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Alameda County
Environmental Health

**GROUNDWATER MONITORING
REPORT
First Quarter, 2009**

6211 San Pablo Avenue
Oakland, California

Project No. 280346
ACHCS Case No. RO0000127

Prepared For

Mr. Pritpaul Sappal
2718 Washburn Court
Vallejo, California 94591

Prepared By

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ENVIRONMENTAL & ENGINEERING SERVICES

www.aeiconsultants.com

March 31, 2009

Mr. Pritpaul Sappal
2718 Washburn Court
Vallejo, California 94591

**Subject: Quarterly Groundwater Monitoring Report
First Quarter, 2009**
6211 San Pablo Avenue
Oakland, California
AEI Project No. 280346
ACHCS Case No. RO0000127

Dear Mr. Sappal:

AEI Consultants (AEI) has prepared this report on behalf of Mr. Pritpaul Sappal (client), owner of the subject site, located at 6211 San Pablo Avenue, Oakland, California (Figure 1: Site Location Plan). This report has been prepared at the request of the client, as required by the Alameda County Health Care Services Agency (ACHCSA), and presents the findings of the 1st Quarter 2009 groundwater monitoring and sampling event conducted on February 17, 2009.

Background

The subject property is located at 6211 San Pablo Avenue, northwest of the intersection of San Pablo Avenue and 62nd Street in a mixed residential and light commercial area of Oakland, California (Figure 1 and 2). The site currently consists of a retail gasoline station with three underground storage tanks (USTs) dispensing gasoline fuel through six dual-sided fuel dispensing islands. Site features are included in Figure 3.

In April 1999, three borings B-1 through B-3 were advanced at the site. Significant concentrations of hydrocarbons were present in the soil and groundwater samples collected during the investigation. Subsequently, in June 1999, five additional soil borings were advanced (B-4 through B-8) at the site. Based on the data collected during the investigation, it was determined that additional assessment was necessary as the lateral extent of the contamination had not been determined. Therefore, in October 1999 monitoring wells MW-1 through MW-3 were installed and a groundwater monitoring program was initiated.

In November 2001, monitoring wells MW-4 through MW-6 were installed and borings B-9 through B-14 were advanced on the property. Based on the data obtained it was determined that

additional wells were necessary offsite and interim remedial action was required, therefore a workplan was prepared for the implementation of both. To date, the monitoring wells have not been installed due to difficulty obtaining an encroachment permit with the City of Oakland.

In an effort to remediate hydrocarbons at the site, five air sparge wells (AS-1 through AS-5), thirteen vapor extraction wells (VE-1 through VE-13), and one groundwater extraction well (EX-1) were installed in January 2004. In addition, well MW-1R was installed to replace well MW-1. In February 2004, three 10,000 gallon USTs and associated product piping were removed and replaced (with the current UST system) at the site. During construction activities, approximately 1,100 tons of soil and 40,000 to 60,000 gallons of groundwater was removed from the site and properly disposed of.

A soil vapor extraction system was installed and was operational from August 31, 2006 through November 19, 2007. The system is currently not operating at the site with the equipment being removed by the prior consultant in August and September 2008. In August 2007 borings DP-1 and DP-3 were installed at and in the vicinity of the site. Several offsite borings were expected to be completed, however, they were not performed for a variety of reasons. In September 2008, consulting responsibilities were transferred to AEI Consultants. Subsequently, AEI submitted the requested revised Site Conceptual Model (SCM) dated October 8, 2008 which updates a proposed scope of work to complete additional offsite characterization for the site. Approval for the completion of the work was issued in a letter from the ACHCSA dated October 16, 2008.

On November 24 through November 26, 2008 AEI advanced ten shallow soil borings (DP-4, SB-5, SB-7 to SB-14) in the vicinity of the subject property and four deep soil borings (DDP-1 to DDP-4) at the subject property. In addition, three nested soil vapor probes (SG-1 through SG-3) were installed at the site. Elevated hydrocarbon concentrations were reported in several of the soil borings advanced during the investigation. Based on the results, it was determined that the groundwater plume was delineated towards the south/southeast, however delineation/monitoring is necessary to determine the extent of the dissolved hydrocarbon plume to the west/southwest.

The remainder of this report describes the findings of the recent monitoring and sampling event for the subject property.

Summary of Activities

AEI measured the depth to groundwater in the well network (MW-1R, MW-2 through MW-6, and EX-1) on February 17, 2009. The wells caps were first removed from each well, allowing the groundwater to equilibrate with the atmosphere. The depth to water from the top of each well casing was measured with an electric water level indicator prior to sampling. The wells were then purged by using a submersible pump and groundwater samples were collected using clean, unused disposable plastic bailers. The following parameters were measured during purging: temperature, pH, specific conductivity, dissolved oxygen and oxidation-reduction potential. At least three well volumes of water were removed from the wells that were sampled. Once the wells had recharged to at least 90% of the original water level, a water sample was collected.

Groundwater was collected into 40 ml volatile organic analysis (VOA) vials and capped so that neither headspace nor air bubbles were visible within the sample containers. Samples were transported on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pittsburg, California (Department of Health Services Certification #1644).

The groundwater samples were collected and analyzed for total petroleum hydrocarbons as gasoline (TPHg) (EPA Method 8015Cm), and benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX) and methyl tert-butyl ether (MTBE), by EPA Method 8021B. The groundwater samples were also analyzed for tert-Amyl Methyl Ether (TAME), tert-Butanol (TBA), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), 1,2-Dichloroethane (1,2-DCA), ethylene dibromide (EDB), and MTBE by EPA method 8260.

Field Results

No free product was encountered during monitoring activities during the recent sampling events. Groundwater elevations during the current quarterly monitoring episode ranged from 30.76 to 31.44 feet above mean sea level (amsl). The groundwater was on average 2.96 feet higher than during the previous quarter. Groundwater was as shallow as 1.86 feet below the top of casing (EX-1) resulting in submerged screens in several of the wells. The direction of the groundwater flow during the February 17, 2009 sampling event was towards the southwest with an estimated overall hydraulic gradient of 0.01 feet/foot, relatively consistent with historical groundwater flow data. Groundwater elevation data is summarized in Table 1 and 1b, and a groundwater elevation map is included as Figure 4.

Groundwater Quality

Select dissolved hydrocarbons were detected in the groundwater samples as follows:

- Monitoring well MW-1R was reported to contain TPHg, benzene, and MTBE at concentrations of 220 micrograms per liter ($\mu\text{g/L}$), 3.6 $\mu\text{g/L}$, and 1.3 $\mu\text{g/L}$, respectively. These concentrations are lower than recently observed, however relatively similar to concentrations observed since 2007.
- Monitoring well MW-2 was reported to contain TPHg, benzene, MTBE, and TBA at a concentration of 460 $\mu\text{g/L}$, 23 $\mu\text{g/L}$, 26 $\mu\text{g/L}$, and 61 $\mu\text{g/L}$, respectively. These concentrations are relatively consistent with recent data.
- Monitoring well MW-3 was reported to contain TPHg, benzene, MTBE, and TBA at concentrations of 2,500 $\mu\text{g/L}$, 45 $\mu\text{g/L}$, 16,000 $\mu\text{g/L}$, and 190,000 $\mu\text{g/L}$, respectively. These concentrations are lower than recently observed, and remain significantly lower than historical concentrations, with the exception of TBA.
- Monitoring well MW-4 was reported to contain TPHg, benzene, MTBE, and TBA at concentrations of 17,000 $\mu\text{g/L}$, 350 $\mu\text{g/L}$, 360 $\mu\text{g/L}$, and 2,100 $\mu\text{g/L}$, respectively. These concentrations represent a decrease in concentrations to, or near, historical lows.

- Monitoring well MW-5 was reported to contain TPHg and MTBE at a concentration of 170 µg/L and 4.2 µg/L, respectively. TPHg has been detected during the last three sampling events, while MTBE has typically been the only detected constituent in well MW-5. Benzene decrease back to below the laboratory detection limit in well MW-5.
- Hydrocarbons were not detected at or above the laboratory detection limit in well MW-6.
- Well EX-1 was reported to contain TPHg, benzene, MTBE, and TBA at concentrations of 70,000 µg/L, 2,700 µg/L, 1,400 µg/L, and 1,500 µg/L, respectively. These concentrations, with the exception of TBA, represent an overall increase in concentrations since the last sampling event, but are relatively similar to those seen during the historical sampling events. TBA decreased to a historical low during the recent sampling event.

Complete groundwater sample analytical data from the sampling event is included in Table 2 and select data is displayed on Figure 5. Laboratory results and chain of custody documents are included in Appendix B.

Summary

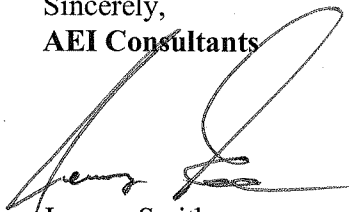
Groundwater during the February 2009 episode was calculated to flow towards the southwest with an estimated overall hydraulic gradient of 0.01 feet/foot, relatively consistent with historical data. Groundwater levels rose during the recent quarter by 2.96 feet on average resulting in submerged screens in most of the wells. Although hydrocarbon concentrations onsite were relatively consistent with concentrations observed during the 4th quarter 2008, additional wells are necessary to further characterize the extent of the offsite plume. Additional offsite wells have been approved and are expected to be installed during the next several months. The next sampling event is scheduled for May 2009 (2nd Quarter 2009).

REPORT LIMITATIONS AND SIGNATURES

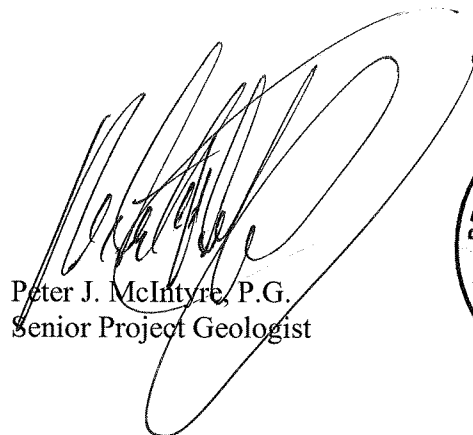
This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, but it cannot be assumed that they are representative of areas not sampled. All conclusions and/or recommendations are based on these analyses and observations, and the governing regulations. 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 environmental engineering and consulting field, which existed at the time and location of the work. If you have any questions regarding our investigation, please do not hesitate to contact one of us at (925) 746-6000.

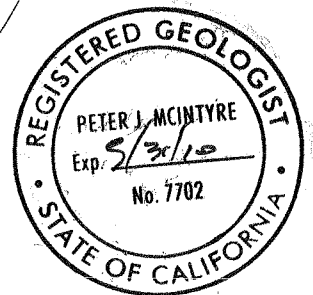
Sincerely,
AEI Consultants



Jeremy Smith
Senior Project Manager



Peter J. McIntyre, P.G.
Senior Project Geologist



Figures

- Figure 1: Site Location Plan
- Figure 2: Extended Site Plan
- Figure 3: Site Plan
- Figure 4: Groundwater Elevation Map
- Figure 5: Groundwater Analytical Data

Tables

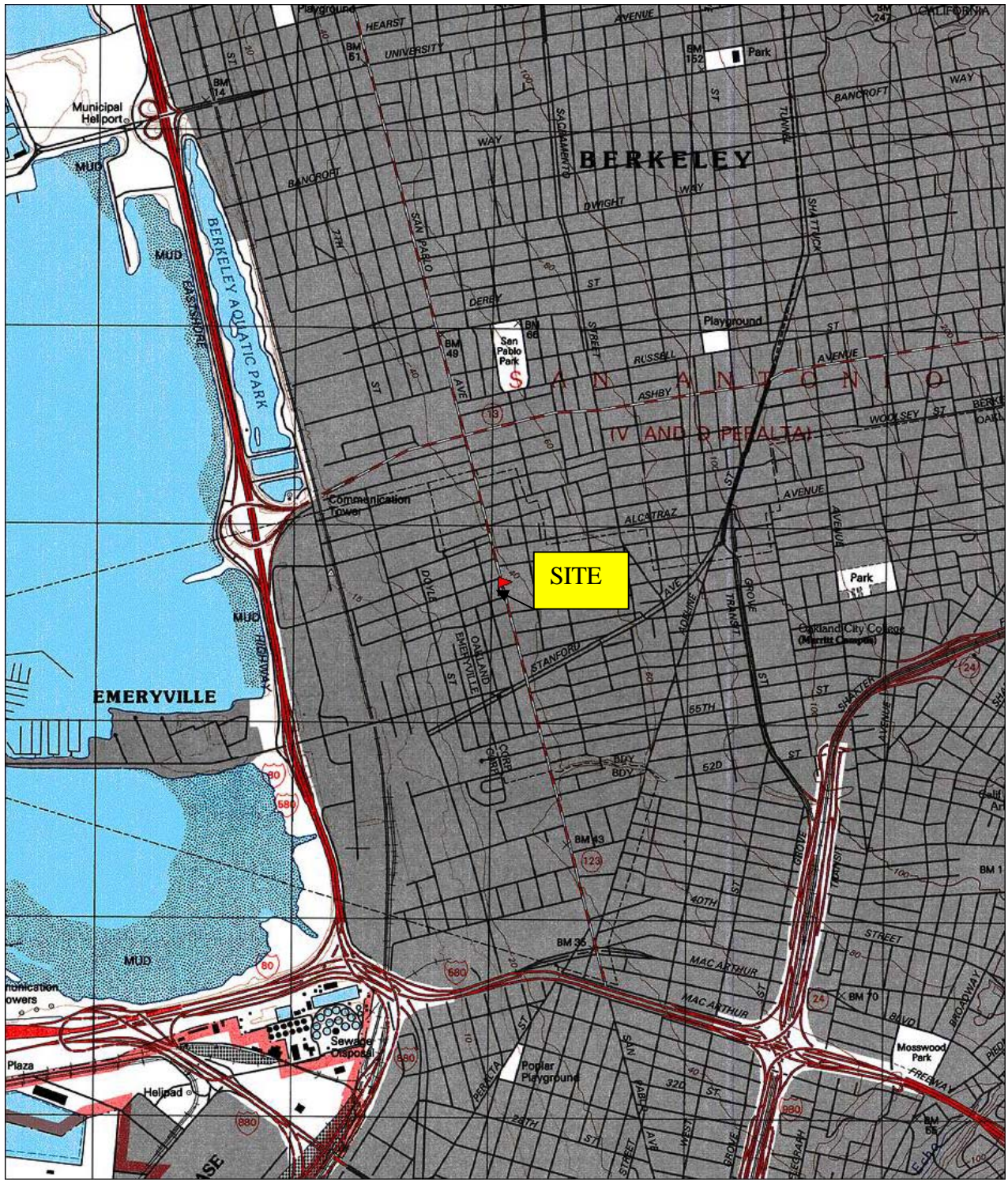
- Table 1: Groundwater Elevation Data
- Table 1b: Groundwater Flow Data
- Table 2: Groundwater Analytical Data

- Appendix A:** Groundwater Monitoring Well Field Sampling Forms
- Appendix B:** Laboratory Analyses with Chain of Custody Documentation

Distribution:

- Mr. Pritpaul Sappal, 2718 Washburn Court, Vallejo, CA 94591
- Mr. Paresh Khatri, ACHCSA, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502 (electronic upload)
- Mr. Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612

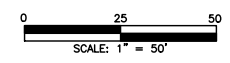
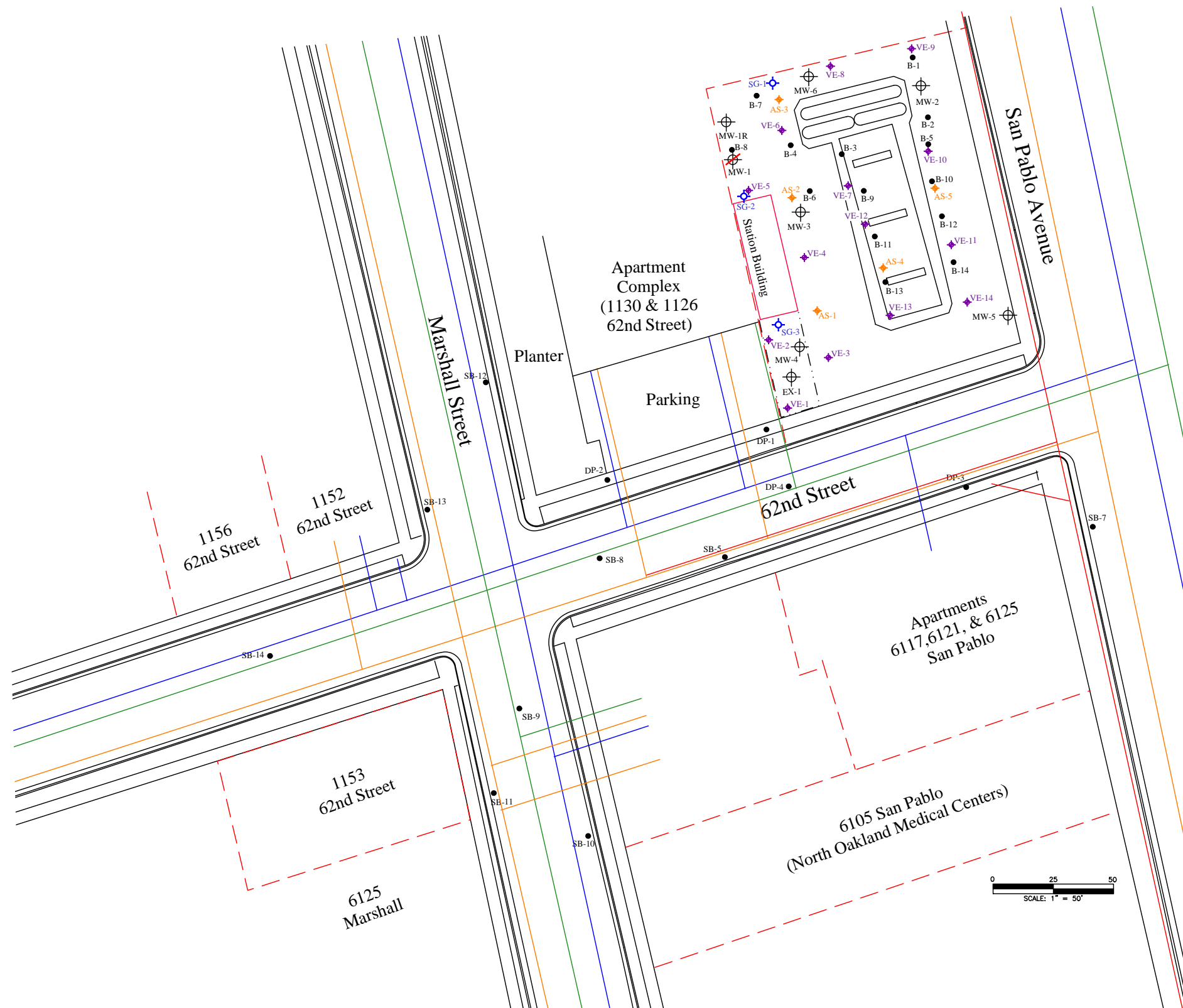
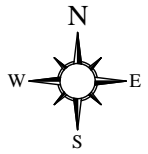
FIGURES



TN \nearrow MN
15°

0 5 1 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)

AEI CONSULTANTS	
SITE LOCATION PLAN	
6211 SAN PABLO AVENUE OAKLAND, CALIFORNIA	FIGURE 1 PROJECT NO. 280346



LEGEND

- MONITORING WELL
- SOIL BORING
- ⊗ ABANDONED WELL
- ⊕ NESTED VAPOR PROBE
- ⊖ VAPOR EXTRACTION WELL
- ⊕ AIR SPARGE WELL
- APPROXIMATE PROPERTY BOUNDARY

- WATER LINE
- NATURAL GAS LINE
- ELECTRIC LINE
- SEWER LINE

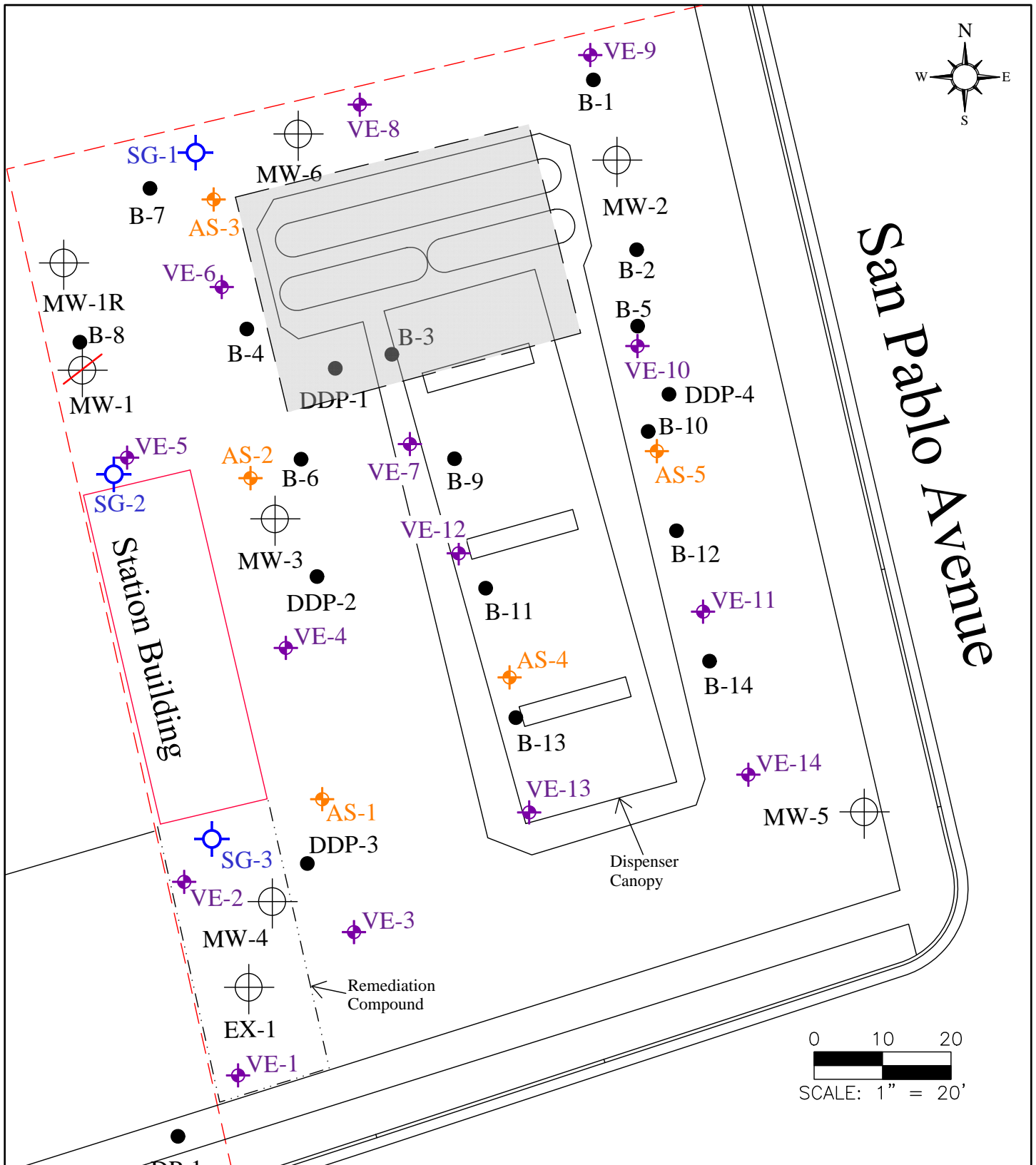
DRAFTED BY JAS 9/10/08
 REVISED BY JAS 9/26/08

AEI CONSULTANTS
 2500 CAMINO DIABLO, SUITE 200, WALNUT CREEK

EXTENDED SITE PLAN

6211 SAN PABLO AVENUE
 OAKLAND, CALIFORNIA

FIGURE 2
 PROJECT NO. 280346



LEGEND	
	MONITORING WELL
	SOIL BORING
	ABANDONED WELL
	NESTED VAPOR PROBE
	VAPOR EXTRACTION WELL
	AIR SPARGE WELL
	UNDERGROUND STORAGE TANK
	DISPENSER ISLAND
	FORMER UST EXCAVATION

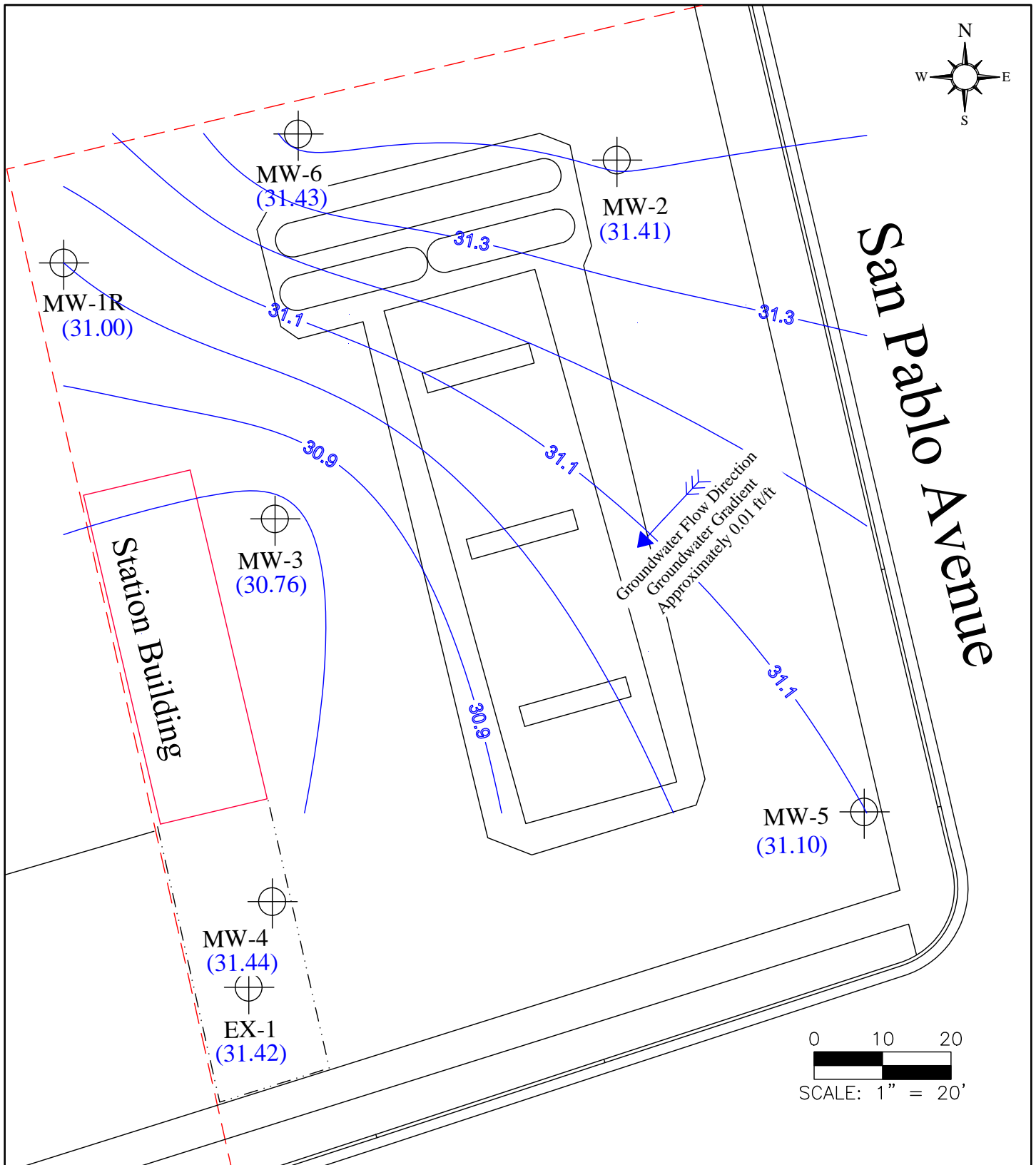
DRAFTED BY JAS 09-10-08
 REVISED BY JAS 09-26-08

AEI CONSULTANTS
 2500 CAMINO DIABLO, WALNUT CREEK

SITE PLAN

6211 SAN PABLO AVENUE
 OAKLAND, CALIFORNIA

FIGURE 3
 PROJECT NO. 280346



LEGEND

⊕ MONITORING WELL

(28.68) = Groundwater Elevation Mean Sea Level

Depth to Groundwater Collected on February 17, 2009

Wells MW-4 and EX-1 not used for groundwater flow calculations

Contour Line Gradient = 0.10 Feet

Contour Line by Surfer® Version 7

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 REVISED BY JAS 03-02-09

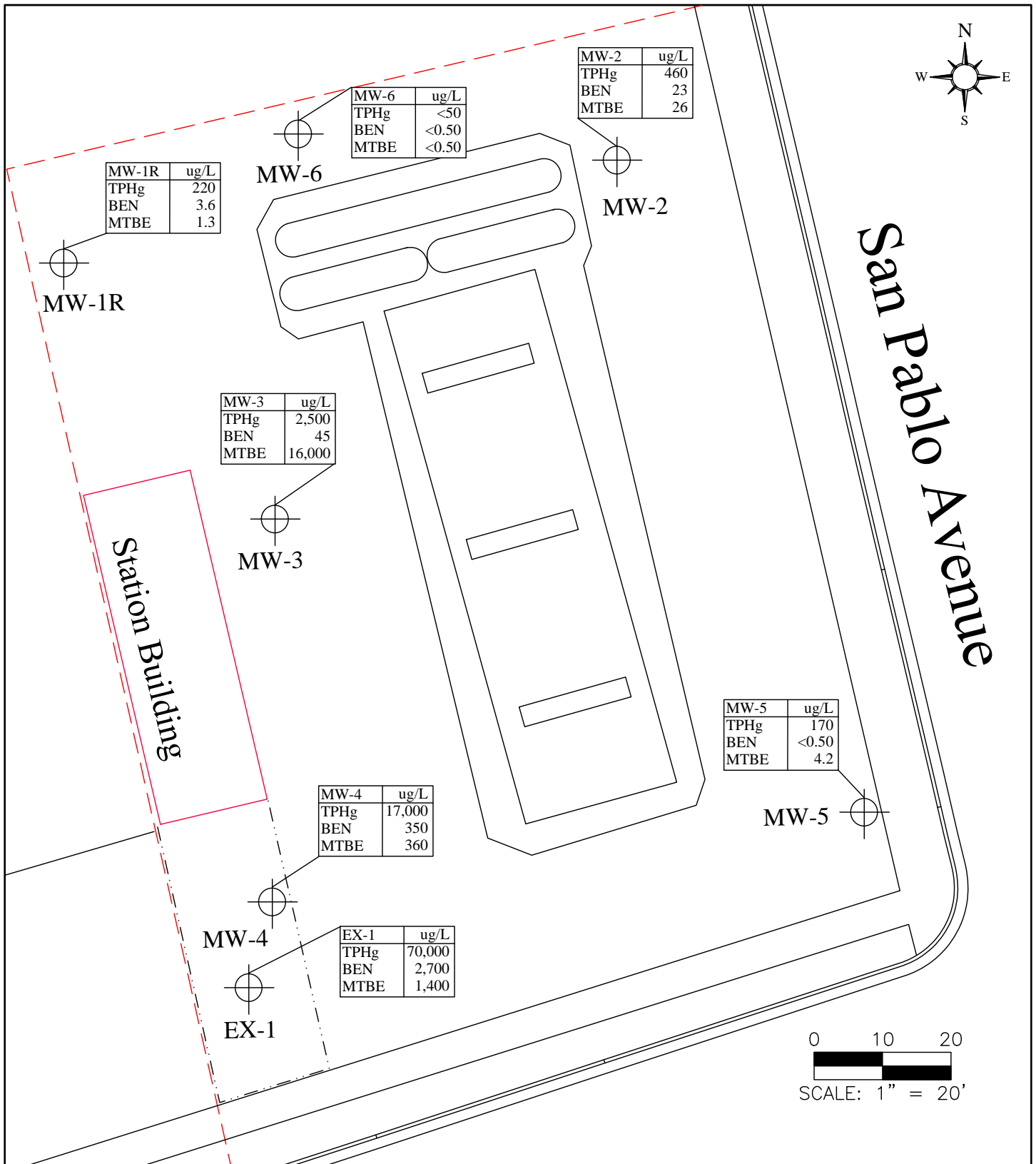
AEI CONSULTANTS

2500 CAMINO DIABLO, WALNUT CREEK

**GROUNDWATER
 ELEVATION MAP**

6211 SAN PABLO AVENUE
 OAKLAND, CALIFORNIA

FIGURE 4
 PROJECT NO. 280346



LEGEND

⊕ MONITORING WELL

TPHg = Total Petroleum Hydrocarbons as Gasoline

BEN = Benzene

MTBE = Methyl Tert-butyl Ether

ug/L = Micrograms per Liter (ppb)

DRAFTED BY JAS 09-10-08
 REVISED BY JAS 03-02-09

AEI CONSULTANTS

2500 CAMINO DIABLO, WALNUT CREEK

GROUNDWATER ANALYTICAL

MAP - February 17, 2009

6211 SAN PABLO AVENUE
 OAKLAND, CALIFORNIA

FIGURE 5
 PROJECT NO. 280346

TABLES

Table 1, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346
Groundwater Elevation Data

Well ID (Screen Interval)	Date Collected	Well Elevation (ft amsl)	Depth to Water (ft)	Groundwater Elevation (ft amsl)
MW-1R (3-23)	5/15/2008	36.67	8.53	28.14
	9/10/2008	36.67	9.36	27.31
	11/18/2008	36.67	8.82	27.85
	2/17/2009	36.67	5.67	31.00
MW-2 (6-21)	5/15/2008	36.33	7.63	28.70
	9/10/2008	36.33	8.43	27.90
	11/18/2008	36.33	7.83	28.50
	2/17/2009	36.33	4.92	31.41
MW-3 (6-21)	5/15/2008	35.12	7.23	27.89
	9/10/2008	35.12	8.08	27.04
	11/18/2008	35.12	7.52	27.60
	2/17/2009	35.12	4.36	30.76
MW-4 (5-20)	5/15/2008	34.11	5.43	28.68
	9/10/2008	34.11	7.26	26.85
	11/18/2008	34.11	5.84	28.27
	2/17/2009	34.11	2.67	31.44
MW-5 (5-25)	5/15/2008	35.17	6.29	28.88
	9/10/2008	35.17	6.99	28.18
	11/18/2008	35.17	6.41	28.76
	2/17/2009	35.17	4.07	31.10
MW-6 (5-25)	5/15/2008	36.07	7.51	28.56
	9/10/2008	36.07	8.32	27.75
	11/18/2008	36.07	7.73	28.34
	2/17/2009	36.07	4.64	31.43
EX-1 (5-30)	5/15/2008	33.28	4.69	28.59
	9/10/2008	33.28	5.46	27.82
	11/18/2008	33.28	4.79	28.49
	2/17/2009	33.28	1.86	31.42

Table 1b, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346
Groundwater Flow Data

Event #	Date	Average Water Table Elevation (ft amsl)	Change from Previous Episode (ft)	Gradient (Flow Direction) (ft/ft)
1	11/7/1999	NA	NA	0.0068 (SW)
2	3/8/2001	NA	NA	0.0092 (SW)
3	11/17/2001	NA	NA	0.0091 (SW)
4	3/31/2002	NA	NA	0.0108 (SSW)
5	9/9/2003	NA	NA	0.0031 (SW)
6	12/9/2003	NA	NA	0.0031 (SW)
7	2/19/2004	NA	NA	0.0154 (SW)
8	5/24/2004	NA	NA	0.0081 (WSW)
9	9/3/2004	NA	NA	0.0075 (SW)
10	11/2/2004	NA	NA	0.0083 (WSW)
11	2/17/2005	NA	NA	0.0036 (SW)
12	5/24/2005	NA	NA	0.0097 (SSW)
13	8/15/2005	NA	NA	0.013 (SW)
14	11/17/2005	NA	NA	0.010 (SW)
15	2/8/2006	NA	NA	0.010 (SW)
16	5/5/2006	NA	NA	0.013 (SSW)
17	8/18/2006	NA	NA	0.0125 (SSW)
18	12/1/2006	NA	NA	0.03 (S)
19	2/23/2007	NA	NA	0.012 (SW)
20	5/10/2007	NA	NA	0.013 (SW)
21	8/16/2007	NA	NA	0.022 (SW)
22	11/8/2007	NA	NA	0.012 (WSW)
23	2/14/2008	NA	NA	0.013 (SW)
24	5/15/2008	28.49	NA	0.01 (W)
25	9/10/2008	27.55	-0.94	0.015 (SW)
26	11/18/2008	28.26	0.71	0.012 (W)
27	2/17/2009	31.22	2.96	0.01 (SW)

ft amsl = feet above mean sea level

All water level depths are measured from the top of casing

NA = not available

Table 2, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346

Groundwater Analytical Data

Sample ID	Date	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	1,2-DCA µg/L	EDB µg/L
MW-1	11/7/1999	5,700	170	59	22	85	20,000	NA	NA	NA	NA	NA	NA
	3/8/2001	17,000	480	150	52	170	38,000	NA	NA	NA	NA	NA	NA
	11/17/2001	10,000	230	210	60	250	22,000	NA	NA	NA	NA	NA	NA
	3/31/2002	12,000	61	ND	ND	29	35,000	NA	NA	NA	NA	NA	NA
	11/9/2003	19,000	ND	ND	ND	ND	50,000	NA	NA	NA	NA	NA	NA
	12/9/2003	22,000	150	ND	ND	ND	66,000	NA	NA	NA	NA	NA	NA
MW-1R	11/17/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/31/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/9/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/9/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/19/2004	1,800	95	130	44	200	220	NA	NA	NA	NA	NA	NA
	5/24/2004	210	12	10	5.4	23	79	ND	ND	2.1	37	ND	ND
	9/3/2004	300	1.5	7.1	9.4	42	81	ND	ND	1.6	ND	ND	ND
	11/2/2004	290	14	30	9.5	45	45	ND	ND	1.1	ND	NA	NA
	2/17/2005	530	3.4	ND	ND	2.6	1,000	ND	ND	100	ND	NA	NA
	5/24/2005	NA	NA	NA	NA	NA	NA	ND	ND	610	ND	ND	ND
	8/15/2005	2,500	64	240	61	210	2,300	ND	ND	210	ND	ND	ND
	11/17/2005	2,500	66	290	75	290	1,300	ND	ND	110	1,600	ND	ND
	2/8/2006	3,300	100	310	86	470	1,400	ND	ND	130	1,400	ND	ND
	5/5/2006	3,400	170	350	97	550	1,100	ND	ND	100	2,400	ND	ND
	8/18/2006	5,800	190	1,000	230	1,000	490	ND	ND	36	2,900	ND	ND
	12/1/2006	410	1.7	6.3	1.2	47	100	ND	ND	4.7	100	ND	ND
	2/23/2007	ND	ND	0.51	ND	1.4	3	ND	ND	ND	ND	ND	ND
	5/10/2007	ND	ND	ND	ND	2.0	5.9	ND	ND	ND	ND	ND	ND
	8/16/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/8/2007	1,300	11	82	54	270	1.4	ND	ND	ND	ND	ND	ND
	2/14/2008	800	7.6	31	23	150	1.7	ND	ND	ND	ND	ND	ND
	5/15/2008	3,200	20	200	110	550	4.2	ND<0.50	ND<0.50	1.0	ND<20	ND<0.50	ND<0.50
	9/10/2008	1,000	6.5	22	19	120	2.3	ND<0.50	ND<0.50	ND<0.50	4.0	ND<0.50	ND<0.50
11/18/2008	430	4.1	18	12	100	1.8	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<0.50	ND<0.50	
2/17/2009	220	3.6	6.1	2.0	41	1.3	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<0.50	ND<0.50	
MW-2	11/7/1999	6,000	1,300	92	50	400	6,800	NA	NA	NA	NA	NA	NA
	3/8/2001	41,000	8,100	870	2,000	4,100	26,000	NA	NA	NA	NA	NA	NA
	11/17/2001	18,000	3,700	180	610	640	16,000	NA	NA	NA	NA	NA	NA
	3/31/2002	32,000	6,500	270	1,700	2,700	19,000	NA	NA	NA	NA	NA	NA
	9/9/2003	24,000	4,600	ND	1,200	440	19,000	NA	NA	NA	NA	NA	NA
	12/9/2003	31,000	6,200	170	1,600	2,700	19,000	NA	NA	NA	NA	NA	NA
	2/19/2004	21,000	4,600	120	970	2,000	15,000	NA	NA	NA	NA	NA	NA
	5/24/2004	1,200	120	3	63	67	1,900	ND	ND	ND	ND	ND	ND
	9/3/2004	2,300	120	ND	51	70	1,700	ND	ND	26	ND	ND	ND
	11/2/2004	530	35	ND	17	30	520	ND	ND	28	100	NA	NA

Table 2, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346

Groundwater Analytical Data

Sample ID	Date	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	1,2-DCA µg/L	EDB µg/L
MW-2 (cont.)	2/17/2005	18,000	2,100	31	800	680	20,000	ND	ND	1,000	ND	NA	NA
	5/24/2005	22,000	3,200	52	1,400	1,700	16,000	ND	ND	NS	NS	ND	ND
	8/15/2005	2,000	66	ND	46	47	2,400	ND	ND	95	880	ND	ND
	11/17/2005	760	19	0.64	15	13	1,000	ND	ND	26	810	ND	ND
	2/8/2006	10,000	1,500	8	660	380	4,300	ND	ND	120	2,800	ND	ND
	5/5/2006	15,000	1,800	ND	1,200	1,200	5,800	ND	ND	150	4,300	ND	ND
	8/18/2006	360	11	ND	13	9.7	160	ND	ND	4.6	600	ND	ND
	12/1/2006	11,000	1,000	ND	990	910	2,100	ND	ND	87	2,000	ND	ND
	2/23/2007	3,200	210	ND	270	85	900	ND	ND	33	1,400	ND	ND
	5/10/2007	590	31	ND	39	22	200	ND	ND	5.9	250	ND	ND
	8/16/2007	650	49	ND	71	49	100	ND	ND	3.5	82	ND	ND
	11/8/2007	110	1.6	ND	1.9	1.6	23	ND	ND	0.64	48	ND	ND
	2/14/2008	350	24	ND	12	5.9	190	ND	ND	7.7	320	ND	ND
	5/15/2008	81	0.59	ND<0.50	0.71	0.66	38	ND<0.50	ND<0.50	1.4	54	ND<0.50	ND<0.50
	9/10/2008	150	6.4	ND<0.50	8.4	5.1	14	ND<0.50	ND<0.50	0.55	38	ND<0.50	ND<0.50
	11/18/2008	420	25	0.70	46	47	29	ND<0.50	ND<0.50	1.3	60	ND<0.50	ND<0.50
	2/17/2009	460	23	0.96	51	37	26	ND<0.50	ND<0.50	1.4	61	ND<0.50	ND<0.50
MW-3	11/7/1999	43,000	860	70	ND	65	120,000	NA	NA	NA	NA	NA	NA
	3/8/2001	90,000	1,800	ND	ND	ND	210,000	NA	NA	NA	NA	NA	NA
	11/17/2001	110,000	1,600	ND	ND	ND	300,000	NA	NA	NA	NA	NA	NA
	3/31/2002	130,000	2,400	670	300	390	300,000	NA	NA	NA	NA	NA	NA
	9/9/2003	190,000	1,600	ND	ND	ND	420,000	NA	NA	NA	NA	NA	NA
	12/9/2003	170,000	2,000	ND	ND	ND	4,500,000	NA	NA	NA	NA	NA	NA
	2/19/2004	86,000	1,800	630	ND	ND	160,000	NA	NA	NA	NA	NA	NA
	5/24/2004	120,000	2,200	ND	180	220	400,000	ND	ND	15,000	ND	ND	ND
	9/3/2004	180,000	2,000	ND	ND	ND	510,000	ND	ND	14,000	ND	ND	ND
	11/2/2004	150,000	1,700	ND	ND	ND	350,000	ND	ND	31,000	140,000	NA	NA
	2/17/2005	130,000	2,100	420	210	730	290,000	ND	ND	11,000	ND	NA	NA
	5/24/2005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/15/2005	110,000	1,500	ND	ND	ND	260,000	ND	ND	21,000	25,000	ND	ND
	11/17/2005	200,000	2,400	ND	ND	ND	580,000	ND	ND	24,000	49,000	ND	ND
	2/8/2006	470,000	3,800	660	ND	790	490,000	ND	ND	26,000	49,000	ND	ND
	5/5/2006	400,000	3,300	ND	ND	ND	590,000	ND	ND	21,000	86,000	ND	ND
	8/18/2006	310,000	1,800	ND	ND	ND	440,000	ND	ND	23,000	79,000	ND	ND
	12/1/2006	270,000	ND	ND	ND	ND	290,000	ND	ND	11,000	90,000	ND	ND
	2/23/2007	220,000	ND	ND	ND	ND	260,000	ND	ND	15,000	33,000	ND	ND
	5/10/2007	140,000	ND	ND	ND	ND	180,000	ND	ND	7,100	80,000	ND	ND
	8/16/2007	69,000	ND	ND	ND	ND	85,000	ND	ND	3,400	180,000	ND	ND
	11/8/2007	34,000	ND	ND	ND	ND	38,000	ND	ND	1,400	140,000	ND	ND
	2/14/2008	41,000	ND	ND	ND	ND	44,000	ND	ND	1,900	110,000	ND	ND
5/15/2008	43,000	ND<100	ND<100	ND<100	ND<100	62,000	ND<100	ND<100	1,100	200,000	ND<100	ND<100	
9/10/2008	1,600	14	8.6	7.7	23	21,000	ND<1,000	ND<1,000	ND<1,000	290,000	ND<1,000	ND<1,000	
11/18/2008	4,500	86	150	100	590	29,000	ND<1,000	ND<1,000	ND<1,000	290,000	ND<1,000	ND<1,000	
2/17/2009	2,500	45	53	35	160	16,000	ND<1,000	ND<1,000	ND<1,000	190,000	ND<1,000	ND<1,000	

Table 2, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346

Groundwater Analytical Data

Sample ID	Date	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	1,2-DCA µg/L	EDB µg/L
MW-4	11/17/2001	64,000	960	1,400	360	1,600	140,000	NA	NA	NA	NA	NA	NA
	3/31/2002	78,000	4,400	4,700	690	2,700	150,000	NA	NA	NA	NA	NA	NA
	9/6/2007	49,000	710	840	ND	10,000	3,600	ND	ND	510	32,000	ND	ND
	11/8/2007	64,000	1,300	2,600	1,000	8,500	1,500	ND	ND	360	14,000	ND	ND
	2/14/2008	60,000	390	460	230	2,000	52,000	ND	ND	2,000	58,000	ND	ND
	5/15/2008	22,000	670	130	740	2,700	3,300	ND<5.0	ND<5.0	340	35,000	ND<5.0	ND<5.0
	9/10/2008	16,000	500	150	730	2,500	2,000	ND<250	ND<250	ND<250	65,000	ND<250	ND<250
	11/18/2008	24,000	820	190	1,200	5,000	1,400	ND<50	ND<50	260	9,300	ND<50	ND<50
	2/17/2009	17,000	350	170	620	2,600	360	ND<10	ND<10	82	2,100	ND<10	ND<10
	MW-5	11/17/2001	210	15	12	11	23	4.8	NA	NA	NA	NA	NA
3/31/2002		120	11	7.4	6.1	16	4.2	NA	NA	NA	NA	NA	NA
9/9/2003		ND	1.5	ND	ND	ND	1.7	NA	NA	NA	NA	NA	NA
12/9/2003		130	32	ND	2.6	0.57	5	NA	NA	NA	NA	NA	NA
2/19/2004		ND	ND	ND	ND	ND	1.5	NA	NA	NA	NA	NA	NA
5/24/2004		ND	ND	ND	ND	ND	0.55	ND	ND	ND	ND	ND	ND
9/3/2004		100	6.4	ND	ND	0.79	4.2	ND	ND	ND	ND	ND	ND
11/2/2004		ND	2.6	ND	1.7	0.87	1	ND	ND	ND	ND	ND	ND
2/17/2005		51	0.74	ND	0.94	ND	1.5	ND	ND	ND	ND	ND	ND
5/24/2005		ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
8/15/2005		ND	ND	ND	ND	ND	0.88	ND	ND	ND	ND	ND	ND
11/17/2005		71	0.81	ND	1.1	ND	1.4	ND	ND	ND	ND	ND	ND
2/8/2006		50	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
5/5/2006		ND	ND	ND	ND	ND	0.93	ND	ND	ND	ND	ND	ND
8/18/2006		ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND
12/1/2006		ND	0.69	ND	ND	0.52	0.97	ND	ND	ND	ND	ND	ND
2/23/2007		73	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND
5/10/2007		ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND	ND	ND
8/16/2007		ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
11/8/2007		ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND	ND	ND
2/14/2008	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND	
5/15/2008	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.7	ND<0.50	ND<0.50	ND<0.50	ND<20	ND<0.50	ND<0.50	
9/10/2008	480	17	1.8	2.7	0.59	12	ND<0.50	ND<0.50	ND<0.50	4.4	ND<0.50	ND<0.50	
11/18/2008	130	2.3	1.6	ND<0.50	ND<0.50	7.3	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<0.50	ND<0.50	
2/17/2009	170	ND<0.50	2.7	ND<0.50	ND<0.50	4.2	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<0.50	ND<0.50	
MW-6	11/17/2001	3,500	160	260	95	420	1,500	NA	NA	NA	NA	NA	NA
	3/31/2002	3,200	410	170	82	280	3,000	NA	NA	NA	NA	NA	NA
	9/9/2003	800	49	ND	7.4	ND	1,700	NA	NA	NA	NA	NA	NA
	12/9/2003	970	150	9.9	31	83	1,200	NA	NA	NA	NA	NA	NA
	2/19/2004	1,900	280	58	17	160	2,700	NA	NA	NA	NA	NA	NA
	9/3/2004	1,100	27	ND	14	27	2,200	ND	ND	85	ND	ND	ND
	11/2/2004	1,800	32	ND	5	11	4,100	ND	ND	170	270	ND	ND
	2/17/2005	5,600	190	34	41	110	10,000	ND	ND	780	2,000	ND	ND
	8/15/2005	1,800	27	ND	6	23	3,800	ND	ND	300	3,500	ND	ND
	11/17/2005	1,100	30	ND	4	9	2,400	ND	ND	190	9,500	ND	ND
2/8/2006	3,600	220	43	66	160	2,700	ND	ND	180	7,800	ND	ND	

Table 2, 6211 San Pablo Avenue, Oakland, CA - AEI Project # 280346

Groundwater Analytical Data

Sample ID	Date	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L	DIPE µg/L	ETBE µg/L	TAME µg/L	TBA µg/L	1,2-DCA µg/L	EDB µg/L
MW-6 (cont.)	5/5/2006	1,600	130	21	37	65	1,400	ND	ND	53	3,100	ND	ND
	8/18/2006	270	27	ND	3	4	240	ND	ND	11	2,400	ND	ND
	12/1/2006	1,700	ND	ND	ND	ND	1,700	ND	ND	92	800	ND	ND
	2/23/2007	ND	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND
	5/10/2007	ND	3.0	ND	ND	1.9	26	ND	ND	2	48	ND	ND
	8/16/2007	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND
	11/8/2007	ND	ND	ND	ND	ND	5.3	ND	ND	ND	ND	ND	ND
	2/14/2008	ND	ND	ND	ND	ND	11	ND	ND	0.94	220	ND	ND
	5/15/2008	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	13	ND<0.50	ND<0.50	1.0	130	ND<0.50	ND<0.50
	9/10/2008	78	1.4	0.60	0.94	1.3	71	ND<1.0	ND<1.0	6.2	160	ND<1.0	ND<1.0
	11/18/2008	ND<50	2.4	ND<0.50	ND<0.50	0.70	72	ND<1.2	ND<1.2	7.2	180	ND<1.2	ND<1.2
	2/17/2009	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<0.50	ND<0.50
	EX-1	2/19/2004	120,000	9,500	4,300	840	3,900	150,000	NA	NA	NA	NA	NA
2/14/2008		84,000	2,300	4,900	1,800	14,000	3,900	ND	ND	610	10,000	ND	ND
5/15/2008		24,000	2,100	750	640	2,100	1,800	ND<0.50	ND<0.50	380	11,000	ND<0.50	ND<0.50
9/10/2008		9,200	1,000	160	300	1,000	780	ND<100	ND<100	180	22,000	ND<100	ND<100
11/18/2008		8,900	1,400	290	360	1,300	840	ND<100	ND<100	230	20,000	ND<100	ND<100
2/17/2009		70,000	2,700	3,600	1,900	13,000	1,400	ND<25	ND<25	480	1,500	ND<25	ND<25

Notes:

TPHg = total petroleum hydrocarbons as gasoline using EPA Method 8015
 Benzene, toluene, ethylbenzene, and xylenes using EPA Method 8021B
 MTBE = methyl-tertiary butyl ether using EPA Method 8021B; EPA Method 8260B Beginning in May 2008
 TBA = tert-butyl alcohol using EPA Method 8260B
 TAME = tert-amyl methyl ether using EPA Method 8260B
 DIPE = diisopropyl ether using EPA Method 8260B
 ETBE = ethyl tert-butyl ether using EPA Method 8260B
 1,2-DCA = 1,2-dichloroethane using EPA Method 8260B
 EDB = Ethylene dibromide using EPA Method 8260B
 µg/L= micrograms per liter
 ND = non detect at respective reporting limit
 NA = not analyzed

APPENDIX A

**GROUNDWATER MONITORING WELL
FIELD SAMPLING FORMS**

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-1R

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	36.67		
Depth of Well	22.75		
Depth to Water (from top of casing)	5.67		
Water Elevation (feet above msl)	31.00		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	8.2		
Appearance of Purge Water	Free Product Present? No		
	Thickness (ft):		

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
10:23	1	18.52	5.71	596	2.78	-181.8	Clear
	2	18.70	5.85	597	2.40	-196.7	Clear
	3	18.69	5.90	597	2.36	-201.9	Clear
	4	18.65	5.97	598	1.82	-209.9	Clear
	5	18.68	5.99	599	1.47	-211.0	Clear
	6	18.72	6.02	601	1.15	-214.1	Clear
	7	18.74	6.05	602	0.92	-218.7	Clear
	8.5	18.78	6.07	604	0.83	-219.5	Clear

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

Sewer odors present

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	36.33		
Depth of Well	20.70		
Depth to Water (from top of casing)	4.92		
Water Elevation (feet above msl)	31.41		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	7.6		
Actual Volume Purged (gallons)	8.0		
Appearance of Purge Water	Light brown, clearing at 1 gallon		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
11:42	1	18.73	5.74	648	0.80	-202.3	Clear
	2	18.28	5.78	633	0.45	-234.2	Clear
	3	17.64	5.81	619	0.50	-236.1	Clear
	4	17.41	5.81	630	0.78	-216.2	Clear
	5	17.53	5.80	654	1.16	-201.1	Clear
	6	17.78	5.81	660	0.81	-220.5	Clear
	7	18.26	5.84	666	0.37	-246.6	Clear
	8	18.82	5.90	669	0.30	-258.6	Clear

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

No hydrocarbon odors

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-3

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	35.12		
Depth of Well	20.82		
Depth to Water (from top of casing)	4.36		
Water Elevation (feet above msl)	30.76		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	7.9		
Actual Volume Purged (gallons)	8.0		
Appearance of Purge Water	Dark Brown, clearing at 2.5 gallons		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
12:16	1	17.51	6.20	92	5.80	-141.5	Light dark
	2	16.80	6.01	91	4.79	-165.7	clear
	3	17.10	5.70	209	2.23	-190.2	clear
	4	17.74	5.61	325	0.64	-224.4	clear
	5	17.93	5.61	352	0.47	-231.6	clear
	6	18.36	5.66	452	0.27	-250.9	clear
	7	18.57	5.69	514	0.25	-260.0	clear
	8	18.89	5.75	594	0.50	-272.9	clear

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

Strong hydrocarbon odors present

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-4

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	34.11		
Depth of Well	19.75		
Depth to Water (from top of casing)	2.67		
Water Elevation (feet above msl)	31.44		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	8.2		
Actual Volume Purged (gallons)	8.5		
Appearance of Purge Water	Dark, clearing at 2 gallons		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
1:55	1	17.84	5.89	674	0.52	-204.5	dark
	2	17.37	5.96	689	0.25	-249.3	clear
	3	17.44	6.02	748	0.20	-264.2	clear
	4	17.52	6.07	784	0.18	-270.7	clear
	5	17.56	6.08	814	0.18	-272	clear
	6	17.63	6.14	847	0.19	-272.5	clear
	7	17.69	6.12	864	0.19	-273.8	clear
	8.5	17.75	6.13	879	0.20	-275.4	clear

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

Strong hydrocarbon odors present

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-5

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	35.17		
Depth of Well	24.31		
Depth to Water (from top of casing)	4.07		
Water Elevation (feet above msl)	31.10		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	9.7		
Actual Volume Purged (gallons)	10.0		
Appearance of Purge Water	Brown, clearing at 2 gallons		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
11:53	1	19.79	6.00	817	0.54	-250.4	Light Brown
	2	19.62	5.97	814	0.20	-281.3	Clear
	3	19.20	5.98	809	0.18	-288.6	Clear
	4	18.81	5.98	805	0.19	-290.9	Clear
	5	18.67	5.98	802	0.18	-293.5	Clear
	6	18.62	5.98	800	0.17	-301.0	Clear
	7	18.67	5.98	797	0.16	-306.6	Clear
	8	18.77	5.98	794	0.19	-311.5	Clear
	10	18.83	5.98	792	0.23	-313.3	Clear

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

No hydrocarbon odors

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-6

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2"		
Wellhead Condition	OK ▼		
Elevation of Top of Casing (feet above msl)	36.07		
Depth of Well	23.45		
Depth to Water (from top of casing)	4.64		
Water Elevation (feet above msl)	31.43		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	9.0		
Actual Volume Purged (gallons)	9.0		
Appearance of Purge Water	Light brown, clearing quickly		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
11:11	1	11.46	6.50	70	10.02	-140.8	Clear
	2	12.14	6.27	102	9.21	-120.0	Clear
	3	13.06	5.98	147	8.08	-101.8	Clear
	4	13.89	5.84	197	6.93	-97.7	Clear
	5	14.34	5.82	215	6.59	-98.5	Clear
	6	14.88	5.81	254	5.79	-103.6	Clear
	7	15.02	8.63	266	5.59	-104.7	Clear
	8	15.12	5.80	275	5.43	-105.7	Clear
	9	15.20	5.81	282	5.27	-106.9	Clear

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

No hydrocarbon odors

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: EX-1

Project Name:	Alaska Gas	Date of Sampling:	2/17/2009
Job Number:	280346	Name of Sampler:	A. Nieto
Project Address:	6211 San Pablo Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4"		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	33.28		
Depth of Well	27.50		
Depth to Water (from top of casing)	1.86		
Water Elevation (feet above msl)	31.42		
Well Volumes Purged	3		
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	50.0		
Actual Volume Purged (gallons)	50.0		
Appearance of Purge Water	Initially dark, clearing quickly		
Free Product Present?	No	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				4 VOAs			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (μ sec/cm)	DO (mg/L)	ORP (meV)	Comments
1:10	1	18.54	5.87	655	1.51	-228.5	Clear
	2	18.70	5.94	630	1.36	-231.2	Clear
	3	18.22	6.06	519	2.01	-218.8	Clear
	4	17.92	6.07	481	2.28	-214.7	Clear
	5	17.49	6.08	419	2.72	-209.0	Clear
	10	16.60	6.06	331	3.37	-202.2	Clear
	15	15.67	5.96	316	3.11	-197.6	Clear
	20	15.82	5.89	474	1.80	-208.7	Clear
	25	16.04	5.90	572	1.55	-216.6	Clear
	30	16.14	5.91	611	1.43	-222.1	Clear
	35	16.21	5.90	639	1.24	-226.4	Clear
	40	16.32	5.95	693	0.91	-234.8	Clear
	45	16.39	5.96	715	0.81	-237.7	Clear
	50	16.44	6.00	735	0.75	-239.5	Clear

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

Hydrocarbon odors present

APPENDIX B

**LABORATORY ANALYTICAL REPORT WITH CHAIN OF
CUSTODY DOCUMENTATION**



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mcccampbell.com E-mail: main@mcccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #280346; Alaska Gas	Date Sampled: 02/17/09
		Date Received: 02/17/09
	Client Contact: Jeremy Smith	Date Reported: 02/24/09
	Client P.O.: #WC081344	Date Completed: 02/24/09

WorkOrder: 0902424

February 24, 2009

Dear Jeremy:

Enclosed within are:

- 1) The results of the 7 analyzed samples from your project: **#280346; Alaska Gas,**
- 2) A QC report for the above samples,
- 3) A copy of the chain of custody, and
- 4) An invoice for analytical services.

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

McC Campbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McC Campbell Analytical, Inc.

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: Jeremy Smith Bill To: same P.O. # WC081344

Company: AEI Consultants

2500 Camino Diablo

Walnut Creek, CA 94597

E-Mail: jasmith@aeiconsultants.com

Tele: (925) 746-6000

Fax: (925) 746-6099

Project #: 280346

Project Name: Alaska Gas

Project Location: 6211 San Pablo Avenue, Oakland, California

Sampler Signature: *[Signature]*

Analysis Request

Other

Comments

SAMPLE ID (Field Point Name)	LOCATION	* SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				BTEX / MTBE 8021B	TPH - gasoline (8015)	Total Petroleum Oil & Grease (413.1) w/ Silica	Total Petroleum Hydrocarbons (418.1)	Fuel Oxys (8260) - MTBE, DIPE, ETBE, TAME, TBA, 1,2-DCA, EDB	Nitrate/Nitrite	EPA 608 / 8080 PCB's ONLY	VOCs 8260	SVOCs (with PAHs) 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals (Cd, Cr, pb, Ni, zinc (6010C))	Lead (field filtered 200.8)	RCI							
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other																					
MW-1R		2/17/09	12:30	4	V/L	X						X	X				X																		
MW-2			2:15			X						X	X				X																		
MW-3			12:45			X						X	X				X																		
MW-4			2:15			X						X	X				X																		
MW-5			12:55			X						X	X				X																		
MW-6			11:40			X						X	X				X																		
EX-1			10:45			X						X	X				X																		

Relinquished By: *[Signature]* Date: 2/17/09 Time: 4:40 Received By: *[Signature]*

Relinquished By: _____ Date: _____ Time: _____ Received By: _____

Relinquished By: _____ Date: _____ Time: _____ Received By: _____

ICE/t° S6c VOAS O&G METALS OTHER
 GOOD CONDITION PRESERVATION APPROPRIATE
 HEAD SPACE ABSENT CONTAINERS
 DECHLORINATED IN LAB _____ PERSERVED IN LAB _____

0902424

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0902424

ClientCode: AEL

WriteOn
 EDF
 Excel
 Fax
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:	Jeremy Smith	Email: jasmith@aeiconsultants.com	Bill to:	Denise Mockel	Requested TAT: 5 days
	AEI Consultants	cc:		AEI Consultants	Date Received: 02/17/2009
	2500 Camino Diablo, Ste. #200	PO: #WC081344		2500 Camino Diablo, Ste. #200	Date Printed: 02/17/2009
	Walnut Creek, CA 94597	ProjectNo: #280346; Alaska Gas		Walnut Creek, CA 94597	
	(925) 283-6000 FAX (925) 944-2895			dmockel@aeiconsultants.com	

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	
0902424-001	MW-1R	Water	2/17/2009 12:30	<input type="checkbox"/>	B	A	A										
0902424-002	MW-2	Water	2/17/2009 14:15	<input type="checkbox"/>	B	A											
0902424-003	MW-3	Water	2/17/2009 12:45	<input type="checkbox"/>	B	A											
0902424-004	MW-4	Water	2/17/2009 14:15	<input type="checkbox"/>	B	A											
0902424-005	MW-5	Water	2/17/2009 12:55	<input type="checkbox"/>	B	A											
0902424-006	MW-6	Water	2/17/2009 11:40	<input type="checkbox"/>	B	A											
0902424-007	EX-1	Water	2/17/2009 12:35	<input type="checkbox"/>	B	A											

Test Legend:

1	5-OXYS+PBSCV_W	2	G-MBTEX_W	3	PREFD REPORT	4		5	
6		7		8		9		10	
11		12							

Prepared by: Melissa Valles

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.



Sample Receipt Checklist

Client Name: **AEI Consultants** Date and Time Received: **2/17/09 5:39:24 PM**
 Project Name: **#280346; Alaska Gas** Checklist completed and reviewed by: **Melissa Valles**
 WorkOrder N°: **0902424** 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: 5.6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No No VOA vials submitted
 Sample labels checked for correct preservation? Yes No
 TTLC 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.

Client contacted: Date contacted: Contacted by:

Comments:



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AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #280346; Alaska Gas	Date Sampled: 02/17/09
		Date Received: 02/17/09
	Client Contact: Jeremy Smith	Date Extracted: 02/18/09-02/20/09
	Client P.O.: #WC081344	Date Analyzed 02/18/09-02/20/09

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0902424

Lab ID	0902424-001B	0902424-002B	0902424-003B	0902424-004B	Reporting Limit for DF =1	
Client ID	MW-1R	MW-2	MW-3	MW-4		
Matrix	W	W	W	W		
DF	1	1	2000	20		

Compound	Concentration				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	1.4	ND<1000	82	NA	0.5
t-Butyl alcohol (TBA)	ND	61	190,000	2100	NA	2.0
1,2-Dibromoethane (EDB)	ND	ND	ND<1000	ND<10	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND<1000	ND<10	NA	0.5
Diisopropyl ether (DIPE)	ND	ND	ND<1000	ND<10	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND	ND	ND<1000	ND<10	NA	0.5
Methyl-t-butyl ether (MTBE)	1.3	26	16,000	360	NA	0.5

Surrogate Recoveries (%)

%SS1:	88	85	81	81	
-------	----	----	----	----	--

Comments

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

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.



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AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #280346; Alaska Gas	Date Sampled: 02/17/09
		Date Received: 02/17/09
	Client Contact: Jeremy Smith	Date Extracted: 02/18/09-02/20/09
	Client P.O.: #WC081344	Date Analyzed 02/18/09-02/20/09

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0902424

Lab ID	0902424-005B	0902424-006B	0902424-007B		Reporting Limit for DF =1	
Client ID	MW-5	MW-6	EX-1			
Matrix	W	W	W			
DF	1	1	50			

Compound	Concentration				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	ND	480		NA	0.5
t-Butyl alcohol (TBA)	ND	ND	1500		NA	2.0
1,2-Dibromoethane (EDB)	ND	ND	ND<25		NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND<25		NA	0.5
Diisopropyl ether (DIPE)	ND	ND	ND<25		NA	0.5
Ethyl tert-butyl ether (ETBE)	ND	ND	ND<25		NA	0.5
Methyl-t-butyl ether (MTBE)	4.2	ND	1400		NA	0.5

Surrogate Recoveries (%)

%SS1:	84	85	80		
-------	----	----	----	--	--

Comments

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

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.



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AEI Consultants 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #280346; Alaska Gas	Date Sampled: 02/17/09
		Date Received: 02/17/09
	Client Contact: Jeremy Smith	Date Extracted: 02/20/09-02/23/09
	Client P.O.: #WC081344	Date Analyzed 02/20/09-02/23/09

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

Extraction method SW5030B

Analytical methods SW8021B/8015Bm

Work Order: 0902424

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1R	W	220,d1	ND	3.6	6.1	2.0	41	1	102
002A	MW-2	W	460,d1	29	23	0.96	51	37	1	100
003A	MW-3	W	2500,d1	20,000	45	53	35	160	10	103
004A	MW-4	W	17,000,d1	380	350	170	620	2600	10	103
005A	MW-5	W	170,d9	ND	ND	2.7	ND	ND	1	116
006A	MW-6	W	ND	ND	ND	ND	ND	ND	1	97
007A	EX-1	W	70,000,d1	1700	2700	3600	1900	13,000	20	116

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5	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 and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation:

d1) weakly modified or unmodified gasoline is significant
d9) no recognizable pattern



QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 41452

WorkOrder 0902424

Analyte	Extraction SW5030B			Spiked Sample ID: 0902424-006b								
	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%)			
tert-Amyl methyl ether (TAME)	ND	10	88.4	92.5	4.39	99	100	1.14	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	83.9	92.5	9.49	92	86.9	5.62	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	106	109	2.43	117	120	2.99	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	98.9	104	5.06	112	112	0	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	95.8	100	4.24	108	109	0.752	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	102	105	3.46	112	113	1.51	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	96	99.5	3.51	104	104	0	70 - 130	30	70 - 130	30
%SS1:	85	25	76	77	1.44	92	92	0	70 - 130	30	70 - 130	30

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

BATCH 41452 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0902424-001B	02/17/09 12:30 PM	02/18/09	02/18/09 8:59 PM	0902424-002B	02/17/09 2:15 PM	02/18/09	02/18/09 9:37 PM
0902424-003B	02/17/09 12:45 PM	02/20/09	02/20/09 3:17 AM	0902424-004B	02/17/09 2:15 PM	02/20/09	02/20/09 7:38 AM
0902424-005B	02/17/09 12:55 PM	02/18/09	02/18/09 11:31 PM	0902424-006B	02/17/09 11:40 AM	02/19/09	02/19/09 12:08 AM
0902424-007B	02/17/09 12:35 PM	02/20/09	02/20/09 8:22 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.

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

NR = 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.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 41449

WorkOrder 0902424

Analyte	EPA Method SW8021B/8015Bm		Extraction SW5030B						Spiked Sample ID: 0902406-001A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) [£]	ND	60	81.9	82	0.0969	88	91	3.28	70 - 130	20	70 - 130	20
MTBE	ND	10	86.2	86.3	0.0884	107	102	5.22	70 - 130	20	70 - 130	20
Benzene	ND	10	97.1	96.8	0.333	115	106	8.05	70 - 130	20	70 - 130	20
Toluene	ND	10	97	97.3	0.219	109	98.5	9.88	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	100	101	1.01	110	109	1.58	70 - 130	20	70 - 130	20
Xylenes	ND	30	111	112	0.662	103	98.4	4.93	70 - 130	20	70 - 130	20
%SS:	96	10	91	96	4.58	115	101	13.5	70 - 130	20	70 - 130	20

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

BATCH 41449 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0902424-001A	02/17/09 12:30 PM	02/20/09	02/20/09 12:56 PM	0902424-002A	02/17/09 2:15 PM	02/20/09	02/20/09 1:30 PM
0902424-003A	02/17/09 12:45 PM	02/20/09	02/20/09 4:38 AM	0902424-003A	02/17/09 12:45 PM	02/21/09	02/21/09 12:43 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.



QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

BatchID: 41471

WorkOrder 0902424

Analyte	EPA Method SW8021B/8015Bm		Extraction SW5030B						Spiked Sample ID: 0902424-006A			
	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) [£]	ND	60	91.8	84.6	8.18	96.6	89.8	7.34	70 - 130	20	70 - 130	20
MTBE	ND	10	108	96.6	11.2	85.2	92.8	8.57	70 - 130	20	70 - 130	20
Benzene	ND	10	92.1	84.4	8.69	108	105	2.74	70 - 130	20	70 - 130	20
Toluene	ND	10	93.5	86.6	7.66	98.7	94.8	4.07	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	94	87.3	7.39	110	103	6.36	70 - 130	20	70 - 130	20
Xylenes	ND	30	105	97.4	7.13	106	102	3.87	70 - 130	20	70 - 130	20
%SS:	97	10	106	104	1.30	106	104	1.53	70 - 130	20	70 - 130	20

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

BATCH 41471 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0902424-004A	02/17/09 2:15 PM	02/20/09	02/20/09 8:33 AM	0902424-005A	02/17/09 12:55 PM	02/23/09	02/23/09 6:34 PM
0902424-006A	02/17/09 11:40 AM	02/20/09	02/20/09 2:37 PM	0902424-007A	02/17/09 12:35 PM	02/20/09	02/20/09 5:37 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.