	3/27/2006	--	--	--	--	--	--	--	8,800	--	--	--	--	--	--	--	--	--	--	--	370
	6/12/2006	--	--	--	--	--	--	--	8,500	--	--	--	--	--	--	--	--	--	--	--	230
	9/21/2006	--	--	--	--	--	--	--	2,900	--	--	--	--	--	--	--	--	--	--	--	190
	12/21/2006	--	--	--	--	--	--	--	11,000	--	--	--	--	--	--	--	--	--	--	--	360
	3/28/2007	--	--	--	--	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	550
	6/27/2007	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	9/26/2007	--	--	--	--	--	--	--	<100	--	--	--	--	--	--	--	--	--	--	--	410
	12/27/2007	--	--	--	--	--	--	--	7,700	--	--	--	--	--	--	--	--	--	--	--	<100
	3/26/2008	--	--	--	--	--	--	--	19,000	--	--	--	--	--	--	--	--	--	--	--	<100
	6/18/2008	--	--	--	--	--	--	--	2,100,000	--	--	--	--	--	--	--	--	--	--	--	<100
	9/24/2008	--	--	--	--	--	--	--	220,000	--	--	--	--	--	--	--	--	--	--	--	<100
	12/22/2008	--	--	--	--	--	--	--	290,000	--	--	--	--	--	--	--	--	--	--	--	<100
	3/26/2009	--	--	--	--	--	--	--	540,000	--	--	--	--	--	--	--	--	--	--	--	<100
	6/30/2010	--	--	--	--	--	566,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/20/2010	--	--	--	--	--	28,500	--	--	--	--	--	--	--	--	--	--	--	--	--	486

Analytical Notes:
 < - Below Laboratory's indicated reporting limit
 DRY - Well was Dry; sample could not be taken
 LPH - Liquid Phase Hydrocarbons
 mg/L - milligrams per liter
 MPN/100ML - most probable number per 100 ml
 ND - Not detected, and detection limit is not known
 ug/L - micrograms/liter
 WI - Well Inaccessible
 Bold - Above the laboratory's indicated reporting limit

TABLE 2c
 ADDITIONAL HISTORICAL GROUNDWATER ANALYTICAL DATA
 76 SERVICE STATION NO. 5325
 3200 LAKESHORE AVENUE
 OAKLAND, CALIFORNIA



Well I.D.	Date	GROUND WATER ANALYTICAL DATA																			
		Nitrite as N (ug/L)	Nitrogen (ug/L)	Nitrogen, Ammonia (mg/L)	Nitrogen, NO2 plus NO3 (ug/L)	Nitrogen, Total Kjeldahl (mg/L)	Oxidation Reduction Potential FIELD_PostPurge (MILLIVOLTS)	Oxidation Reduction Potential FIELD_PrePurge	Phosphate (mg/L)	Phosphate, Ortho (mg/L)	Selenium SW6010 D (ug/L)	Selenium SW6010 T (ug/L)	Silver SW6010 D (ug/L)	Silver SW6010 T (ug/L)	Sulfate (ug/L)	Thallium SW6010 D (ug/L)	Thallium SW6010 T (ug/L)	Vanadium SW6010 D (ug/L)	Vanadium SW6010 T (ug/L)	Zinc SW6010 D (ug/L)	Zinc SW6010 T (ug/L)
U-6	6/4/2002	--	--	--	--	--	97	97	<1.0	--	--	--	--	--	--	--	--	--	--	--	--
	9/3/2002	--	--	--	--	--	110	110	1.1	--	--	--	--	--	--	--	--	--	--	--	--
	12/3/2002	--	--	--	--	--	95	95	2.6	--	--	--	--	--	--	--	--	--	--	--	--
	3/4/2003	--	--	--	--	--	-112	-112	<1.0	--	--	--	--	--	--	--	--	--	--	--	--
	6/18/2003	--	--	--	--	--	-15	-15	2.0	--	--	--	--	--	--	--	--	--	--	--	--
	9/24/2003	--	--	--	--	--	-12	-12	4.6	--	--	--	--	--	--	--	--	--	--	--	--
	3/30/2004	--	--	--	--	--	--	--	--	<1.0	--	--	--	--	--	--	--	--	--	--	--
	6/7/2004	--	--	--	--	--	--	--	--	<0.20	--	--	--	--	--	--	--	--	--	--	--
	9/9/2004	--	--	--	--	--	--	--	--	3.8	--	--	--	--	--	--	--	--	--	--	--
	12/20/2004	--	--	--	--	--	--	--	--	<1.0	--	--	--	--	--	--	--	--	--	--	--
	3/28/2005	--	--	--	--	--	--	--	--	<1.0	--	--	--	--	--	--	--	--	--	--	--
	6/14/2005	--	--	--	--	--	--	--	--	<1.0	--	--	--	--	--	--	--	--	--	--	--
	9/28/2005	--	--	--	--	--	--	--	--	3.4	--	--	--	--	--	--	--	--	--	--	--
	12/29/2005	--	--	--	--	--	--	--	--	<0.050	--	--	--	--	--	--	--	--	--	--	--
	3/27/2006	--	--	--	--	--	--	--	--	0.19	--	--	--	--	--	--	--	--	--	--	--
	6/12/2006	--	--	--	--	--	--	--	--	<0.050	--	--	--	--	--	--	--	--	--	--	--
	9/21/2006	--	--	--	--	--	--	--	--	0.31	--	--	--	--	--	--	--	--	--	--	--
	12/21/2006	--	--	--	--	--	--	--	--	0.41	--	--	--	--	--	--	--	--	--	--	--
	3/28/2007	--	--	--	--	--	--	--	--	0.31	--	--	--	--	--	--	--	--	--	--	--
	6/27/2007	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI
	9/26/2007	--	--	--	--	--	--	--	--	0.34	--	--	--	--	--	--	--	--	--	--	--
	12/27/2007	--	--	--	--	--	--	--	--	1.0	--	--	--	--	--	--	--	--	--	--	--
	3/26/2008	--	--	--	--	--	--	--	--	1.2	--	--	--	--	--	--	--	--	--	--	--
	6/18/2008	--	--	--	--	--	--	--	--	0.076	--	--	--	--	--	--	--	--	--	--	--
	9/24/2008	--	--	--	--	--	--	--	--	0.28	--	--	--	--	--	--	--	--	--	--	--
	12/22/2008	--	--	--	--	--	--	--	--	0.39	--	--	--	--	--	--	--	--	--	--	--
3/26/2009	--	--	--	--	--	--	--	--	0.28	--	--	--	--	--	--	--	--	--	--	--	
6/30/2010	44.3	--	--	--	308	--	--	--	--	--	--	--	--	10,100	--	--	--	--	--	--	
12/20/2010	33.4	--	--	--	520	--	--	--	--	--	--	--	--	12,400	--	--	--	--	--	--	

Analytical Notes:
 < - Below Laboratory's indicated reporting limit
 DRY - Well was Dry; sample could not be taken
 LPH - Liquid Phase Hydrocarbons
 mg/L - milligrams per liter
 MILLIVOLTS - millivolts
 ND - Not detected, and detection limit is not known
 ug/L - micrograms/liter
 WI - Well Inaccessible
Bold - Above the laboratory's indicated reporting limit

TABLE 3
Historical Groundwater Gradient and Flow Directions

76 Service Station No. 5325
 3220 Lakeshore Avenue
 Oakland, CA

Site	Monitoring Date	Groundwater Gradient (feet per foot)	Groundwater Flow Direction																
			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
5325	12/29/2005	0.0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	3/27/2006	0.0250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	6/12/2006	0.0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	9/21/2006	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/21/2006	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3/28/2007	0.0100	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	6/27/2007	0.0300	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	9/26/2007	0.0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	12/27/2007	0.0200	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	3/6/2008	0.0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	6/18/2008	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9/24/2008	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/22/2008	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3/26/2009	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6/23/2009	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/3/2009	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6/28/2009	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6/28/2010	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12/20/2010	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6/3/2011	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/5/2012	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6/6/2012	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/19/2012	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/13/2013	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9/13/2013	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/13/2014	Varies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0.024 Average	3	1	0	0	0	0	1	2	3	5	3	1	2	1	26	4	

Explanation

NA = Not available

Number of Events = 83

Semi-Annual Summary Report - October 2013 through March 2014
76 Service Station No. 5325
Oakland, CA
Antea Group Project No. I40255325



Attachment A

Summary of Previous Environmental Investigations

SUMMARY OF PREVIOUS ENVIRONMENTAL INVESTIGATIONS

May 1990 Three exploratory soil borings were advanced adjacent to the UST complex to depths ranging from 10 to 12.5 feet below ground surface (bgs). Soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethylbenzene, and xylenes (BTEX). The samples contained TPH-G concentrations ranging from 2 to 7,500 parts per million (ppm) and benzene concentrations ranging from 0.14 to 13 ppm.

June 1990 Two 10,000-gallon gasoline USTs, one 550-gallon waste oil UST, and related product dispensers were replaced. Soil samples from the UST excavation sidewalls and bottom and product line trenches were reported to contain TPH-G and benzene at concentrations ranging from 12 to 2,800 ppm and 0.008 to 11 ppm, respectively. Approximately 250 cubic yards of soil and backfill material were aerated onsite to reduce concentrations to below 100 ppm TPH-G, then transported to an appropriate soil disposal facility. Groundwater was encountered at approximately 7.5 feet bgs.

September 1990 Monitoring wells U-1, U-2, and U-3 were installed. TPH-G was detected in soil samples collected from the capillary fringe in well borings U-1 and U-2 at levels of 110 and 480 ppm, respectively. Benzene was detected in the soil sample from well boring U-1 at a level of 4.5 ppm. Petroleum hydrocarbons were not detected in soil or groundwater samples from U-3. Groundwater samples collected from wells U-1 and U-2 were reported to contain 690 and 38 parts per billion (ppb) TPH-G and 780 and 27 ppb benzene, respectively.

June 1990 Monitoring wells U-4, U-5, and U-6 were installed. TPH-G and benzene were detected in the capillary fringe soil sample collected from boring U-5 at levels of 400 ppm and 1.9 ppm, respectively. TPH-G and benzene were not detected in soil samples collected from borings U-4 and U-6. Groundwater levels stabilized at depths between 8.8 and 9.2 feet bgs.

November 1996 One 550-gallon waste oil UST was removed and the product lines and dispensers were replaced. A soil sample collected from the sidewall of the waste oil UST excavation contained 1.5 ppm total petroleum hydrocarbons as diesel (TPH-D) and 78 ppm total oil and grease (TOG). TPH-G, benzene, methyl tertiary butyl ether (MTBE), halogenated volatile organic compounds (HVOCs), and semi-volatile organic compounds (SVOCs) were not detected. Product line trench excavation and over excavation samples were reported to contain petroleum hydrocarbon levels ranging from non-detect to 880 ppm of TPH-G, non-detect to 3.6 ppm of benzene, and non-detect to 23 ppm of MTBE. Approximately 276 tons of excavated soil was transported to an appropriate disposal facility.

June 1997 Two exploratory borings (U-D and U-E) and one UST observation well were installed. U-D was advanced offsite on Lakeshore Avenue. TPH-G, BTEX, and MTBE were detected in one or all of the soil samples collected at the capillary fringe from the soil borings. TPH-G and MTBE were detected at a maximum of 450 ppm and 1.1 ppm, respectively, in U-D.

October 2003 Site environmental consulting responsibilities were transferred to TRC.



April 2006 Three ozone sparge wells (C-1 through C-3) were installed by TRC in the vicinity of U-2 for the purpose of an ozone pilot study. Total purgeable petroleum hydrocarbons (TPPH) were detected at a maximum of 4,600 milligrams per kilograms (mg/kg) in the five feet below grade (fbg) soil sample collected from C-1.

June through August 2006 A 3-month ozone sparge event was completed on sparge points C-1 through C-3 located in the vicinity of Site well U-2 using a mobile ozone sparge treatment system.

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

January 2011 Delta Consultants rebranded to Antea Group.

REMEDIATION

June through August 2006 A 3-month ozone sparge event was completed on sparge points C-1 through C-3 located in the vicinity of Site well U-2 using a mobile ozone sparge treatment system.

July 2012 Surfactant infiltration was conducted using wells U-1 and U-2. 1.5 gallons of surfactant was added to each well followed by clean water. U-1 took 38 gallons of water and U-2 took 14 gallons of water post surfactant infiltration. A batch extraction event was conducted at the site following the surfactant infiltration. Approximately 2,700 gallons of water were removed from wells U-1 and U-2, tank pit wells TW-1 and TW-2, and sparge points C-1 through C-3.

SENSITIVE RECEPTORS SURVEY

Lake Merritt is located approximately 0.3 miles down gradient. No domestic water wells are located within a one mile distance of the site.

Current Consultant: Antea Group

Semi-Annual Summary Report - October 2013 through March 2014
76 Service Station No. 5325
Oakland, CA
Antea Group Project No. I40255325



Attachment B

Antea Group's Groundwater Sampling Procedures

FIELD METHODS AND PROCEDURES

The following section describes field procedures that are to be used by Antea Group personnel in the performance of the tasks involved with this project.

1.0 HEALTH AND SAFETY PLAN

Fieldwork performed by Antea Group and Antea Group's subcontractors at the site will be conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures and emergency information. A copy of the SHSP will be at the site and available for reference by appropriate parties during work at the site.

2.0 GROUNDWATER DEPTH ASSESSMENT

A water/product interface probe is used to assess the liquid-phase hydrocarbons (LPH) thickness, if present, and a water level indicator is used to measure the groundwater depth in monitoring wells that do not contain LPH. Depth to groundwater or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for LPH sheen.

3.0 SUBJECTIVE ANALYSIS OF GROUNDWATER

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

4.0 MONITORING WELL SAMPLING

Monitoring wells are purged using a pump or bailer until pH, temperature and conductivity of the purge water has stabilized and a minimum of three well volumes of water has been removed. The purge water is placed in 55-gallon drums and temporarily stored onsite pending evaluation of disposal options. If three well volumes cannot be removed in one-half an hour's time, the well is allowed to recharge to 80 percent of original level. After recharging, a groundwater sample is then removed from each of the wells using a pump or disposable bailer. The water sample is collected, labeled and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of according to the accepted regulatory method pertaining to the site.

5.0 QUALITY ASSURANCE PLAN

This section describes the field and analytical procedures to be followed by Antea Group throughout the investigation.

5.1 General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in the appropriate container, preserved correctly for the intended analysis and stored, prior to analysis, for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of soil samples from this project can be found in previous sections.

5.2 Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis will have a label affixed to identify the job number, sampler, date and time of sample collection and a sample number unique to that sample. During soil sampling, this information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel and any other pertinent field observations will be recorded on the borehole log or in the field records.

Semi-Annual Summary Report - October 2013 through March 2014
76 Service Station No. 5325
Oakland, CA
Antea Group Project No. I40255325



Attachment C

Antea Group's Groundwater Sampling Field Data Sheets

Well-Head Inspection & Well Gauging Form

Antea Group Project No: I40255325

Site Address: 3200 Lakeshore Ave. Oakland, CA 94610

Field Technician: Jon Fillingame, Antea Group
(Print Full Name & Company*)

Date: 3/13/14

Weather: Sunny

Well Condition

Sample Order	Field Point	Bolts	Seal	Lid Secure	Lock	Expanding Cap	Water in Well Box	Well Casing Dia.	Time Gauged	Depth to Water (Feet)	Depth to Bottom (Feet)	Depth to LNAPL (Feet)	LNAPL Thickness (Feet)	Comments
1	U-4	X	X	X	X	X	X	4"	10:10	9.25	19.48	—	—	
2	U-3	X	X	X	X	X	X	3"	10:13	10.59	19.35	—	—	
3	U-6	X	X	X	X	X		2"	10:16	7.93	23.68	—	—	
4	U-5	X	X	X	X	X		4"	10:19	7.52	20.02	—	—	
5	U-2			X	X	X	X	3"	10:21	7.31	19.78	—	—	
6	U-1	X	X	X	X	X	X	3"	10:25	9.11	13.26	—	—	

Notes: 2-Division NE corner of building

** All well caps opened at least 15 minutes or longer before gauging wells:
CIRCLE ONE: YES or NO**



*Form provided by Antea Group

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

Groundwater Sampling Form

Site Address: 3200 Lakeshore Ave. Oakland, CA 94610	
Project No: I40255325	Field Technician: Jon Fillingame
Field Point: U-1	Date: 3/13/14
Depth to Water (DTW) (ft bgs): 9.11	Well Diameter (in): 2 4 6 8 (3)
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 13.26	Water Column Height (ft): 4.15

Purging Info and Calculations:

Purge Method: Low-Flow → 3 casing volumes Other: _____	Purge Equipment: Disposable Bailer - Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: - Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 4.15 X Conversion Factor (gal/ft): 0.37 = Casing Volume (gal): 1.54 Casing Volume (gal): 1.54 X Specified Volumes: 3 = Calculated Purge (gal): 4.6		
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									
	14:49	20.40	6.42	1131	-188.2	38.8	1.11	0.1	
	14:51	18.50	6.31	1260	-189.4	3.18	0.10	1.5	
	14:52	18.62	6.35	1372	-185.6	8.44	0.08	3.1	
	14:53	18.94	6.37	1433	-189.6	13.5	0.56	4.6	
Post-Purge									
Did Well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Total Purge volume (gal): 4.6							

Other Comments:	
------------------------	--

Sample Info:	
Sample ID: U-1-20140331	Sample Date and Time: 3/13/14 15:10
Selected Analysis:	

This form was provided by Antea Group and completed by: (Print Full Name)

Signature: *Jonathan Fillingame* Date: 3/13/14



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:	3200 Lakeshore Ave. Oakland, CA 94610		
Project No:	I40255325	Field Technician:	Jon Fillingame
Field Point:	U-2	Date:	
Depth to Water (DTW) (ft bgs):	7.31	Well Diameter (in):	2 4 6 8 (3)
Depth to LNAPL (ft bgs):		Thickness of LNAPL (ft):	
Total Depth of Well (ft bgs):	19.78	Water Column Height (ft):	12.47

Purging Info and Calculations:

Purge Method: Low-Flow -3 casing volumes Other: _____	Purge Equipment: Disposable Bailer - Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: - Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>12.47</u> X Conversion Factor (gal/ft): <u>0.37</u> = Casing Volume (gal): <u>4.61</u> Casing Volume (gal): <u>4.61</u> X Specified Volumes: <u>3</u> = Calculated Purge (gal): <u>13.8</u>		
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:	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										
	14:22		21.93	6.58	3744	-185.9	125	0.80	0.1	
	14:25		18.74	6.44	3058	-184.2	8.73	0.12	4.6	
									9.2	
									13.8	
Post-Purge										
Did Well dewater? Yes No			Total Purge volume (gal): <u>7.5</u>							

Other Comments: _____

Sample Info:	
Sample ID: <u>U-2-20140331</u>	Sample Date and Time: <u>3/13/14 14:40</u>
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) _____

Signature: Jonathan Fillingame Date: 3/13/14

Groundwater Sampling Form

Site Address:	3200 Lakeshore Ave. Oakland, CA 94610		
Project No:	I40255325	Field Technician:	Jon Fillingame
Field Point:	U-3	Date:	3/13/14
Depth to Water (DTW) (ft bgs):	10.59	Well Diameter (in):	2 4 6 8 <u>③</u>
Depth to LNAPL (ft bgs):		Thickness of LNAPL (ft):	
Total Depth of Well (ft bgs):	19.35	Water Column Height (ft):	8.76

Purging Info and Calculations:

Purge Method: Low-Flow -3 casing volumes Other: _____	Purge Equipment: Disposable Bailer - Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: - Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>8.76</u>	X Conversion Factor (gal/ft): <u>0.37</u>	= Casing Volume (gal): <u>3.24</u>
Casing Volume (gal): <u>3.24</u>	X Specified Volumes: <u>3</u>	= Calculated Purge (gal): <u>9.7</u>
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									
	13:19	20.96	6.67	1792	-126.6	471	0.99	0.1	
	13:21	17.93	6.31	1529	-127.5	22.7	0.33	3.2	
	13:24	19.00	6.42	1499	-122.3	53.9	2.93	6.5	
								9.7	
Post-Purge									
Did Well dewater?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Total Purge volume (gal): <u>6.5</u>					

Other Comments: _____

Sample Info:	
Sample ID: <u>U-3</u>	Sample Date and Time: <u>3/13/14 13:35</u>
Selected Analysis: _____	

This form was provided by Antea Group and completed by: (Print Full Name) _____

Signature: Jonathan Fillingame Date: 3/13/14



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:	3200 Lakeshore Ave. Oakland, CA 94610		
Project No:	I40255325	Field Technician:	Jon Fillingame
Field Point:	U-4	Date:	3/13/14
Depth to Water (DTW) (ft bgs):	9.25	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):	10.23

Purging Info and Calculations:

Purge Method: Low-Flow -3 casing volumes Other: _____	Purge Equipment: Disposable Bailer - Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: - Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>10.23</u> X Conversion Factor (gal/ft): 1.17 <u>0.66</u> = Casing Volume (gal): <u>6.75</u> Casing Volume (gal): <u>6.75</u> X Specified Volumes: <u>3</u> = Calculated Purge (gal): <u>20.3</u>		
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								
12:02	20.30	6.85	1167	-113.9	3.50	2.91	0.1	
12:05	19.56	6.72	1167	-118.9	0.66	2.56	6.8	
12:09	19.81	6.63	1172	-117.6	0.33	4.17	13.5	
							20.3	
Post-Purge								
Did Well dewater? <input checked="" type="radio"/> Yes <input type="radio"/> No		Total Purge volume (gal): <u>16.5</u>						

Other Comments:	
------------------------	--

Sample Info:	
Sample ID: <u>U-4-20140331</u>	Sample Date and Time: <u>3/13/14 12:20</u>
Selected Analysis:	

This form was provided by Antea Group and completed by: (Print Full Name) _____

Signature: Jonathan Fillingame Date: 3/13/14



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:	3200 Lakeshore Ave. Oakland, CA 94610		
Project No:	I40255325	Field Technician:	Jon Fillingame
Field Point:	U-5	Date:	3/13/14
Depth to Water (DTW) (ft bgs):	7.52	Well Diameter (in):	2 ④ 6 8
Depth to LNAPL (ft bgs):		Thickness of LNAPL (ft):	
Total Depth of Well (ft bgs):	20.02	Water Column Height (ft):	12.50

Purging Info and Calculations:

Purge Method: Low-Flow -3 casing volumes Other: _____	Purge Equipment: Disposable Bailer -Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: -Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): <u>12.50</u>	X Conversion Factor (gal/ft): <u>0.66</u>	= Casing Volume (gal): <u>8.25</u>
Casing Volume (gal): <u>8.25</u>	X Specified Volumes: <u>3</u>	= Calculated Purge (gal): <u>24.8</u>
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								
13:46	19.24	6.36	4114	-159.4	69.7	0.30	0.1	
13:50	18.32	6.30	4082	-168.7	7.67	0.12	8.25	
13:55	18.91	6.25	4094	-189.4	7.13	0.07	16.5	
							24.8	
Post-Purge								

Did Well dewater? Yes No Total Purge volume (gal): 20.5

Other Comments: _____

Sample Info:

Sample ID:	U-5-20140331	Sample Date and Time:	3/13/14 14:10
Selected Analysis:			

This form was provided by Antea Group and completed by: (Print Full Name) _____

Signature: Jonathan Fillingame Date: 3/13/14

Groundwater Sampling Form

Site Address: 3200 Lakeshore Ave. Oakland, CA 94610	
Project No: I40255325	Field Technician: Jon Fillingame
Field Point: U-6	Date: 3/13/14
Depth to Water (DTW) (ft bgs): 7.93	Well Diameter (in): ② 4 6 8
Depth to LNAPL (ft bgs):	Thickness of LNAPL (ft):
Total Depth of Well (ft bgs): 23.68	Water Column Height (ft): 15.75

Purging Info and Calculations:

Purge Method: Low-Flow - 3 casing volumes Other: _____	Purge Equipment: Disposable Bailer - Electric Submersible Peristaltic Pump Bladder Pump Other: _____	Sample Collection Method: - Disposable Bailer Extraction Port Dedicated Tubing Disposable Tubing Other: _____
Water Column Height (ft): 15.75 X Conversion Factor (gal/ft): 0.17 = Casing Volume (gal): 2.68 Casing Volume (gal): 2.68 X Specified Volumes: 3 = Calculated Purge (gal): 8.0		
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:
	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		
10:03	18.44	5.86
11:05	17.38	6.06
11:07	17.78	6.16
11:09	18.14	6.16
Post-Purge		
Did Well dewater? Yes <input type="radio"/> No <input checked="" type="radio"/>		Total Purge volume (gal): 8.0

Other Comments: _____

Sample Info:

Sample ID: U-6-20140331	Sample Date and Time: 3/13/14 11:20
Selected Analysis:	

This form was provided by Antea Group and completed by: (Print Full Name) _____

Signature: *Jonathan F. Fillingame* Date: 3/13/14



COP ELT CHAIN-OF-CUSTODY / Analytical Request Document

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

1Q14 GW Event

Required Lab Information:		Required Project Information:				Required Invoice Information:											
Lab Name:	Kiff Analytical	Site ID #:	255325	Task:	WG_Q_201403	Send Invoice to:	Sandy Hayes					Turn around time (days):	10				
Address:	2795 Second Street #300	AnteaGrp proj#:		Address:	11050 White Rock Road, Suite 110			City/State:	Rancho Cordova CA 95670		Phone #:	916-638-2085					
Davis, CA 95618		Site Address:	3200 LAKESHORE AVE		Reimbursement project?:		Non-reimbursement project?:	Y		QC level Required:	Standard	Special:		Mark one			
Lab PM:	Scott Forbes	City:	OAKLAND	State:	CA 94610	Send EDD to:	agdataview.us@anteagroup.com					NJ Reduced Deliverable Package?					
Phone/Fax:	P: 530-297-4800 F: 530-297-4808	AG PM Name:	Dennis Dettloff			CC Hardcopy report to:							MA MCP Cert?:		CT RCP Cert?:		Mark One
Lab PM email:	SForbes@kiffanalytical.com	Phone/Fax:	P: 916-503-1261 F: 408-225-8506			Lab Project ID (lab use):											
Applicable Lab Quote #:		AG PM Email:	dennis.dettloff@anteagroup.com														

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) 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										Requested Analyses	Comments/Lab Sample I.D.			
		MATRIX																						
		DRINKING WATER	WP							WATER	W	UNPRESERVED	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other					
1	U-1_20140331		WG	G	3/13/2014	10:10	3	N				X						X	X					
2	U-2_20140331		WG	G	↓	14:40	3	N				X						X	X					7 Oxy's = DIPE, TBA, TAME, ETBE, 1,2-DCA, EDB, and Ethanol
3	U-3_20140331		WG	G		13:35	3	N				X						X	X					
4	U-4_20140331		WG	G		12:20	3	N				X						X	X					
5	U-5_20140331		WG	G		14:10	3	N				X						X	X					
6	U-6_20140331		WG	G		11:20	3	N				X						X	X					
7																								**This site has surfactants**
8																								
9																								
10																								
11																								
12																								

Global ID: T0600101463	RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME	Sample Receipt Conditions			
	Jonathan F. Fillingame		3/13/14	5:45								
									Y/N	Y/N	Y/N	
	SHIPPING METHOD: (mark as appropriate)		SAMPLER NAME AND SIGNATURE		Jonathan Fillingame Jonathan Fillingame				031314 1745			
	UPS COURIER FEDEX	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:									
US MAIL				3/13/14	5:40							
			Temp in °C	Samples on Ice?	Sample intact?	Trip Blank?						

Semi-Annual Summary Report - October 2013 through March 2014
76 Service Station No. 5325
Oakland, CA
Antea Group Project No. I40255325



Attachment D

Certified Laboratory Analytical Report and Data Validation Form

Laboratory Results

Dennis Dettloff
Antea Group
11050 White Rock Rd. Suite 110
Rancho Cordova, CA 95670

Subject : 6 Water Samples
Project Name : 255325
Project Number :

Dear Mr. Dettloff,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed. Testing procedures comply with the 2003 NELAC and TNI 2009 standards. Laboratory results relate only to the samples tested. This report may be freely reproduced in full, but may only be reproduced in part with the express permission of Kiff Analytical, LLC. Kiff Analytical, LLC is certified by the State of California under the Environmental Laboratory Accreditation Program (ELAP), lab # 08263CA. If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Troy Turpen



Attention : Dennis Dettloff
 Antea Group
 11050 White Rock Rd. Suite 110
 Rancho Cordova, CA 95670

Project Name : 255325
 Project Number :

Report Number : 87698
 Date : 03/19/14

Analysis Summary

Analyte	Method	Units	U-1_20140331		U-2_20140331		U-3_20140331		U-4_20140331		U-5_20140331		U-6_20140331	
			MRL	Results	MRL	Results	MRL	Results	MRL	Results	MRL	Results	MRL	Results
Benzene	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Ethylbenzene	EPA 8260B	ug/L	0.50	0.62	0.90	0.90	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Toluene	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Total Xylenes	EPA 8260B	ug/L	0.50	3.7	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Diisopropyl ether (DIPE)	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Ethanol	EPA 8260B	ug/L	5.0	ND	9.0	ND	5.0	ND	5.0	ND	5.0	ND	5.0	ND
Ethyl-t-butyl ether (ETBE)	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
Methyl-t-butyl ether (MTBE)	EPA 8260B	ug/L	0.50	2.3	0.90	49	0.50	ND	0.50	ND	0.50	4.1	0.50	1.9
Tert-Butanol	EPA 8260B	ug/L	5.0	870	7.0	3600	5.0	ND	5.0	ND	5.0	100	5.0	66
Tert-amyl methyl ether (TAME)	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
TPH as Gasoline	EPA 8260B	ug/L	50	380	90	350	50	ND	50	ND	50	50	50	ND
1,2-Dibromoethane	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
1,2-Dichloroethane	EPA 8260B	ug/L	0.50	ND	0.90	ND	0.50	ND	0.50	ND	0.50	ND	0.50	ND
1,2-Dichloroethane-d4 (Surr)	EPA 8260B	%		98.6		94.9		95.7		97.4		99.3		95.3
Toluene - d8 (Surr)	EPA 8260B	%		98.4		97.6		98.3		98.0		98.5		98.0

MRL = Method Reporting Limit
 ND = Not Detected

Project Name : **255325**

Project Number :

Sample : **U-1_20140331**

Matrix : Water

Lab Number : 87698-01

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
Ethylbenzene	0.62	0.50	ug/L	EPA 8260B	03/17/14 12:41
Total Xylenes	3.7	0.50	ug/L	EPA 8260B	03/17/14 12:41
Methyl-t-butyl ether (MTBE)	2.3	0.50	ug/L	EPA 8260B	03/17/14 12:41
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
Tert-Butanol	870	5.0	ug/L	EPA 8260B	03/17/14 12:41
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 12:41
TPH as Gasoline	380	50	ug/L	EPA 8260B	03/17/14 12:41
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 12:41
1,2-Dichloroethane-d4 (Surr)	98.6		% Recovery	EPA 8260B	03/17/14 12:41
Toluene - d8 (Surr)	98.4		% Recovery	EPA 8260B	03/17/14 12:41

Project Name : **255325**

Project Number :

Sample : **U-2_20140331**

Matrix : Water

Lab Number : 87698-02

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Toluene	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Ethylbenzene	0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Total Xylenes	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Methyl-t-butyl ether (MTBE)	49	0.90	ug/L	EPA 8260B	03/17/14 18:33
Diisopropyl ether (DIPE)	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Ethyl-t-butyl ether (ETBE)	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Tert-amyl methyl ether (TAME)	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
Tert-Butanol	3600	7.0	ug/L	EPA 8260B	03/18/14 19:54
Ethanol	< 9.0	9.0	ug/L	EPA 8260B	03/17/14 18:33
TPH as Gasoline	350	90	ug/L	EPA 8260B	03/17/14 18:33
1,2-Dichloroethane	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
1,2-Dibromoethane	< 0.90	0.90	ug/L	EPA 8260B	03/17/14 18:33
1,2-Dichloroethane-d4 (Surr)	94.9		% Recovery	EPA 8260B	03/17/14 18:33
Toluene - d8 (Surr)	97.6		% Recovery	EPA 8260B	03/17/14 18:33

Project Name : **255325**

Project Number :

Sample : **U-3_20140331**

Matrix : Water

Lab Number : 87698-03

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 15:41
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 15:41
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/17/14 15:41
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 15:41
1,2-Dichloroethane-d4 (Surr)	95.7		% Recovery	EPA 8260B	03/17/14 15:41
Toluene - d8 (Surr)	98.3		% Recovery	EPA 8260B	03/17/14 15:41

Project Name : **255325**

Project Number :

Sample : **U-4_20140331**

Matrix : Water

Lab Number : 87698-04

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 19:08
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 19:08
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/17/14 19:08
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:08
1,2-Dichloroethane-d4 (Surr)	97.4		% Recovery	EPA 8260B	03/17/14 19:08
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	03/17/14 19:08

Project Name : **255325**

Project Number :

Sample : **U-5_20140331**

Matrix : Water

Lab Number : 87698-05

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Methyl-t-butyl ether (MTBE)	4.1	0.50	ug/L	EPA 8260B	03/17/14 19:43
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
Tert-Butanol	100	5.0	ug/L	EPA 8260B	03/17/14 19:43
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 19:43
TPH as Gasoline	50	50	ug/L	EPA 8260B	03/17/14 19:43
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 19:43
1,2-Dichloroethane-d4 (Surr)	99.3		% Recovery	EPA 8260B	03/17/14 19:43
Toluene - d8 (Surr)	98.5		% Recovery	EPA 8260B	03/17/14 19:43

Project Name : **255325**

Project Number :

Sample : **U-6_20140331**

Matrix : Water

Lab Number : 87698-06

Sample Date :03/13/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date/Time Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Methyl-t-butyl ether (MTBE)	1.9	0.50	ug/L	EPA 8260B	03/17/14 20:18
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
Tert-Butanol	66	5.0	ug/L	EPA 8260B	03/17/14 20:18
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14 20:18
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/17/14 20:18
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14 20:18
1,2-Dichloroethane-d4 (Surr)	95.3		% Recovery	EPA 8260B	03/17/14 20:18
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	03/17/14 20:18

QC Report : Method Blank Data

Project Name : **255325**

Project Number :

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Toluene	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Ethanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/17/14
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	03/17/14
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	03/17/14
1,2-Dichloroethane-d4 (Surr)	96.3		%	EPA 8260B	03/17/14
Toluene - d8 (Surr)	98.4		%	EPA 8260B	03/17/14
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	03/18/14

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
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QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 255325

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
1,2-Dibromoethane	87698-01	<0.50	40.2	40.2	38.1	38.6	ug/L	EPA 8260B	3/17/14	94.7	95.9	1.27	70.0-130	25
1,2-Dichloroethane	87698-01	<0.50	39.9	39.9	38.4	38.7	ug/L	EPA 8260B	3/17/14	96.2	96.9	0.786	70.0-130	25
Benzene	87698-01	<0.50	39.9	39.9	40.1	40.7	ug/L	EPA 8260B	3/17/14	100	102	1.53	70.0-130	25
Diisopropyl ether	87698-01	<0.50	39.9	39.9	40.6	40.5	ug/L	EPA 8260B	3/17/14	102	101	0.116	70.0-130	25
Ethanol	87698-01	<5.0	99.8	99.8	125	118	ug/L	EPA 8260B	3/17/14	126	118	6.02	55.0-150	25
Ethyl-tert-butyl ether	87698-01	<0.50	39.9	39.9	38.3	38.7	ug/L	EPA 8260B	3/17/14	96.0	97.0	1.03	70.0-130	25
Ethylbenzene	87698-01	0.62	39.9	39.9	43.0	43.8	ug/L	EPA 8260B	3/17/14	106	108	2.00	70.0-130	25
Methyl-t-butyl ether	87698-01	2.3	39.8	39.8	36.4	37.0	ug/L	EPA 8260B	3/17/14	85.7	87.0	1.60	70.0-130	25
P + M Xylene	87698-01	2.6	39.9	39.9	44.5	45.3	ug/L	EPA 8260B	3/17/14	105	107	1.94	70.0-130	25
Tert-Butanol	87698-01	870	200	200	1020	1030	ug/L	EPA 8260B	3/17/14	75.2	84.4	11.4	70.0-130	25

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **255325**

Project Number :

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Tert-amyl-methyl ether														
	87698-01	<0.50	39.9	39.9	38.6	39.1	ug/L	EPA 8260B	3/17/14	96.7	97.8	1.15	70.0-130	25
Toluene														
	87698-01	<0.50	39.9	39.9	41.1	42.0	ug/L	EPA 8260B	3/17/14	103	105	2.02	70.0-130	25
Tert-Butanol														
	87657-02	<5.0	200	200	198	200	ug/L	EPA 8260B	3/18/14	99.4	100	0.825	70.0-130	25

QC Report : Laboratory Control Sample (LCS)Project Name : **255325**

Project Number :

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
1,2-Dibromoethane	40.3	ug/L	EPA 8260B	3/17/14	93.5	70.0-130
1,2-Dichloroethane	40.0	ug/L	EPA 8260B	3/17/14	95.4	70.0-130
Benzene	40.0	ug/L	EPA 8260B	3/17/14	99.2	70.0-130
Diisopropyl ether	40.0	ug/L	EPA 8260B	3/17/14	101	70.0-130
Ethanol	100	ug/L	EPA 8260B	3/17/14	104	55.0-150
Ethyl-tert-butyl ether	40.0	ug/L	EPA 8260B	3/17/14	96.6	70.0-130
Ethylbenzene	40.0	ug/L	EPA 8260B	3/17/14	105	70.0-130
Methyl-t-butyl ether	39.9	ug/L	EPA 8260B	3/17/14	87.6	70.0-130
P + M Xylene	40.0	ug/L	EPA 8260B	3/17/14	104	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	3/17/14	102	70.0-130
Tert-amyl-methyl ether	40.0	ug/L	EPA 8260B	3/17/14	96.4	70.0-130
Toluene	40.0	ug/L	EPA 8260B	3/17/14	102	70.0-130
Tert-Butanol	200	ug/L	EPA 8260B	3/18/14	95.7	70.0-130

Is the Data Valid?
(circle)
 Yes / No

Preservation Temperature
(if Known): 0.6 °C

Antea Group Lab Validation Sheet

Project/Client: COP/ELT
Project #: 140255325
Date of Validation: 4/22/14 Date of Analysis: 3/17/14 Sample Date: 3/13/14
Completed By: Jon F. Signature: *Jonathan Fullum*
Analytical Lab Used and Report # (if any): Kiff Analytical 87698

1. Was the analysis the one requested? 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? Yes / No
3. Were samples prepared (extracted, filtered, etc.) within EPA holding times? Yes / No
4. Once prepared/extracted, were the samples analyzed within the EPA holding times? Yes / No
5. Were Laboratory blanks performed, if so, were they below non-detect? 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/m³, etc.) Yes / No
7. Were appropriate Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples included in the laboratory batch sample? 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 N/a
9. Were MS/ MSD (or SS/SSD) within the acceptable range of % recovery (i.e., approx 80-120% depending on analyte)? Yes / No
10. Were MS/MSD (or SS/SSD) values used to calculate Relative Percent Difference (RPD)? Yes / No
11. Were Relative Percent Difference values within the acceptable range (i.e. ± 25%)? Yes / No

Circle or Highlight Yes/No below

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

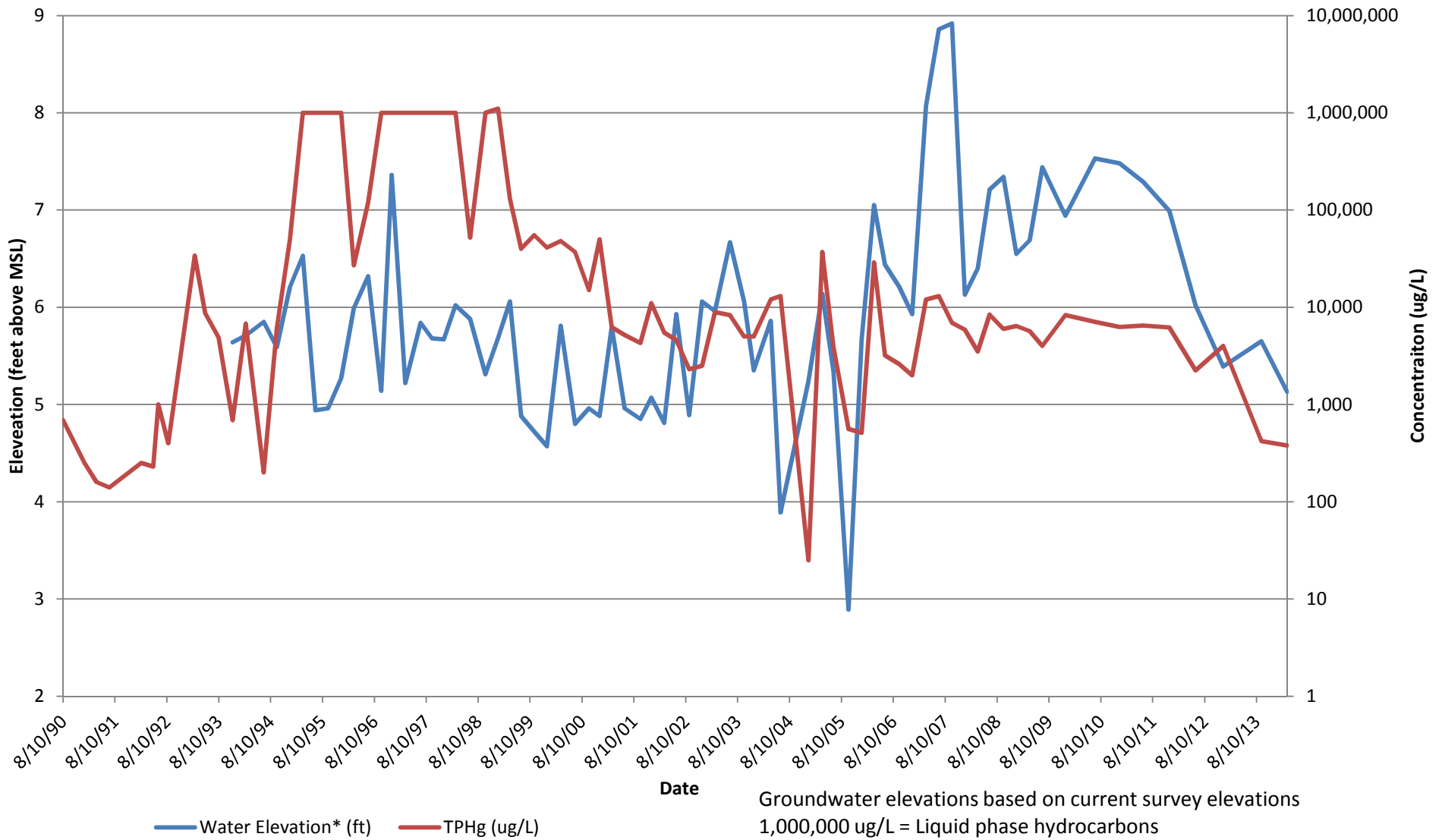
Semi-Annual Summary Report - October 2013 through March 2014
76 Service Station No. 5325
Oakland, CA
Antea Group Project No. I40255325



Attachment E

TPHg Concentration and Groundwater Elevation Graphs

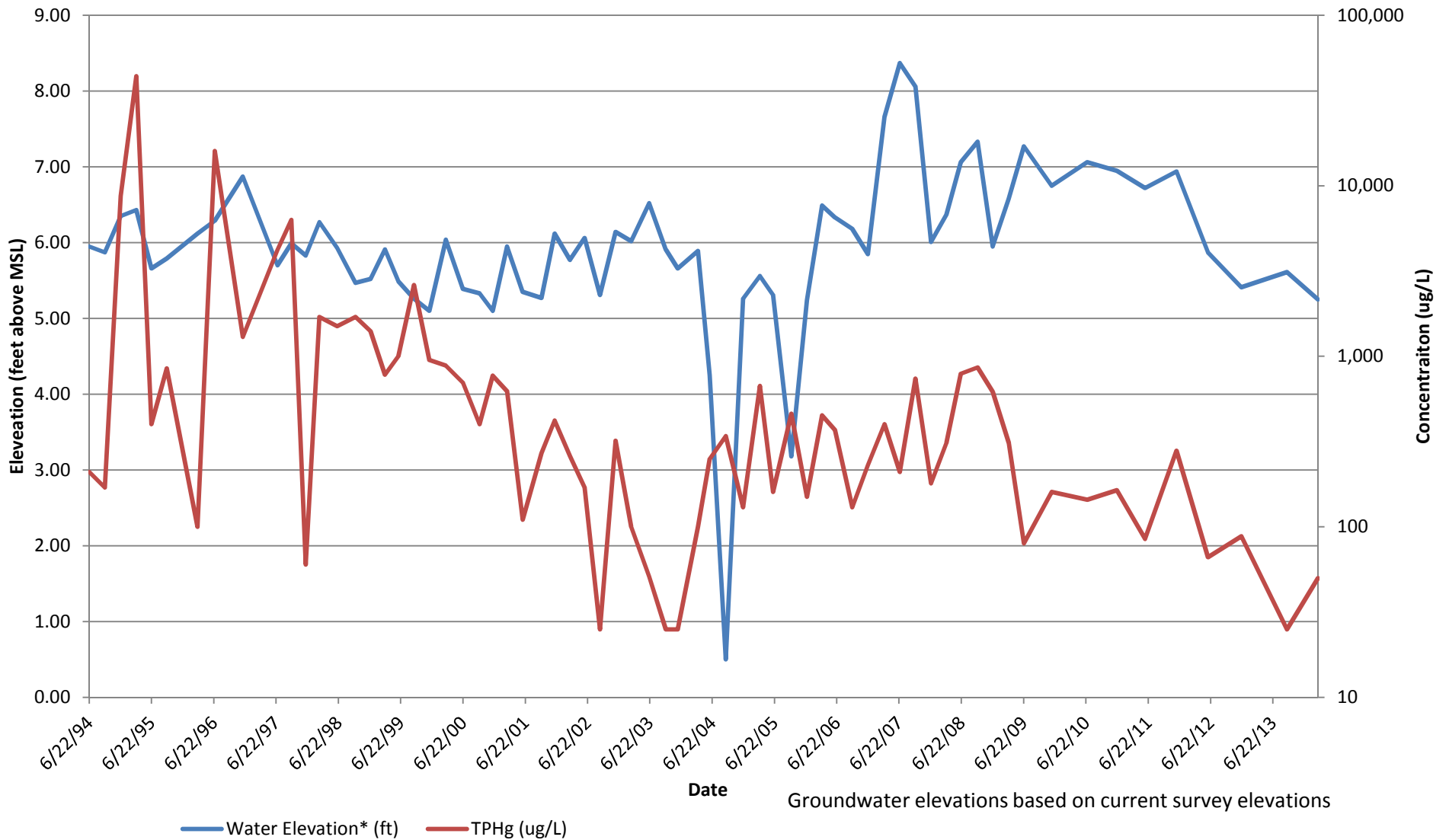
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OAKLAND, CALIFORNIA



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