February 15, 2013

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SEMI-ANNUAL GROUNDWATER MONITORING REPORT
Fourth Quarter, 2012

Property Identification:
3442 Adeline Street
Oakland, California

AEI Project No. 281939
ACEH Site: RO 02936

Prepared for:
Ms. Steffi Zimmerman
3289 Lomas Verdes Place
Lafayette, CA 94545

Prepared by:
AEI Consultants
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Walnut Creek, CA 94597
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Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: Perjury Statement

To Whom It May Concern:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached reports for the site at 3442 Adeline Street, Oakland, CA is true and correct to the best of my knowledge.

Signed: Steffi Zimmerman Dated 2/20/13

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1.0 INTRODUCTION

AEI Consultants (AEI) has prepared this report on behalf of Ms. Steffi Zimmerman, the owner of the property located at 3442 Adeline Street in the City of Oakland, Alameda County, California. AEI has been retained by Ms. Zimmerman to provide environmental engineering and consulting services relating to the release of gasoline from a former underground storage tank (UST) on the property.

Previous site investigations have identified a release of gasoline from the former UST. This report summarizes the results of the Fourth Quarter 2012 Semi-Annual Groundwater Monitoring event.

2.0 SITE DESCRIPTION AND BACKGROUND

The subject site (hereinafter referred to as the "site" or "property") is located on the northeast corner of 35th Street and Chestnut Street in a mixed commercial, industrial and residential area of Oakland. The Main entrance to the property is on 3442 Adeline Street. A second entrance is located at 3433 Chestnut Street. The on-site building covers approximately 65% of the property and is currently being used as a warehouse facility. Refer to Figure 2 for an aerial photo of the property and Figure 3, Site Map.

2.1 Tank Closure

A single-wall 3,750 gallon UST was removed from the site on February 22, 2000. Soil and groundwater samples were collected from the tank excavation pit and analyzed for total petroleum hydrocarbons as gasoline (TPH-g), as diesel (TPH-d), and BTEX (benzene, toluene, ethyl benzene, and total xylenes). Analyses of the soil sidewall samples reported TPH-g, TPH-d and benzene at concentrations up to 920 milligrams per kilogram (mg/kg), 850 mg/kg, and 0.3 mg/kg, respectively. TPH-g, TPH-d, and benzene were reported in the excavation groundwater sample at concentrations of 7,400 micrograms per liter (µg/L), 34,000 µg/L, and 3,300 µg/L, respectively.

Following receipt of the tank removal report, the City of Oakland Fire Department requested (May 15, 2006) requested additional soil and groundwater samples to further characterize the site. The location of the former UST and sample locations are presented in Figure 3.

2.2 Site Investigations

2006 Clearwater Investigation

On June 23, 2006 Clearwater Group (Clearwater) advanced four (4) soil borings (S1 - S4) on the subject site. The location of soil borings are shown in Figure 3.

Analysis of the soil samples reported TPH-g, TPH-d and benzene at concentrations up to 1,200 mg/kg, 250 mg/kg, and 1.3 mg/kg, respectively. Analysis of groundwater samples reported TPH-g, and BTEX at concentrations up to 120,000 µg/L, 7,000 µg/L, 260 µg/L, 3,500 µg/L, and 3,300 µg/L, respectively. TPH-d was reported as non-detectable at reporting limits ranging from 1,500 µg/L to 40,000 µg/L.

2007 – 2008 AEI Investigation

In October and December of 2007 and May of 2008, AEI advanced thirty-one soil borings (SB-1 through SB-31) to depths up to 16 feet bgs and three (3) soil vapor samples (VB-1 through VB-3). Soil boring and vapor sample locations are shown on Figure 3.

The maximum concentrations of TPH-g, TPH-d, and benzene reported in soil analyses were 1,200 mg/kg, 450 mg/kg, and 6.9 mg/kg, respectively. MTBE was reported in only one sample, SB-11-15.5, at a concentration of 0.14 mg/kg. The maximum concentrations of TPH-g, TPH-d and benzene reported in groundwater were 83,000 µg/L, 12,000 µg/L, and 10,000 µg/L, respectively.

The results of these and previous soil, soil vapor, and groundwater analyses can be found in *Site Investigation Report*, dated February 14, 2008 and *Groundwater Monitoring Well Installation Report*, dated July 31, 2009.

2009 Interim Source Removal

During March and April of 2009, AEI excavated impacted soil from down gradient of the former UST and inside the building. The excavation measured 35 feet by 75 feet by approximately 12 feet deep. The base of the excavation was backfilled with a layer of permeable rock to allow normal groundwater movement. Five (5) 4-inch diameter casings were installed in the permeable bridge to allow dewatering of the excavation. These casings, BF-1 through BF-5, were left in place. The excavation and backfill activities are summarized in the *Interim Source Removal Report*, dated August 31, 2009.

2009 Well Installation

On April 1 - 2, 2009 and May 12 - 13, 2009, AEI advanced eight soil borings (MW-1 through MW-7 and IW-1) at the property and converted seven (7) of the borings (MW-1 through MW-7) into groundwater monitoring wells and one boring (IW-1) into an injection/sparge well. The

monitoring wells were installed at a depth of 17 feet bgs; the sparge well was installed at a depth of 15 feet bgs. The locations of the wells are shown on Figure 3. The details of the well installation are summarized in the *Groundwater Monitoring Well Installation Report*, dated July 31, 2009.

TPH-g was reported in soil samples collected from the monitoring wells at concentrations ranging from ND<1.0 mg/kg to 1,100 mg/kg (MW-4-1). TPH-d was reported at concentrations ranging from ND<1.0 mg/kg to 99 mg/kg (MW-4-12). Inspection of 8015 chromatographs indicates that the hydrocarbon present in the soil is weathered gasoline and that the diesel range hydrocarbon concentrations reported represent the heavy portion of gasoline component compounds.

TPH-g and TPH-d were reported in initial monitoring well groundwater samples at maximum concentrations of 14,000 µg/L (MW-5) and 3,700 µg/L (MW-7), respectively. Inspection of 8015 chromatographs indicated that the hydrocarbons present are gasoline. The diesel range hydrocarbon concentrations reported represent the heavy portion of gasoline component compounds.

BTEX was reported at maximum concentrations of 3,000 µg/L (MW-5), 37 µg/L (MW-7), 340 µg/L (MW-5), and 920 µg/L (MW-3), respectively. MTBE was reported as non-detectable at a laboratory reporting limit of 5.0 µg/L in MW-1 and as non-detectable at elevated reporting limits in the other monitoring wells.

On March 27, 2009, TPH-g and MBTEX were reported in backfill well casing BF-1 at concentrations of 19,000 µg/L, ND<250 µg/L, 890 µg/L, 27 µg/L, 460 µg/L, and 1200 µg/L, respectively.

AEI prepared and submitted a work Plan for Remedial Investigation and Feasibility study on April 30, 2010. The work plan proposed installing three (3) additional monitoring wells, one (1) additional air sparging test well, and three (3) permanent soil gas probes. An air sparging/soil vapor extraction/soil venting pilot test was proposed to evaluate a variety of remedial approaches.

3.0 ENVIRONMENTAL CONCERNS

3.1 Soil

Gasoline contamination has been identified in the shallow soil at significant concentrations (>83 mg/kg) between the depths 7.5 feet and 12 feet bgs except in the area of well MW-6. Maximum concentrations of TPH-g, and benzene reported in the tank removal samples were 920 mg/kg and 0.3 mg/kg, respectively. Maximum concentrations of TPH-g and benzene reported in soil boring samples were 1,200 mg/kg and 6.9 mg/kg, respectively in boring S3. The distribution of

hydrocarbons in the soil is variable and appears related to variations in lithology and permeability.

3.2 Groundwater

The primary contaminant reported in soil and groundwater analyses is gasoline range hydrocarbons with related BTEX. Diesel range hydrocarbons are reported in the groundwater but examinations of chart patterns show the diesel range hydrocarbons to be weathered gasoline. Despite the weather nature of the gasoline, benzene concentrations remain high.

As discussed in the *Well Installation Report*, examination of 8015 chromatograph charts for groundwater samples from soil borings SB-16, SB-18 and SB-19 show the presence of a hydrocarbon centered in the overlap area of the diesel and motor oil ranges. These borings are located on the up gradient edge of the plume on Chestnut Street and are up gradient of the former UST location. These heavier than gasoline range hydrocarbons suggest a separate release has occurred up gradient of the site, possibly of heavy heating oil composition.

Maximum concentrations of TPH-g and BTEX reported in groundwater samples from soil borings were 120,000 µg/L (S-4), 10,000 µg/L (SB-11) 930 µg/L (SB-11), 3,500 µg/L (S-4), and 7,900 µg/L (SB-11), respectively. Contaminant concentrations reported in groundwater samples from monitoring wells were significantly lower than earlier concentrations reported from soil borings. The higher concentrations in soil borings water samples are believed to have resulted from hydrocarbons adsorbed to sediment in the muddy grab water samples. Maximum TPH-g and BTEX reported in monitoring wells were in samples from MW-2 on August 27, 2009 at concentrations of 26,000 µg/L, 3,600 µg/L, 70 µg/L, 1,500 µg/L, and 3,000 µg/L, respectively. No MTBE has been reported in monitoring well groundwater samples.

The calculated direction of groundwater flow is to the west, however the orientation of the hydrocarbon plume and hydrocarbon distribution in the groundwater indicates that the actual groundwater flow is somewhat sinuous and appears to follow permeability channels (sands and gravels).

Historically depth to groundwater has ranged from 3.25 feet bgs (MW-5, 27.14 ft amsl 5/5/2011) to 11.84 feet bgs (MW-6, 17.50 ft amsl 8/27/2009).

4.0 GEOLOGY AND HYDROLOGY

The site lies on the distal end of the Temescal Creek Alluvial Fan at approximately 45 feet above mean seal level (amsl). The Temescal Alluvial Fan is a low relief broad fan sloping westerly and southwesterly from the mouth of the Temescal Creek. The Holocene age alluvial fan deposits are mapped as Qhaf (Helley 1997). The sediments are described as typically, brown to tan gravelly sand or sandy gravel, which generally grades upward into sandy or silty clay.

At the subject site the sediments in the upper four (4) to five (5) feet underlying the site are black silty clay – clayey silt containing variable amounts of scattered gravel. These sediments are considered to be bay margin sediments.

The shallow fine grained surface layer is underlain by alluvial deposits of intercalated, lenticular bodies of silt, clay, sand, and gravel. The sediments are typically highly variable mixtures of the four primary lithologies. Permeability (transmissivity) of the coarse grained sediments is typically low due to the presence of interstitial clay; however scattered clean sands and gravels are present with good permeability. These permeable bodies appear to act as preferential channels for groundwater flow across the site and are the likely cause of the slightly sinuous, asymmetric appearance of the hydrocarbon plume in the soil and groundwater.

5.0 SUMMARY OF GROUNDWATER SAMPLING ACTIVITIES

The 4th quarter 2012 Semi Annual Groundwater Monitoring event was performed on December 20, 2012. The well caps were removed from each well (MW-1, MW-2, MW-4 through MW-6, and IW-1; Wells MW-3 and MW-7 were inaccessible) and the wells were allowed to equilibrate with the atmosphere for a minimum of 30 minutes.

Depth to water was measured to the nearest one hundredth of a foot with an electronic depth to water meter. The depth to water measurements from this and previous quarterly monitoring events are summarized on Table 3.

The monitoring wells were purged with a peristaltic pump with the sampling tubing at a depth opposite of the permeable sand/gravel in each well. Groundwater parameters of temperature, pH, specific conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured during purging. A visual evaluation of turbidity was made and noted. Groundwater measurements recorded in the field are reported on the field sampling forms included in Appendix A.

Groundwater samples were collected from backfill casings BF-1 and BF-5 using a peristaltic pump after purging approximately 5.0 liters of water.

When groundwater parameters of the purged water stabilized, water samples were collected using the peristaltic pump. Samples for TPH-g and MBTEX were collected in hydrochloric acid (HCl) preserved 40-milliliter (ml) volatile organic analysis vials (VOAs). All samples were labeled with at minimum, project number, sample number, time, date, and sampler's name.

The samples were entered on a chain-of-custody form and placed on ice in a cooler pending same day transportation under chain of custody protocols to McCampbell Analytical, Inc. of Pittsburg, California (Department of Health Services Certification # 1644).

Groundwater samples from the wells were analyzed for TPH-g, MTBE, benzene, toluene, ethyl-benzene, and total xylenes (MBTEX), by SW8021B/8015Bm.

5.1 Field Results

Fourth Quarter 2012 water table elevations in the accessible monitoring wells ranged from 25.77 (MW-1) to 24.11 (MW-6) feet above mean sea level (amsl). These elevations are an average of -0.51 feet lower than at the time of the previous monitoring event on April, 24, 2012. The groundwater hydraulic gradient was 0.01 ft/ft to the west. A westerly groundwater flow direction is consistent with previous monitoring events.

Current and historical groundwater elevation data are summarized in Table 2. The groundwater elevation contours and the groundwater flow direction are presented in Figure 4. Groundwater Monitoring Well Field Sampling Forms are presented Appendix A.

6.0 ANALYTICAL RESULTS

6.1 Backfill Casings (BF-1 and BF-5)

On December 20, 2012, TPH-g, BTEX and MTBE concentrations in backfill casings BF-1 and BF-5 were reported as non-detectable at standard laboratory reporting limits.

6.2 Monitoring Wells

Changes in TPH-g and benzene concentrations are summarized below. Toluene, ethylbenzene and total xylenes concentrations are not detailed below but typically vary in a similar fashion to benzene concentrations.

The TPH-g, BTEX and MTBE concentrations in monitoring well MW-1 continues to be reported as nondeductible at laboratory minimum reporting limits.

The TPH-g concentrations in monitoring well MW-2 decreased significantly from 9,600 µg/L on April 25, 2012 to 2,900 µg/L on December 20, 2012. Benzene concentrations in MW-2 also decreased significantly from 440 µg/L on April 25, 2012 to 63 µg/L on December 20, 2012.

The TPH-g concentrations in monitoring well MW-4 decreased significantly from 330 µg/L on April 25, 2012 to 150 µg/L on December 20, 2012. Benzene concentrations in MW-4 decreased from 23 µg/L on April 25, 2012 to 5.8 µg/L on December 20, 2012.

The TPH-g concentrations in monitoring well MW-5 decreased from 67 µg/L on April 25, 2012 to ND<50 µg/L on December 20, 2012. Benzene concentrations in MW-5 decreased from 3.4 µg/L April 25, 2012 to ND<0.5 µg/L on December 20, 2012.

The TPH-g concentration in monitoring well MW-6 decreased from 7,400 µg/L on April 25, 2012 to 5,500 µg/L on December 20, 2012. Benzene concentrations in MW-6 decreased from 99 µg/L on April 25, 2012 to 80 µg/L on December 20.

The TPH-g concentration in monitoring well IW-1 remained below minimum laboratory reporting limits of 50 µg/L on December 20, 2012. Benzene concentrations in MW-6 decreased from 0.91 µg/L on April 25, 2012 to ND<0.5 µg/L on December 20, 2012.

A summary of groundwater analytical data is presented in Table 3 and Figure 5. TPH-g contaminant isopleths are presented in Figure 6. Laboratory results and chain of custody documents are included in Appendix B.

7.0 SUMMARY

TPH-g concentrations in the monitoring wells ranged from 5,500 µg/L (MW-6) to ND<50 µg/L (MW-1, MW-5, IW-1). Benzene concentrations in the monitoring wells ranged from 81 µg/L (MW-6) to ND<0.5 µg/L (MW-1, MW-5, and IW-1).

TPH-g is not reported in the excavation backfill casings despite historic higher hydrocarbon concentrations in the up gradient monitoring well MW-7. This appears to be due to the high dissolved oxygen (DO) concentrations in the permeable fill in the base of the backfilled excavation. This results in high rates of biodegradation of dissolved phase hydrocarbons. The excavation appears to have to a large extent cut off the down gradient migration of groundwater plume from the original source area around the former gasoline UST.

The next groundwater monitoring event is tentatively scheduled for April 2013.

8.0 REPORT LIMITATIONS AND SIGNATURES

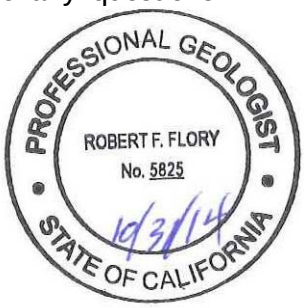
This report presents a summary of work completed by AEI, including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide requested information, but it cannot be assumed that they are entirely representative of all areas not sampled. All conclusions and recommendations are based on these analyses and observations. Conclusions beyond those stated and reported herein should not be inferred from this document.

These services were performed in accordance with generally accepted practices in the geologic, environmental engineering and construction fields that existed at the time and location of the work

Please contact Robert F. Flory at (925) 746-6000 extension 122, if you have any questions regarding the findings and recommendations included in this report.

Sincerely,

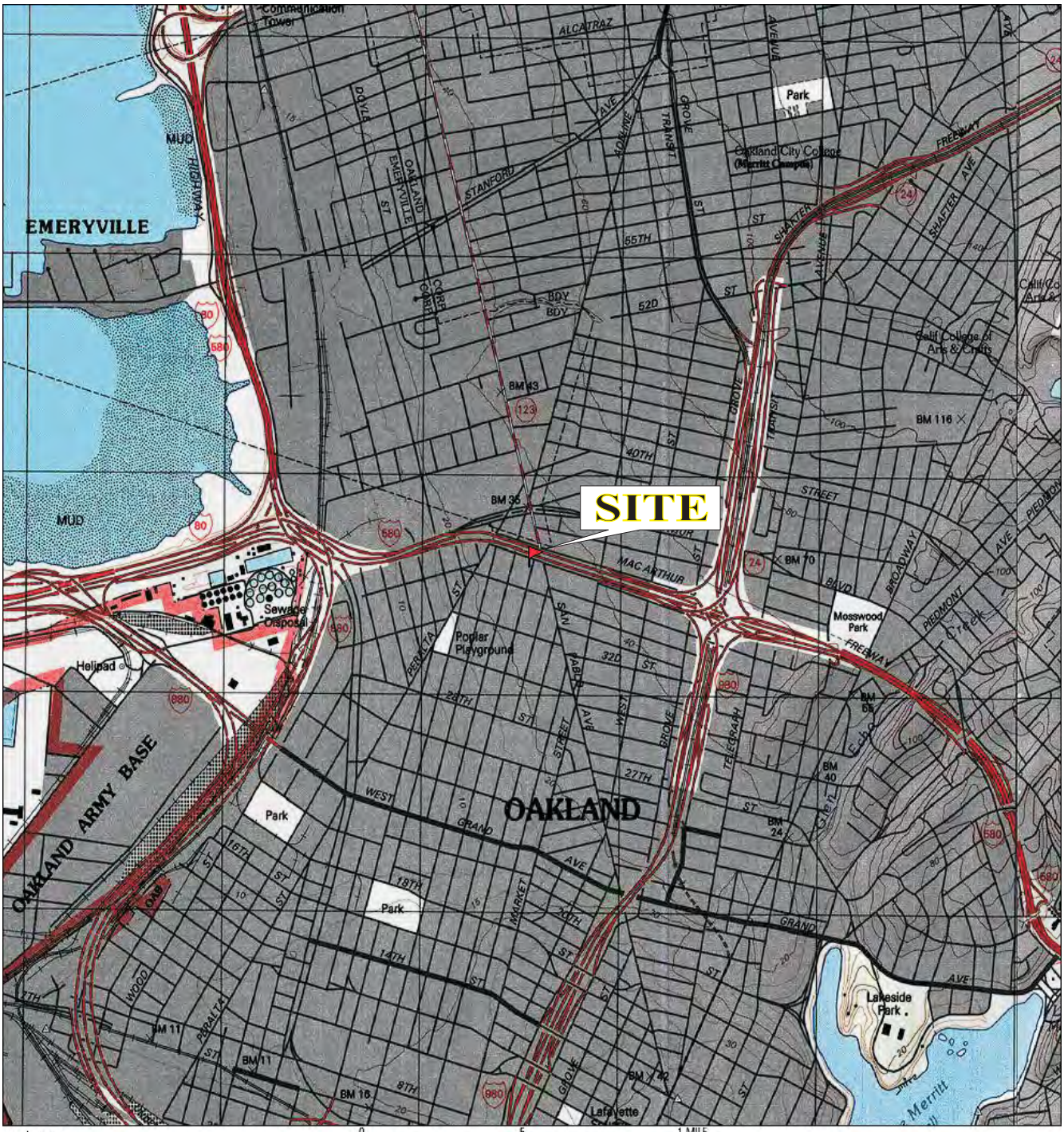
AEI Consultants



Adrian M. Angel, GIT
Project Geologist

Robert F. Flory, PG
Senior Geologist

FIGURES



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Site Location Map

3442 Adeline Street
Oakland, CA 94608

FIGURE 1
Job No: 281939

Property Boundary

Former UST Area

Approximate Scale:
1 inch = 55 feet

0’ 55’

N

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Site Vicinity Map

3442 Adeline Street
Oakland, CA 94608

FIGURE 2
Job No: 281939

LEGEND

DRAFTED BY RFF

- Monitoring Well
- Proposed Monitoring Well
- Former Gasoline UST
- Interim Source Removal Excavation

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2500 CAMINO DIABLO, WALNUT CREEK

SITE PLAN

3442 ADELINE STREET
OAKLAND, CALIFORNIA

FIGURE 6
PROJECT NO. 281939

LEGEND

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- Monitoring Well
- Proposed Monitoring Well
- Former Gasoline UST
- Interim Source Removal Excavation

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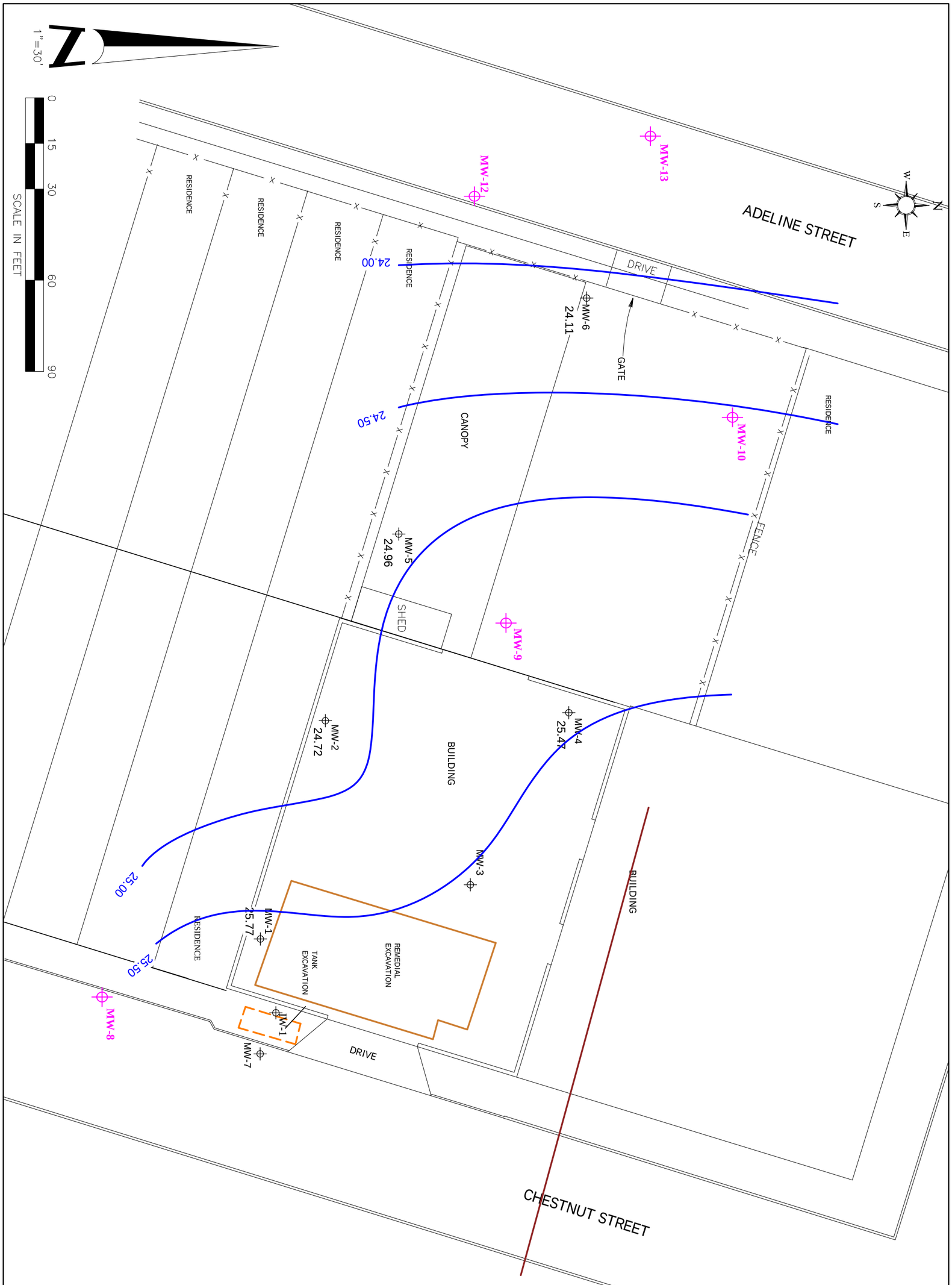
2500 CAMINO DIABLO, WALNUT CREEK

SITE PLAN

3442 ADELINE STREET
OAKLAND, CALIFORNIA

FIGURE 3
PROJECT NO. 281939



LEGEND

- Monitoring Well
- Proposed Monitoring Well
- Former Gasoline UST
- Interim Source Removal Excavation

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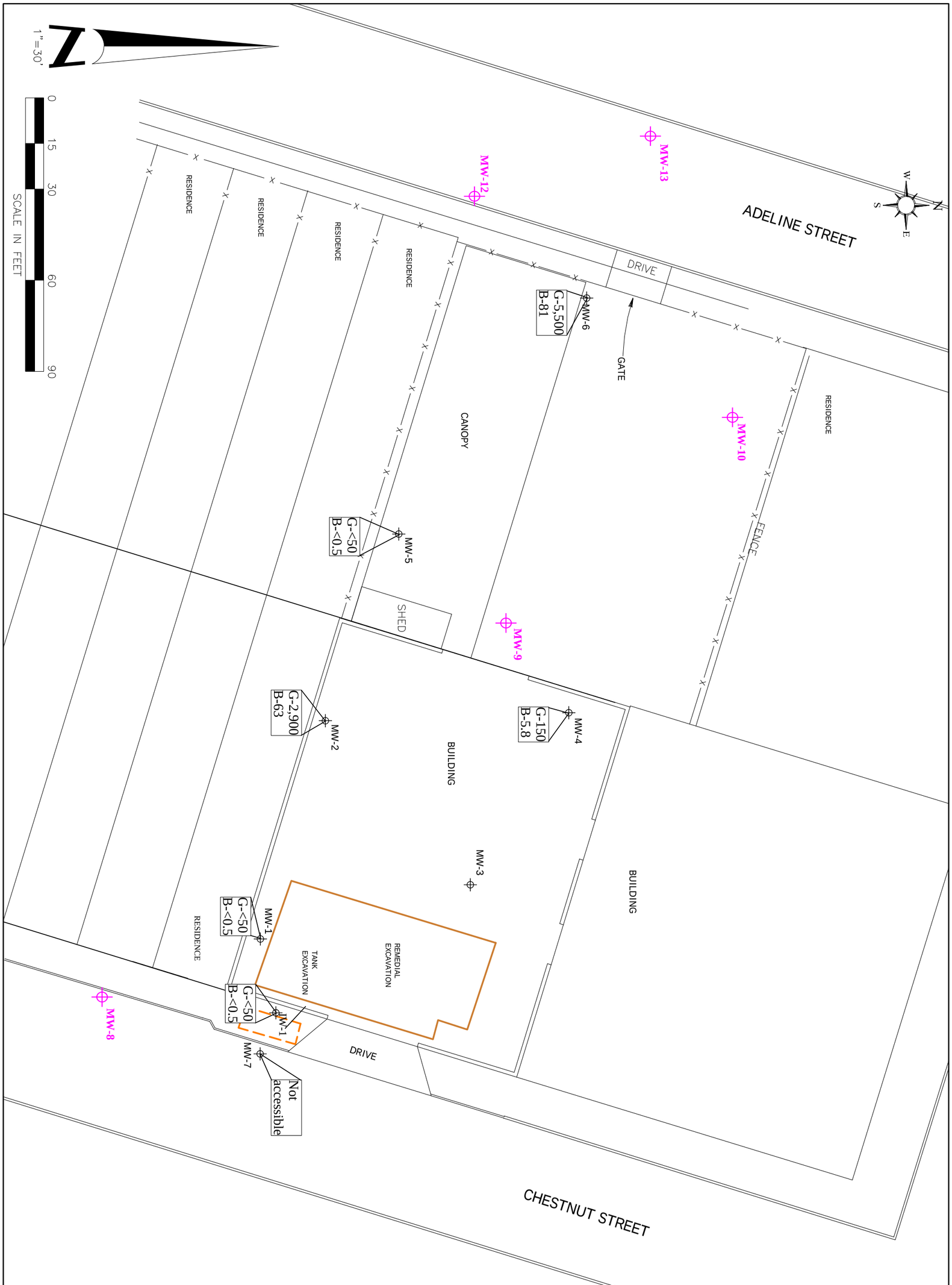
2500 CAMINO DIABLO, WALNUT CREEK

Groundwater Elevations (12/20/2012)

3442 ADELINE STREET
OAKLAND, CALIFORNIA

FIGURE 4
PROJECT NO. 281939



LEGEND

DRAFTED BY RFF

- Monitoring Well
- Monitoring Well
- Former Gasoline UST
- Interim Source Removal Excavation

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2500 CAMINO DIABLO, WALNUT CREEK

Groundwater Analytical Data (12/20/2012)

3442 ADELINE STREET
OAKLAND, CALIFORNIA

FIGURE 5
PROJECT NO. 281939

TABLES

Table 1: Monitoring Well Construction Details
3442 Adeline Street St. Oakland, CA 94608

Well ID	Date Installed	Top of Casing Elevation (ft amsl)	Well Box Rim Elevation (ft amsl)	Depth to Water 12/20/12 (ft)	Well Depth (ft)	Casing Material	Casing Diameter (in)	Slotted Casing (ft)	Slot Size (in)	Sand Interval (ft)	Sand Size	Bentonite Interval (ft)	Grout Interval (ft)
MW-1	04/01/09	31.12	32.13	5.35	17	PVC	4	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-2	04/01/09	31.19	31.43	6.47	17	PVC	4	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-3	04/01/09	32.07	32.39	----	17	PVC	4	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-4	04/02/09	31.68	31.98	6.21	17	PVC	2	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-5	05/12/09	30.39	30.82	5.43	17	PVC	2	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-6	04/02/09	29.34	29.96	5.23	17	PVC	2	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
MW-7	05/13/09	31.04	31.45	----	17	PVC	2	7-17	0.020	6-17	# 2/12	4-6	0.75 - 5
IW-1	05/12/09	31.66	31.90	12.88	15	PVC/ stainless	2	13-15	40 mesh	12-15	# 2/12	11-12	0.75-12

Notes:
ft amsl = feet above mean sea level ft btc = feet below top of casing

Table 2: Groundwater Elevation Data

3442 Adeline Street St. Oakland, CA 94608

Well ID (Screen Interval)	Date Collected	Top of Casing Elevation *(ft amsl)*	Depth to Water *(ft)*	Groundwater Elevation *(ft amsl)*	Elevation Change *(ft)*
MW-1 (7-17)	6/10/2009	31.12	7.01	24.11	----
	8/27/2009	31.12	6.96	24.16	0.05
	12/15/2009	31.12	5.96	25.16	1.00
	3/12/2010	31.12	5.06	26.06	0.90
	10/21/2010	31.12	7.00	24.12	-1.94
	5/5/2011	31.12	5.88	25.24	1.12
	4/25/2012	31.12	5.33	25.79	0.55
	12/12/2012	**31.12**	**5.35**	**25.77**	**-0.02**
MW-2 (7-17)	6/10/2009	31.19	9.50	21.69	----
	8/27/2009	31.19	10.50	20.69	-1.00
	12/15/2009	31.19	8.68	22.51	1.82
	3/12/2010	31.19	5.09	26.10	3.59
	10/21/2010	31.19	7.51	23.68	-2.42
	5/5/2011	31.19	6.68	24.51	0.83
	4/25/2012	31.19	5.58	25.61	1.10
	12/12/2012	**31.19**	**6.47**	**24.72**	**-0.89**
MW-3 (7-17)	6/10/2009	32.07	8.44	23.63	----
	8/27/2009	32.07	8.59	23.48	-0.15
	12/15/2009	32.07	7.66	24.41	0.93
	3/12/2010	**Well inaccessible**	----	----	----
	10/21/2010	**Well inaccessible**	----	----	----
MW-4 (7-17)	6/10/2009	31.68	9.45	22.23	----
	8/27/2009	31.68	10.29	21.39	-0.84
	12/15/2009	31.68	8.19	23.49	2.10
	3/12/2010	31.68	5.45	26.23	2.74
	10/21/2010	31.68	9.93	21.75	-4.48
	5/5/2011	31.68	6.60	25.08	3.33
	4/25/2012	31.68	5.73	25.95	0.87
	12/12/2012	**31.68**	**6.21**	**25.47**	**-0.48**
MW-5 (7-17)	6/10/2009	30.39	9.13	21.26	----
	8/27/2009	30.39	9.54	20.85	-0.41
	12/15/2009	30.39	8.33	22.06	1.21
	3/12/2010	**Well inaccessible**	----	----	----
	10/21/2010	30.39	6.85	23.54	1.48
	5/5/2011	30.39	3.25	27.14	3.60
	4/25/2012	30.39	4.50	25.89	-1.25
	12/12/2012	**30.39**	**5.43**	**24.96**	**-0.93**

Table 2: Groundwater Elevation Data

3442 Adeline Street St. Oakland, CA 94608

MW-6	6/10/2009	29.34	9.98	19.36	
(7-17)	8/27/2009	29.34	11.84	17.50	-1.86
	12/15/2009	29.34	8.33	21.01	3.51
	3/12/2010	29.34	4.66	24.68	3.67
	10/21/2010	29.34	10.00	19.34	-5.34
	5/5/2011	29.34	5.59	23.75	4.41
	4/25/2012	29.34	4.82	24.52	0.77
	12/20/2012	**29.34**	**5.23**	**24.11**	**-0.41**
MW-7	6/10/2009	31.04	6.53	24.51	----
(7-17)	8/27/2009	31.04	6.19	24.85	0.34
	12/15/2009	31.04	5.71	25.33	0.48
	3/12/2010	31.04	5.34	25.70	0.37
	10/21/2010	31.04	6.59	24.45	-1.25
	5/5/2011	31.04	5.98	25.06	0.61
	4/25/2012	31.04	5.71	25.33	0.27
	12/20/2012	Well Unaccessible			
IW-1	6/10/2009	31.66	7.65	24.01	----
(13-15)	8/27/2009	31.66	7.70	23.96	-0.05
	12/15/2009	31.66	10.99	20.67	-3.29
	3/12/2010	31.66	6.00	25.66	4.99
	10/21/2010	31.66	9.35	22.31	-3.35
	5/5/2011	31.66	6.73	24.93	2.62
	4/25/2012	31.66	8.05	23.61	-1.32
	12/20/2012	**31.66**	**12.88**	**18.78**	**-4.83**

Event	**Date**	**Average Water Table Elevation** (ft amsl)	**Change from Previous Episode** (ft)	**Flow Direction (gradient)** (ft/ft)
1	6/10/2009	22.40	----	West (0.0186)
2	8/27/2009	21.85	-0.55	West (0.0186)
3	12/15/2009	23.42	1.58	West (0.0181)
4	3/12/2010	25.75	2.33	West (0.004)
5	10/21/2010	22.81	-2.94	North Northwest (0.041)
6	5/5/2011	25.13	2.32	West (0.01)
7	4/25/2012	25.52	0.38	West (0.01)
8	**12/20/2012**	**25.01**	**-0.51**	**West (0.01)**

Table 3: Groundwater Analytical Data
3442 Adeline Street St. Oakland, CA 94608

Sample ID	Date	Depth to Water	TPH-d	TPH-g	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
			Method 8015C		*Method 8021B*				
		(ft)	(µg/L)						
ESL - current or potenital DW			100	100	5.0	1.0	40	30	20
ESL - not potenital DW			210	210	1,800	46	130	43	100
MW-1	04/17/09	7.01	97	220	<5.0	10	<0.5	3.0	5.4
	08/27/09	6.96	----	7,000	<180	610	10	320	220
	09/17/09	----	----	92	<15	0.91	0.70	<0.5	<0.5
	12/15/09	5.96	----	2500	<50	170	6.4	66	120
	03/12/10	5.06	----	500	<5.0	4.0	1.1	0.6	0.7
	10/21/10	7.00	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	05/05/11	5.88	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	5.33	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	**5.35**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2	04/17/09	9.50	2,200	7,000	<100	850	19	93	470
	08/27/09	10.50	----	26,000	<1,200	3,600	<25	1,200	3,000
	12/15/09	8.68	----	25,000	<250	2,900	70	1,500	2,400
	03/12/10	5.69	----	7,300	<350	590	7.0	6.4	680
	10/21/10	7.51	----	1,900	<15	140	1.4	28	140
	05/05/11	6.68	----	27,000	<180	2,300	13	1,700	2,600
	04/25/12	5.58	----	9,600	<120	440	8.8	260	920
	12/20/12	**6.47**	**----**	**2,900**	**<35**	**63**	**2.6**	**21**	**85**
MW-3	04/17/09	8.44	2,200	10,000	<110	930	5.6	270	920
	08/27/09	8.59	----	17,000	<250	3800	38	730	710
	09/17/09	----	----	260	<15	1.8	1.0	<0.5	2.1
	10/14/09	----	----	1,800	<30	220	13	37	130
	12/15/09	7.66	----	4,900	<50	890	13	160	130
	03/12/10	Well inaccessible							
	10/21/10	**Well inaccessible**							
MW-4	04/17/09	9.45	1,200	4,700	<30	140	2.0	28	18
	08/27/09	10.29	----	4,300	<25	75	11	8.6	3.4
	12/15/09	8.19	----	3,000	<15	64	11	5.6	3.3
	03/12/10	5.45	----	6,100	<35	1200	14	170	6.2
	10/21/10	9.93	----	1,900	<15	120	4.7	5.7	1.8
	05/05/11	6.60	----	4,900	<25	560	2.6	41	17
	04/25/12	5.73	----	330	<5.0	23	1.4	2.0	4.2
	12/20/12	**6.21**	----	**150**	**<5.0**	**5.8**	**<0.005**	**<0.005**	**<0.005**
MW-5	05/22/09	9.13	2,800	14,000	<100	3,000	12	340	420
	08/27/09	9.54	----	25,000	<400	3,300	36	110	160
	12/15/09	8.33	----	8,200	<250	1,200	6.9	300	610
	03/12/10	Well inaccessible							
	10/21/10	6.85	----	<50	<5.0	1.3	<0.5	<0.5	<0.5
	05/05/11	3.25	----	790	<20	140	1.0	29	30
	04/25/12	4.51	----	67	<5.0	3.4	<0.5	1.4	0.83
	12/20/12	**5.43**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Table 3: Groundwater Analytical Data
3442 Adeline Street St. Oakland, CA 94608

Sample ID	Date	Depth to Water	TPH-d	TPH-g	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
			Method 8015C		*Method 8021B*				
		(ft)	(µg/L)						
ESL - current or potenital DW			100	100	5.0	1.0	40	30	20
ESL - not potenital DW			210	210	1,800	46	130	43	100
MW-6	04/17/09	9.98	1,000	5,600	<300	210	3.0	180	160
	08/27/09	11.84	----	2,200	<120	98	7.9	20	1.1
	12/15/09	8.59	----	4,700	<250	370	6.9	260	300
	03/12/10	4.66	----	9,300	<90	210	12	250	110
	10/21/10	10.00	----	380	<5.0	35	1.2	4.6	3.8
	05/05/11	5.59	----	7,000	<75	80	2.9	120	28
	04/25/12	4.82	----	7,400	<150	99	11.0	100	27
	12/20/12	**5.23**	**----**	**5,500**	**<50**	**81**	**3.1**	**78**	**16**
MW-7	04/17/09	6.53	3,700	12,000	<120	1,000	37	100	36
	08/27/09	6.19	----	12,000	<100	550	30	130	33
	12/15/09	5.71	----	9,600	<100	620	26	140	20
	03/12/10	5.34	----	10,000	<25	850	33	87	28
	10/21/10	6.59		7,900	<180	1,100	22	44	21
	05/05/11	5.98	----	9,300	<200	690	23	42	21
	04/25/12	5.71	----	8,600	<75	1,000	31	10	20
	12/20/12	Well inaccesable due to parked car							
IW-1	05/22/09	7.65	680	1,200	<15	58	2.7	2.3	18
	08/27/09	7.70	----	160	<5.0	4.1	0.5	0.8	1.6
	09/17/09	----	----	300	<5.0	8.0	1.5	1.4	0.85
	12/15/09	10.99	----	220	<5.0	5.4	1.4	0.65	0.7
	03/12/10	6.00	----	<50	<5.0	1.9	<0.5	<0.5	<0.5
	10/21/10	9.35		<50	<5.0	<0.5	<0.5	<0.5	<0.5
	05/05/11	6.73	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	8.05	----	<50	<5.0	0.91	<0.5	<0.5	0.57
	12/20/12	**12.88**		**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
BF-1	03/27/09	----	----	19,000	<250	890	27	460	1,200
post H_2O_2	06/17/09	----	----	6,700	<150	840	19	170	150
pre-aeration	08/10/09	----	----	11,000	<120	710	14	440	290
post aeration	08/27/09	----	----	9,600	<90	590	14	350	220
	09/13/09	----	----	<50	<5.0	1.2	<0.5	<0.5	<0.5
	10/14/09	----	----	2,400	<10	83	1.9	5.0	120
	12/11/09	6.70	----	200	<5.0	12	<0.5	2.2	9.6
	03/12/10	5.61	----	<50	<0.5	2.9	<0.5	<0.5	<0.5
	10/21/10	7.95	----	560	<5.0	68	1.5	6.7	25
	05/05/11	6.25	----	<50	<5.0	0.65	<0.5	<0.5	<0.5
	04/25/12	5.85	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	5.82	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5

Table 3: Groundwater Analytical Data
3442 Adeline Street St. Oakland, CA 94608

Sample ID	Date	Depth to Water	TPH-d	TPH-g	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
			Method 8015C		*Method 8021B*				
		(ft)	(µg/L)						
ESL - current or potenital DW			100	100	5.0	1.0	40	30	20
ESL - not potenital DW			210	210	1,800	46	130	43	100
BF-5	08/27/09	----	----	170	<25	32	0.55	4.2	220
	10/14/09	----	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/11/09	7.25	----	130	<5.0	40	<0.5	0.91	<0.5
	03/12/10	6.09		<50	<5.0	4.3	<0.5	0.91	<0.5
	10/21/10	8.62		80	<5.0	8.8	<0.5	1.4	4.5
	05/05/11	6.75	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	6.37	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	**6.33**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Notes:
µg/L = micrograms per liter
ESL = Environmental Screening Level
TPH-g = total petroleum hydrocarbons as gasoline
680 = Current concentration above ESL
TPH-d = total petroleum hydrocarbons as diesel
MTBE = methyl tert-butyl ether
680 = most recent sample

Table 2: Groundwater Elevation Data

3442 Adeline Street St. Oakland, CA 94608

Well ID (Screen Interval)	Date Collected	Top of Casing Elevation *(ft amsl)*	Depth to Water *(ft)*	Groundwater Elevation *(ft amsl)*	Elevation Change *(ft)*
MW-1 (7-17)	6/10/2009	31.12	7.01	24.11	----
	8/27/2009	31.12	6.96	24.16	0.05
	12/15/2009	31.12	5.96	25.16	1.00
	3/12/2010	31.12	5.06	26.06	0.90
	10/21/2010	31.12	7.00	24.12	-1.94
	5/5/2011	31.12	5.88	25.24	1.12
	4/25/2012	31.12	5.33	25.79	0.55
	12/12/2012	**31.12**	**5.35**	**25.77**	**-0.02**
MW-2 (7-17)	6/10/2009	31.19	9.50	21.69	----
	8/27/2009	31.19	10.50	20.69	-1.00
	12/15/2009	31.19	8.68	22.51	1.82
	3/12/2010	31.19	5.09	26.10	3.59
	10/21/2010	31.19	7.51	23.68	-2.42
	5/5/2011	31.19	6.68	24.51	0.83
	4/25/2012	31.19	5.58	25.61	1.10
	12/12/2012	**31.19**	**6.47**	**24.72**	**-0.89**
MW-3 (7-17)	6/10/2009	32.07	8.44	23.63	----
	8/27/2009	32.07	8.59	23.48	-0.15
	12/15/2009	32.07	7.66	24.41	0.93
	3/12/2010	**Well inaccessible**	----	----	----
	10/21/2010	**Well inaccessible**	----	----	----
MW-4 (7-17)	6/10/2009	31.68	9.45	22.23	----
	8/27/2009	31.68	10.29	21.39	-0.84
	12/15/2009	31.68	8.19	23.49	2.10
	3/12/2010	31.68	5.45	26.23	2.74
	10/21/2010	31.68	9.93	21.75	-4.48
	5/5/2011	31.68	6.60	25.08	3.33
	4/25/2012	31.68	5.73	25.95	0.87
	12/12/2012	**31.68**	**6.21**	**25.47**	**-0.48**
MW-5 (7-17)	6/10/2009	30.39	9.13	21.26	----
	8/27/2009	30.39	9.54	20.85	-0.41
	12/15/2009	30.39	8.33	22.06	1.21
	3/12/2010	**Well inaccessible**	----	----	----
	10/21/2010	30.39	6.85	23.54	1.48
	5/5/2011	30.39	3.25	27.14	3.60
	4/25/2012	30.39	4.50	25.89	-1.25
	12/12/2012	**30.39**	**5.43**	**24.96**	**-0.93**

Table 2: Groundwater Elevation Data

3442 Adeline Street St. Oakland, CA 94608

MW-6	6/10/2009	29.34	9.98	19.36	
(7-17)	8/27/2009	29.34	11.84	17.50	-1.86
	12/15/2009	29.34	8.33	21.01	3.51
	3/12/2010	29.34	4.66	24.68	3.67
	10/21/2010	29.34	10.00	19.34	-5.34
	5/5/2011	29.34	5.59	23.75	4.41
	4/25/2012	29.34	4.82	24.52	0.77
	12/20/1201	**29.34**	**5.23**	**24.11**	**-0.41**
MW-7	6/10/2009	31.04	6.53	24.51	----
(7-17)	8/27/2009	31.04	6.19	24.85	0.34
	12/15/2009	31.04	5.71	25.33	0.48
	3/12/2010	31.04	5.34	25.70	0.37
	10/21/2010	31.04	6.59	24.45	-1.25
	5/5/2011	31.04	5.98	25.06	0.61
	4/25/2012	31.04	5.71	25.33	0.27
	12/20/1201	Well Unaccessible			
IW-1	6/10/2009	31.66	7.65	24.01	----
(13-15)	8/27/2009	31.66	7.70	23.96	-0.05
	12/15/2009	31.66	10.99	20.67	-3.29
	3/12/2010	31.66	6.00	25.66	4.99
	10/21/2010	31.66	9.35	22.31	-3.35
	5/5/2011	31.66	6.73	24.93	2.62
	4/25/2012	31.66	8.05	23.61	-1.32
	12/20/1201	**31.66**	**12.88**	**18.78**	**-4.83**

Event	**Date**	**Average Water Table Elevation** (ft amsl)	**Change from Previous Episode** (ft)	**Flow Direction (gradient)** (ft/ft)
1	6/10/2009	22.40	----	West (0.0186)
2	8/27/2009	21.85	-0.55	West (0.0186)
3	12/15/2009	23.42	1.58	West (0.0181)
4	3/12/2010	25.75	2.33	West (0.004)
5	10/21/2010	22.81	-2.94	North Northwest (0.041)
6	5/5/2011	25.13	2.32	West (0.01)
7	4/25/2012	25.52	0.38	West (0.01)
8	**12/20/2012**	**25.01**	**-0.51**	**West (0.01)**

Table 3: Groundwater Analytical Data
3442 Adeline Street St. Oakland, CA 94608

Sample ID	Date	Depth to Water	TPH-d	TPH-g	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
			Method 8015C		*Method 8021B*				
		(ft)	(µg/L)						
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ESL - not potenital DW			210	210	1,800	46	130	43	100
MW-1	04/17/09	7.01	97	220	<5.0	10	<0.5	3.0	5.4
	08/27/09	6.96	----	7,000	<180	610	10	320	220
	09/17/09	----	----	92	<15	0.91	0.70	<0.5	<0.5
	12/15/09	5.96	----	2500	<50	170	6.4	66	120
	03/12/10	5.06	----	500	<5.0	4.0	1.1	0.6	0.7
	10/21/10	7.00	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	05/05/11	5.88	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	5.33	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	**5.35**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2	04/17/09	9.50	2,200	7,000	<100	850	19	93	470
	08/27/09	10.50	----	26,000	<1,200	3,600	<25	1,200	3,000
	12/15/09	8.68	----	25,000	<250	2,900	70	1,500	2,400
	03/12/10	5.69	----	7,300	<350	590	7.0	6.4	680
	10/21/10	7.51	----	1,900	<15	140	1.4	28	140
	05/05/11	6.68	----	27,000	<180	2,300	13	1,700	2,600
	04/25/12	5.58	----	9,600	<120	440	8.8	260	920
	12/20/12	**6.47**	**----**	**2,900**	**<35**	**63**	**2.6**	**21**	**85**
MW-3	04/17/09	8.44	2,200	10,000	<110	930	5.6	270	920
	08/27/09	8.59	----	17,000	<250	3800	38	730	710
	09/17/09	----	----	260	<15	1.8	1.0	<0.5	2.1
	10/14/09	----	----	1,800	<30	220	13	37	130
	12/15/09	7.66	----	4,900	<50	890	13	160	130
	03/12/10	Well inaccessible							
	10/21/10	**Well inaccessible**							
MW-4	04/17/09	9.45	1,200	4,700	<30	140	2.0	28	18
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	12/15/09	8.19	----	3,000	<15	64	11	5.6	3.3
	03/12/10	5.45	----	6,100	<35	1200	14	170	6.2
	10/21/10	9.93	----	1,900	<15	120	4.7	5.7	1.8
	05/05/11	6.60	----	4,900	<25	560	2.6	41	17
	04/25/12	5.73	----	330	<5.0	23	1.4	2.0	4.2
	12/20/12	**6.21**	----	**150**	**<5.0**	**5.8**	**<0.005**	**<0.005**	**<0.005**
MW-5	05/22/09	9.13	2,800	14,000	<100	3,000	12	340	420
	08/27/09	9.54	----	25,000	<400	3,300	36	110	160
	12/15/09	8.33	----	8,200	<250	1,200	6.9	300	610
	03/12/10	Well inaccessible							
	10/21/10	6.85	----	<50	<5.0	1.3	<0.5	<0.5	<0.5
	05/05/11	3.25	----	790	<20	140	1.0	29	30
	04/25/12	4.51	----	67	<5.0	3.4	<0.5	1.4	0.83
	12/20/12	**5.43**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

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	12/15/09	8.59	----	4,700	<250	370	6.9	260	300
	03/12/10	4.66	----	9,300	<90	210	12	250	110
	10/21/10	10.00	----	380	<5.0	35	1.2	4.6	3.8
	05/05/11	5.59	----	7,000	<75	80	2.9	120	28
	04/25/12	4.82	----	7,400	<150	99	11.0	100	27
	12/20/12	**5.23**	**----**	**5,500**	**<50**	**81**	**3.1**	**78**	**16**
MW-7	04/17/09	6.53	3,700	12,000	<120	1,000	37	100	36
	08/27/09	6.19	----	12,000	<100	550	30	130	33
	12/15/09	5.71	----	9,600	<100	620	26	140	20
	03/12/10	5.34	----	10,000	<25	850	33	87	28
	10/21/10	6.59		7,900	<180	1,100	22	44	21
	05/05/11	5.98	----	9,300	<200	690	23	42	21
	04/25/12	5.71	----	8,600	<75	1,000	31	10	20
	12/20/12	Well inaccesable due to parked car							
IW-1	05/22/09	7.65	680	1,200	<15	58	2.7	2.3	18
	08/27/09	7.70	----	160	<5.0	4.1	0.5	0.8	1.6
	09/17/09	----	----	300	<5.0	8.0	1.5	1.4	0.85
	12/15/09	10.99	----	220	<5.0	5.4	1.4	0.65	0.7
	03/12/10	6.00	----	<50	<5.0	1.9	<0.5	<0.5	<0.5
	10/21/10	9.35		<50	<5.0	<0.5	<0.5	<0.5	<0.5
	05/05/11	6.73	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	8.05	----	<50	<5.0	0.91	<0.5	<0.5	0.57
	12/20/12	**12.88**		**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
BF-1	03/27/09	----	----	19,000	<250	890	27	460	1,200
post H_2O_2	06/17/09	----	----	6,700	<150	840	19	170	150
pre-aeration	08/10/09	----	----	11,000	<120	710	14	440	290
post aeration	08/27/09	----	----	9,600	<90	590	14	350	220
	09/13/09	----	----	<50	<5.0	1.2	<0.5	<0.5	<0.5
	10/14/09	----	----	2,400	<10	83	1.9	5.0	120
	12/11/09	6.70	----	200	<5.0	12	<0.5	2.2	9.6
	03/12/10	5.61	----	<50	<0.5	2.9	<0.5	<0.5	<0.5
	10/21/10	7.95	----	560	<5.0	68	1.5	6.7	25
	05/05/11	6.25	----	<50	<5.0	0.65	<0.5	<0.5	<0.5
	04/25/12	5.85	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	5.82	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5

Table 3: Groundwater Analytical Data
3442 Adeline Street St. Oakland, CA 94608

Sample ID	Date	Depth to Water	TPH-d	TPH-g	MTBE	Benzene	Toluene	Ethyl benzene	Xylenes
			Method 8015C		*Method 8021B*				
		(ft)	(µg/L)						
ESL - current or potenital DW			100	100	5.0	1.0	40	30	20
ESL - not potenital DW			210	210	1,800	46	130	43	100
BF-5	08/27/09	----	----	170	<25	32	0.55	4.2	220
	10/14/09	----	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/11/09	7.25	----	130	<5.0	40	<0.5	0.91	<0.5
	03/12/10	6.09		<50	<5.0	4.3	<0.5	0.91	<0.5
	10/21/10	8.62		80	<5.0	8.8	<0.5	1.4	4.5
	05/05/11	6.75	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/25/12	6.37	----	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/20/12	**6.33**	**----**	**<50**	**<5.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

Notes:
µg/L = micrograms per liter
ESL = Environmental Screening Level
TPH-g = total petroleum hydrocarbons as gasoline
680 = Current concentration above ESL
TPH-d = total petroleum hydrocarbons as diesel
MTBE = methyl tert-butyl ether
680 = most recent sample

APPENDIX A

Groundwater Monitoring Well
Field Sampling Forms

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-1

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	31.12		
Depth of Well	17.00		
Depth to Water (from top of casing)	5.35		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	5		
Appearance of Purge Water	Clean		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0735	1	18.01	7.94	764	8.87	254.8	
	2	18.13	7.81	758	9.62	255.7	
	3	18.21	7.77	7.44	9.79	255.5	
	4	18.26	7.73	738	9.70	255.3	
0745	5	18.28	7.70	734	9.68	255.2	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Bottom of drop tube at 11.5 feet bgs. Purge rate <0.5 liters per minute.

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4"
Wellhead Condition	OK
Elevation of Top of Casing (feet above msl)	31.19
Depth of Well	17.00
Depth to Water (from top of casing)	6.47
Water Elevation (feet above msl)	
Well Volumes Purged	Micropurged
Actual Volume Purged (liters)	5
Appearance of Purge Water	Clear

Free Product Present? No Thickness (ft): ----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0820	1	17.45	6.77	801	8.35	293.5	
	2	17.56	6.71	816	8.31	274.0	
	3	17.64	6.68	818	8.41	256.8	
	4	17.71	6.64	819	8.47	243.9	
0830	5	17.74	6.63	819	8.53	238.7	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Bottom of drop tube at 11.0 feet bgs. Purge rate <0.5 liters per minute.

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-4

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	31.68		
Depth of Well	17.00		
Depth to Water (from top of casing)	6.21		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	5		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0840	1	17.72	6.35	590	8.44	267.7	
	2	17.99	6.55	611	9.66	237.4	
	3	18.13	6.65	613	9.89	226.1	
	4	18.18	6.63	613	9.98	216.6	
0850	5	18.20	6.62	614	10.03	213.4	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Bottom of drop tube at 11.0 feet bgs. Purge rate <0.5 liters per minute.

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-5

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	30.39		
Depth of Well	17.00		
Depth to Water (from top of casing)	5.43		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	5		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0940	1	15.94	7.41	747	12.68	146.5	
	2	15.98	7.58	749	13.24	150.7	
	3	16.03	7.60	751	13.23	154.6	
	4	16.05	7.61	762	13.08	157.5	
0950	5	16.06	7.60	752	13.02	159.4	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Bottom of drop tube at 10.0 feet bgs. Purge rate <0.5 liters per minute.

Slight odor

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-6

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	29.34		
Depth of Well	17.00		
Depth to Water (from top of casing)	5.23		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	3.0		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0915	1	17.14	5.67	838	5.47	16.5	
	2	17.28	6.11	844	3.87	-2.1	
	3	17.38	6.34	847	2.83	-8.5	
	4	17.43	6.44	848	2.40	-12.1	
0925	5	17.44	6.50	848	2.25	-14.7	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Clear with slight hydrocarbon odor.

Bottom of drop tube at 13.0 feet bgs. Purge rate <0.5 liters per minute.

Slight odor

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-7

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	31.04		
Depth of Well	17.00		
Depth to Water (from top of casing)			
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)			
Appearance of Purge Water			
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
Well was Obstructed by vehicle - could not sample							

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Clear with strong hydrocarbon odors.

Bottom of drop tube at 12.0 feet bgs. Purge rate <0.5 liters per minute.

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: IW-1

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	31.66		
Depth of Well	15.00		
Depth to Water (from top of casing)	12.88		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)			
Appearance of Purge Water			
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
1035	1	19.23	7.08	1349	9.71	159.4	Cloudy
	2	19.38	7.16	1341	9.93	159.7	"
	3	19.42	7.18	1328	10.07	160.4	"
	4	19.46	7.20	1316	10.12	161.0	"
1045	5	19.49	7.21	1311	10.12	161.5	"

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Clear with no odors.

Bottom of drop tube at 13.0 feet bgs. Purge rate <0.5 liters per minute.

Screened interval - 13-15 feet bgs

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: BF-1

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	Unsurveyed		
Depth of Well	12.00		
Depth to Water (from top of casing)	5.82		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	5		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0800	1	18.93	7.58	1110	7.27	226.5	
	2	19.08	7.55	1114	6.91	217.8	
	3	19.18	7.59	1118	6.68	210.8	
	4	19.25	7.60	1121	6.54	204.3	
0810	5	19.28	7.61	1123	6.46	200.3	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Clear with no hydrocarbon odor.

Bottom of drop tube at 10.0 feet bgs. Purge rate <0.5 liters per minute.

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: BF-5

Project Name:	Zimmerman	Date of Sampling:	12-20-12
Job Number:	281939	Name of Sampler:	J. Sigg
Project Address:	3442 Adeline St. Oakland Cal		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	Unsurveyed		
Depth of Well	12.00		
Depth to Water (from top of casing)	6.33		
Water Elevation (feet above msl)			
Well Volumes Purged	Micropurged		
Actual Volume Purged (liters)	5		
Appearance of Purge Water	Clear		
Free Product Present?	No	Thickness (ft):	----

GROUNDWATER SAMPLES

Number of Samples/Container Size: 3 VOA

Time	Vol Removed (Liters)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
0715	1	18.74	7.05	1057	8.05	272.7	
	2	18.99	7.83	1061	7.10	235.1	
	3	19.11	7.96	1063	6.81	219.3	
	4	19.19	7.97	1066	6.59	207.7	
0725	5	19.22	7.97	1067	6.48	198.5	

COMMENTS (i.e., sample odor, well recharge time & percent, etc.)

Clear, no odor.

Bottom of drop tube at 11.0 feet bgs. Purge rate <0.5 liters per minute.

APPENDIX B

Laboratory Analytical Reports
With
Chain of Custody Documentation

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

AEI Consultants	Client Project ID: #281939; Zimmerman	Date Sampled: 12/20/12
		Date Received: 12/21/12
2500 Camino Diablo, Ste.#200	Client Contact: Robert Flory	Date Reported: 12/28/12
Walnut Creek, CA 94597	Client P.O.:	Date Completed: 12/28/12

WorkOrder: 1212595

December 28, 2012

Dear Robert:

Enclosed within are:

1) The results of the **8** analyzed samples from your project: **#281939; Zimmerman,**
2) QC data for the above samples, and
3) A copy of the chain of custody.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

The analytical results relate only to the items tested.

1212595

McCAMPBELL ANALYTICAL INC.

1534 Willow Pass Road
Pittsburg, CA 94565
Telephone: (925) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ■ 5 DAY

EDF Required? ■ Yes ☐ No

Report To: Robert Flory	Bill To: same
Company: AEI Consultants	
2500 Camino Diablo	
Walnut Creek, CA 94597	E-Mail: rflory@aeiconsultants.com
Tele: (925) 746-6000	Fax: (925) 746-6099
Project #: 281939	Project Name: Zimmerman
Project Location: 3442 Adeline Street, Oakland, CA	
Sampler Signature:	

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED Ice	HCl	HNO_3	Other	Analysis Request: MBTEX & TPH as Gas (8015/8021)	TPH as Diesel (8015) – Multi-range w silica gel	Hexane Extractable Materia w/sil gel EPA 1664	Total Petroleum Hydrocarbons (418.1)	Fuel Oxygenates EPA 8260	BTEX ONLY (EPA 602 / 8020)	TPH Multi-Range (G/D/MO 8015) w/ Silica Gel	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8260	EPA 625 / 8270 - SVOCs	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals 6020	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Comments
MW-1		12-20-12	0745	3	voa	X					X	X			X																
MW-2			0830	3	voa	X					X	X			X																
MW-4			0850	3	voa	X					X	X			X																
MW-5			0950	3	voa	X					X	X			X																
MW-6			0925	3	voa	X					X	X			X																
IW-1			1045	3	voa	X					X	X			X																
BF-1			0810	3	voa	X					X	X			X																
BF-5			0725	3	voa	X					X	X			X																

Relinquished By:	Date: 12-21-12	Time: 1124	Received By:
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

	VOAS	O&G	METALS	OTHER
ICE/t° 1.1				
GOOD CONDITION ✓	PRESERVATION ✓			
HEAD SPACE ABSENT ✓	APPROPRIATE			
DECHLORINATED IN LAB	CONTAINERS			
	PERSERVED IN LAB			

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1212595 **ClientCode: AEL**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Robert Flory
AEI Consultants
2500 Camino Diablo, Ste.#200
Walnut Creek, CA 94597
(925) 283-6000 FAX: (925) 283-6121
Email: rflory@aeiconsultants.com
cc:
PO:
ProjectNo: #281939; Zimmerman

Bill to:
Sara Guerin
AEI Consultants
2500 Camino Diablo, Ste. #200
Walnut Creek, CA 94597
AccountsPayable@AEIConsultants.c

Requested TAT: 5 days
Date Received: **12/21/2012**
Date Printed: **12/21/2012**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1212595-001	MW-1	Water	12/20/2012 7:45	☐	A	A										
1212595-002	MW-2	Water	12/20/2012 8:30	☐	A											
1212595-003	MW-4	Water	12/20/2012 8:50	☐	A											
1212595-004	MW-5	Water	12/20/2012 9:50	☐	A											
1212595-005	MW-6	Water	12/20/2012 9:25	☐	A											
1212595-006	IW-1	Water	12/20/2012 10:45	☐	A											
1212595-007	BF-1	Water	12/20/2012 8:10	☐	A											
1212595-008	BF-5	Water	12/20/2012 7:25	☐	A											

Test Legend:

1	G-MBTEX_W	2	PREDF REPORT	3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **AEI Consultants**
Date and Time Received: **12/21/2012 12:53:41 PM**

Project Name: **#281939; Zimmerman**
LogIn Reviewed by: Maria Venegas

WorkOrder N°: **1212595** Matrix: Water
Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 1.1°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

AEI Consultants	Client Project ID: #281939; Zimmerman	Date Sampled: 12/20/12
		Date Received: 12/21/12
2500 Camino Diablo, Ste.#200	Client Contact: Robert Flory	Date Extracted: 12/26/12-12/28/12
Walnut Creek, CA 94597	Client P.O.:	Date Analyzed: 12/26/12-12/28/12

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Bm Work Order: 1212595

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS	Comments
001A	MW-1	W	ND	ND	ND	ND	ND	ND	1	101	
002A	MW-2	W	2900	ND<35	63	2.6	21	85	1	---#	d1
003A	MW-4	W	150	ND	5.8	ND	ND	ND	1	108	d1
004A	MW-5	W	ND	ND	ND	ND	ND	ND	1	96	
005A	MW-6	W	5500	ND<50	81	3.1	78	16	5	---#	d1
006A	IW-1	W	ND	ND	ND	ND	ND	ND	1	91	
007A	BF-1	W	ND	ND	ND	ND	ND	ND	1	92	
008A	BF-5	W	ND	ND	ND	ND	ND	ND	1	95	

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5.0	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

* water and vapor samples are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts in mg/L.

cluttered chromatogram; sample peak coelutes w/surrogate peak; low surrogate recovery due to matrix interference. %SS = Percent Recovery of Surrogate Standard; DF = Dilution Factor

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:
d1) weakly modified or unmodified gasoline is significant

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Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 73577 | WorkOrder: 1212595

EPA Method: SW8021B/8015Bm **Extraction: SW5030B** **Spiked Sample ID: 1212595-008A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
TPH(btex)£	ND	60	107	98.8	7.77	114	70 - 130	20	70 - 130
MTBE	ND	10	88.4	84.1	4.92	90.8	70 - 130	20	70 - 130
Benzene	ND	10	97.5	94.7	2.87	102	70 - 130	20	70 - 130
Toluene	ND	10	102	99.7	2.69	106	70 - 130	20	70 - 130
Ethylbenzene	ND	10	101	97.1	4.08	104	70 - 130	20	70 - 130
Xylenes	ND	30	103	98	4.75	107	70 - 130	20	70 - 130
%SS:	95	10	95	97	2.29	93	70 - 130	20	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73577 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1212595-003A	12/20/12 8:50 AM	12/26/12	12/26/12 9:41 PM	1212595-004A	12/20/12 9:50 AM	12/26/12	12/26/12 10:11 PM
1212595-005A	12/20/12 9:25 AM	12/28/12	12/28/12 7:46 AM	1212595-006A	12/20/12 10:45 AM	12/26/12	12/26/12 11:10 PM
1212595-007A	12/20/12 8:10 AM	12/26/12	12/26/12 11:40 PM	1212595-008A	12/20/12 7:25 AM	12/27/12	12/27/12 12:39 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

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JR QA/QC Officer

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QC SUMMARY REPORT FOR SW8021B/8015Bm

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 73578 | WorkOrder: 1212595

EPA Method: SW8021B/8015Bm **Extraction: SW5030B** **Spiked Sample ID: 1212574-007A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	Acceptance Criteria (%)		
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	MS / MSD	RPD	LCS
TPH(btex)£	ND	60	104	99.3	4.96	95.6	70 - 130	20	70 - 130
MTBE	ND	10	88.1	83.8	4.95	78.1	70 - 130	20	70 - 130
Benzene	ND	10	101	91.2	9.88	90.2	70 - 130	20	70 - 130
Toluene	ND	10	103	91.6	11.9	90.2	70 - 130	20	70 - 130
Ethylbenzene	ND	10	103	92.5	11.0	90.8	70 - 130	20	70 - 130
Xylenes	ND	30	102	91.8	10.7	90.5	70 - 130	20	70 - 130
%SS:	101	10	102	98	4.11	100	70 - 130	20	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 73578 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
1212595-001A	12/20/12 7:45 AM	12/27/12	12/27/12 6:57 AM	1212595-002A	12/20/12 8:30 AM	12/27/12	12/27/12 7:27 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

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QA/QC Officer