

September 8, 2004

SEP 13 2004
COMMERCIAL SERVICE

GROUNDWATER MONITORING REPORT
3rd Quarter, 2004

3635 13th Avenue
Oakland, California

AEI Project No. 8499

Prepared For

Mr. John Williamson
1511 Wellington Street
Oakland, CA 94602

Prepared By

AEI Consultants
2500 Camino Diablo, Suite 200
Walnut Creek, CA 94597
(925) 283-6000

AEI



September 8, 2004

Mr. John Williamson
1511 Wellington Street
Oakland, CA 94602

**Subject: Groundwater Monitoring Report
3rd Quarter, 2004
3635 13th Avenue
Oakland, California
AEI Project No. 8499
ACHCSA Case No. RO0000159**

Dear Mr. Williamson:

AEI Consultants (AEI) has prepared this report on your behalf to document the required ongoing groundwater investigation at the above referenced property (Figure 1: Site Location Map). The investigation is being performed at the request of the Alameda County Health Care Services Agency (ACHCSA). The purpose of the groundwater monitoring and sampling activities is to further evaluate the release of petroleum hydrocarbons that occurred from the former underground storage tank (UST) and fuel dispensing system on the property. This report documents the monitoring and sampling event performed during the third quarter 2004, which occurred on July 9, 2004.

I Background

The subject property (hereinafter referred to as the "site" or "property") is located in a residential area of the City of Oakland, on the west corner of 13th Avenue and Excelsior Street. The site is approximately 4,000 square feet in size and is currently vacant and unimproved. The site is surrounded by fencing. The site was previously developed with a gasoline service station.

In December 1992, three underground storage tanks (USTs), one 250-gallon waste oil UST, one 500-gallon gasoline UST, and one 1,000-gallon gasoline UST were removed by Aqua Science Engineers, Inc. of San Ramon. Refer to Figure 2 for the former locations of the USTs. Soil samples collected beneath the former waste oil UST revealed concentrations of 8,200 mg/kg Total Oil and Grease (TOG), 290 mg/kg Total Petroleum Hydrocarbons (TPH) as gasoline (TPH-g), and 225 mg/kg total lead. Soil samples collected from beneath the 1,000-gallon gasoline UST indicated maximum concentrations of 27 mg/kg TPH-g and 5.5 mg/kg benzene. Only minor concentrations of TPH as gasoline and benzene, toluene, ethylbenzene, and total xylenes (BTEX) were found in samples collected beneath the 500-gallon gasoline UST ⁽¹⁾.

In September 1993, AEI removed and disposed of approximately 360 cubic yards of contaminated soil from near the former waste oil UST. Sidewall samples collected from this excavation indicated that only minor contaminant concentrations remained in the soil. Following this project, the former 250-gallon waste oil UST was concluded to not pose a significant threat to the groundwater ⁽²⁾.

Three monitoring wells (MW-1 through MW-3) were installed in March 1994 ⁽³⁾. Soil samples analyzed during the well installations contained only minor concentration of petroleum hydrocarbons. The wells were monitored on a quarterly basis from November 1994 to August 1995, when the ACHCSA approved a change in monitoring frequency to a biannual schedule. Historical water elevations and groundwater sample analytical data is presented in Table 1.

On November 16, 1995, AEI advanced a soil boring at each end of the former dispenser island to depths of 4.5 feet below ground surface (bgs) on the west end, and 10 feet bgs on the east. Soil samples were collected beneath the former dispensers at the request of the ACHCSA. Analysis of soil samples collected from the two borings indicated that concentrations of TPH-g and BTEX were below laboratory detection limits ⁽⁴⁾.

At the request of the ACHCSA, AEI prepared a workplan outlining a scope of work to further define the extent of impacted soil and groundwater beneath the site ⁽⁵⁾. This investigation was performed between August 1997 and January 1998. Nine soil borings (SB1 through SB9) were advanced on the property and down-gradient of the former gasoline USTs ⁽⁶⁾. The investigation revealed significant concentrations of contaminants in soil and groundwater and that the release had spread off-site in a southerly direction.

An additional workplan was prepared, outlining the installation of two additional groundwater monitoring wells ⁽⁷⁾. However, due to the City of Oakland's requirement for liability insurance provided by the property owner for the wells, off-site monitoring wells could not be installed. A letter addendum to the workplan was prepared and approved to investigate the offsite extent of the release with temporary soil borings ⁽⁸⁾. Soil and groundwater samples were collected from six additional soil borings (SB-10 to SB-15) between August and October 2003, the results of which were presented in the *Soil and Groundwater Investigation Report*, dated October 30, 2003. Locations of the former USTs, soil borings, and wells are shown on Figure 2.

II Summary of Activities

AEI measured depth to groundwater in the three monitoring wells (MW-1 to MW-3) on July 9, 2004. The depth from the top of the well casings was measured with an electric water level indicator prior to sampling. The wells were purged with a submersible pump. Temperature, pH, specific conductivity, and oxidation-reduction potential (ORP) were measured during the purging of the wells. Turbidity was visually noted. The wells were purged of at least 3 well volumes and allowed to recharge prior to sample collection. Once water levels recharged to at least 90% of their original levels, a water sample was collected from each well.

Water samples were collected with new, disposable bailers into 40-ml volatile organic analysis (VOA) vials and 1-liter amber bottles and capped so that no headspace or air bubbles were visible within the sample containers. Samples were delivered on ice under chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (Department of Health Services Certification #1644).

The three groundwater samples were submitted for chemical analysis for the following:

- Total Petroleum Hydrocarbons (TPH) as gasoline (TPH-g) by EPA method 8015Cm
- TPH as diesel (TPH-d) by EPA method 8015C
- Benzene, toluene, ethyl benzene, and xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA method 8021
- MTBE and tertiary butyl alcohol (TBA) by EPA method 8260B (MW-2 only)

III Field Results

No sheen or free product was encountered during monitoring activities. Groundwater levels for the current monitoring episode ranged from 180.41 to 184.79 feet above Mean Sea Level (MSL). These groundwater elevations were an average of 3.34 feet lower than the previous monitoring episode, which occurred on April 6, 2004. Based on these water level measurements, groundwater was calculated to flow in a southerly direction, with a gradient of 0.05 ft/ft. This groundwater flow direction and gradient are nearly identical to results of monitoring events since 2002.

Groundwater elevation data is summarized in Table 1. The groundwater elevation contours and the groundwater flow direction are shown in Figure 3. Refer to Appendix A for the Groundwater Monitoring Well Field Sampling Forms.

IV Groundwater Quality

The highest concentrations of hydrocarbons were detected again in MW-2. TPH-g and TPH-d were detected in this well at 17,000 $\mu\text{g/l}$ and 4,400 $\mu\text{g/l}$, respectively. Benzene and MTBE were detected in this well at 2,800 $\mu\text{g/l}$ and 120 $\mu\text{g/l}$, respectively. TBA was detected in MW-2 at 98 $\mu\text{g/l}$. Low concentrations of TPH-g, TPH-d, and BTEX were detected in MW-1 and MW-3.

A summary of groundwater quality data is presented in Tables 1 and 2. Laboratory results and chain of custody documents are included in Appendix B.

V Conclusion and Recommendations

The concentrations of contaminants were higher during the 3rd Quarter 2004 as compared to the 2nd Quarter, but are consistent with those from October 2003, when the average water table elevations was nearly identical to that in July 2004. Trends may become more apparent as monitoring on a quarterly basis continues. Again, AEI is recommending that quarterly monitoring be continued. Samples collected during the next event will be analyzed for the same constituents as analyzed during the 3rd Quarter event. The next event is tentatively scheduled to occur in early October 2004.

AEI submitted a remedial investigation and interim corrective action plan in July 2004 to address remaining source area contamination⁽¹⁰⁾. This plan is currently under review by ACHCSA.

VI References

1. *Underground Storage Tank Removal Final Report*, January 20, 1993 – Aqua Science Engineers, Inc.
2. *Contaminated Soil Over-excavation Final Report*, November 18, 1999 – All Environmental, Inc.
3. *Soil Boring and Monitoring Well Installation Report*, December 14, 1994 – All Environmental, Inc.
4. *Phase II Limited Subsurface Investigation*, December 11, 1995 – All Environmental, Inc.
5. *Phase II Subsurface Investigation Workplan*, June 5, 1997 – All Environmental, Inc.
6. *Phase II Subsurface Investigation Report*, January 20, 1999 – All Environmental, Inc.
7. *Workplan*, December 3, 1999 – AEI Consultants
8. Letter to Amir Gholami of the ACHCSA, September 9, 2002 – AEI Consultants
9. *Soil and Groundwater Investigation Report*, October 30, 2003 – AEI Consultants
10. *Remedial Investigation and Corrective Action Plan*, July 19, 2004 – AEI Consultants

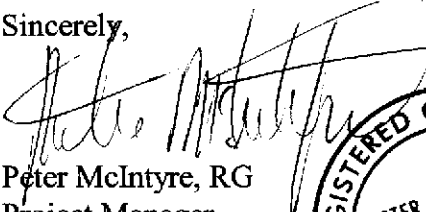
VII Report Limitation

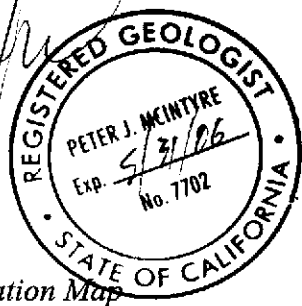
This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the required 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.

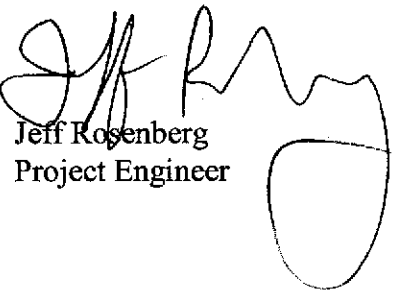
These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work.

If you have any questions regarding our investigation, please do not hesitate to contact me at (925) 283-6000, extension 104.

Sincerely,


Peter McIntyre, RG
Project Manager




Jeff Rosenberg
Project Engineer

Figures

- Figure 1: Site Location Map*
- Figure 2: Site Plan*
- Figure 3: Water Table Contours 7/9/04*
- Figure 4: Groundwater Sample Analytical Data 7/9/04*

Tables

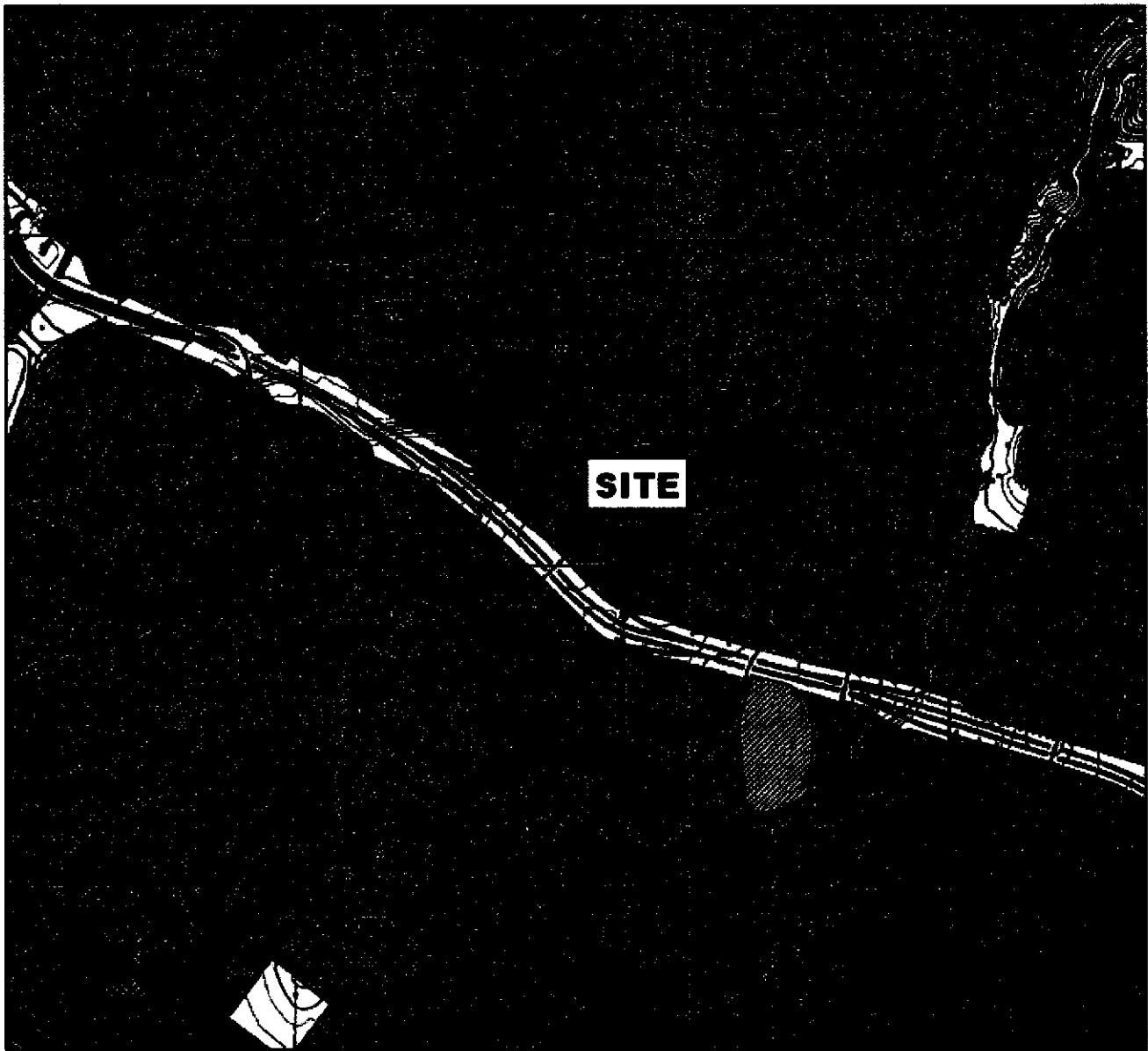
- Table 1: Groundwater Monitoring Data*
- Table 2: Fuel Oxygenate Analyses*

Attachments

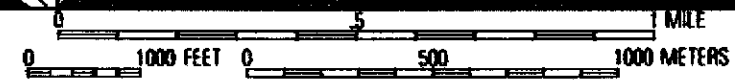
- Appendix A: Groundwater Monitoring Well Field Sampling Forms*
- Appendix B: Laboratory Analyses With Chain of Custody Documentation*

Distribution: Mr. John Williamson
1511 Wellington Street, Oakland, CA 94602

Mr. Amir Gholami, ACHCSA
1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502



TN* / MN
15°



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SITE LOCATION MAP

3635 13th AVENUE
OAKLAND, CALIFORNIA

FIGURE 1
PROJECT No. 8499

Excelsior Street

SIDEWALK

MW-3
(184.79)

184.5

184.0

183.5

183.0

182.5

182.0

181.5

181.0

180.5

MW-1
(180.41)

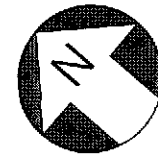
MW-2
(182.66)

RESIDENTIAL
PROPERTY

APARTMENT
BUILDING

SIDEWALK

13th Avenue



0' 10' 20'

Scale: 1" = 20'

GROUNDWATER FLOW
DIRECTION 7/9/04
AT 0.05ft/r

FIRE
STATION

SIDEWALK

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WATER TABLE CONTOURS 7/9/04

3635 13th Avenue
Oakland, California

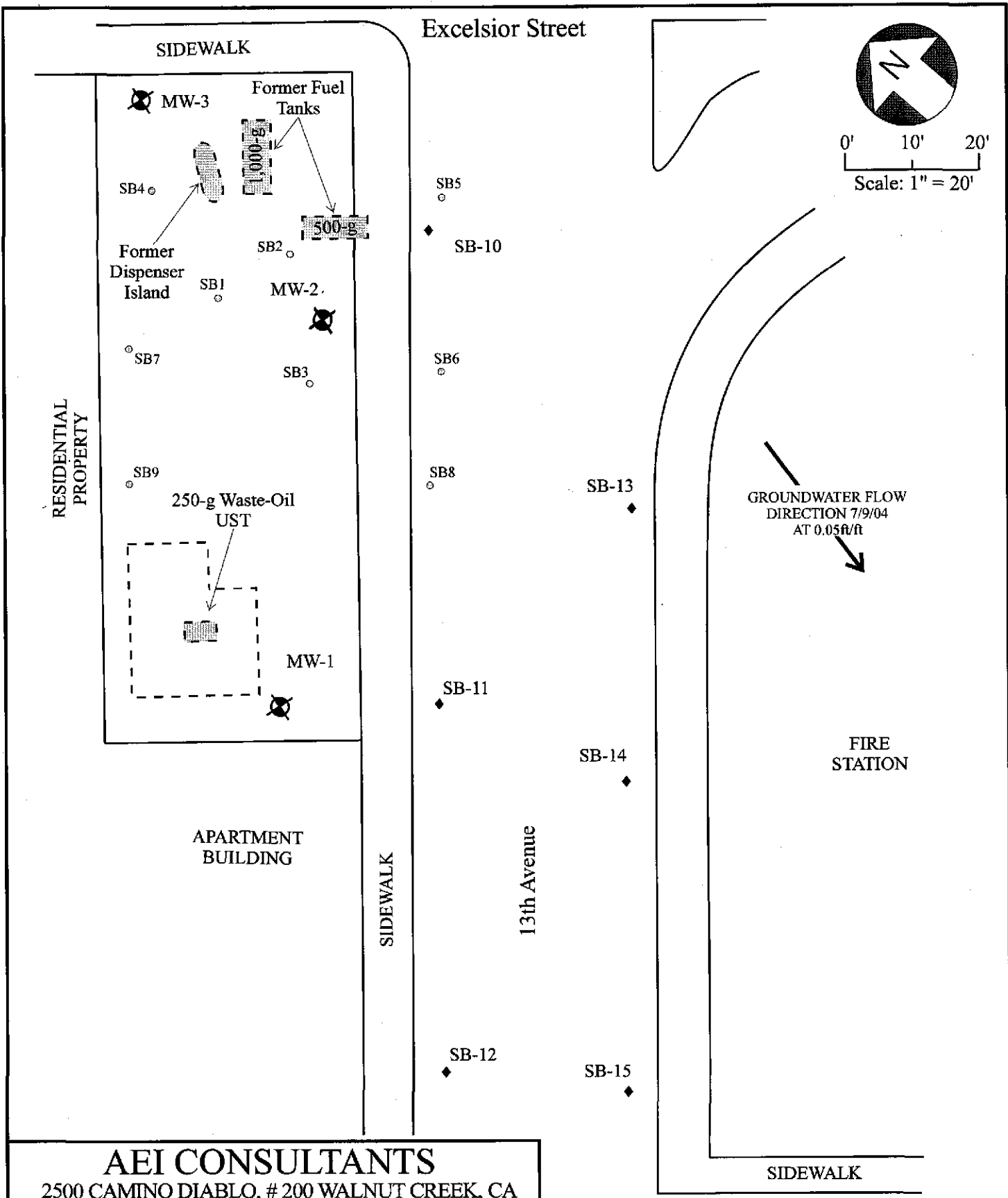
FIGURE 3
AEI Project # 8499

LEGEND

(REV. 9/04)

◆ Monitoring Well, with water table elevation in ft above msl (7/9/04)

--- Water table contours in ft above msl
Interval = 0.5 ft



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SITE PLAN

3635 13th Avenue
 Oakland, California

FIGURE 2
 AEI Project # 8499

LEGEND		(REV. 9/04)
◆	Monitoring Well	
○	Soil Boring 11/97 & 1/98	
◆	Soil Boring 8/21 & 10/9-10 2003	

Excelsior Street

SIDEWALK

MW-3

TPH-g - 260
TPH-d - <50
MTBE - <5.0
B - 12
T - 13
E - 14
X - 36

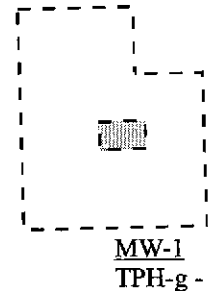
MW-2

TPH-g - 17,000
TPH-d - 4,400
MTBE - 120
B - 2800
T - 240
E - 710
X - 1,300

MW-1

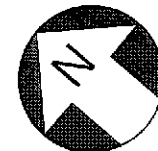
TPH-g - 130
TPH-d - 80
MTBE - <35
B - <0.5
T - <0.5
E - 2.8
X - 0.78

RESIDENTIAL
PROPERTY



APARTMENT
BUILDING

SIDEWALK



0' 10' 20'

Scale: 1" = 20'

GROUNDWATER FLOW
DIRECTION 7/9/04
AT 0.05ft/f

FIRE
STATION

SIDEWALK

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2500 CAMINO DIABLO, # 200 WALNUT CREEK, CA

**GROUNDWATER SAMPLE
ANALYTICAL DATA 7/9/04**

3635 13th Avenue
Oakland, California

FIGURE 4
AEI Project # 8499

LEGEND

(REV. 9/04)

Monitoring Well

All data in µg/l
See Tables 1 & 2 for details

Table 1
Groundwater Monitoring Data

Well ID	Date	Well Elevation	Depth to Water	Water Table Elevation	TPH-g	TPH-d	TOG	MTBE	Benzene	Toluene	E-benzene	Xylenes
					(µg/l) EPA 8015M	(µg/l)	(mg/l) EPA 5520		(µg/l)	(µg/l) EPA 8020 / 8021	(µg/l)	
MW - 1	11/22/1994	194.75	10.92	183.83	210	<50	<0.5	-	<0.5	<0.5	<0.5	2.3
	2/23/1995	194.75	10.58	184.17	140	<50	1.2	-	<0.5	<0.5	0.6	1.5
	5/24/1995	194.75	10.94	183.81	<50	<50	<0.5	-	<0.5	<0.5	<0.5	<0.5
	8/18/1995	194.75	14.52	180.23	2800	<50	<0.5	-	25	6.2	22	30
	2/7/1996	194.75	4.43	190.32	<50	<50	<0.5	-	<0.5	<0.5	<0.5	<0.5
	9/6/1996	194.75	13.60	181.15	<50	<50	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
	6/19/1997	194.75	13.07	181.68	630	400	<5.0	15	25	9.7	100	14
	1/24/2002	194.75	9.53	185.22	60	<50	-	<5.0	3.3	2.8	2.0	6.0
	7/15/2003	194.75	12.85	181.90	87	<50	-	<5.0	15	4.9	3.3	9.2
	10/10/2003	194.75	14.58	180.17	81	110	-	<5.0	<0.5	0.62	0.57	0.5
	4/6/2004	194.75	10.92	183.83	<50	<50	-	<5.0	<0.5	<0.5	<0.5	<0.5
7/9/2004	194.75	14.34	180.41	130	80	-	<35	<0.5	<0.5	2.8	0.78	
MW - 2	11/22/1994	196.44	12.54	183.90	11000	<50	<0.5	-	35	21	7.2	50
	2/23/1995	196.44	12.35	184.09	4000	<50	1.6	-	<0.5	<0.5	2.5	5.7
	5/24/1995	196.44	12.11	184.33	8600	<50	<0.5	-	95	37	37	70
	8/18/1995	196.44	16.25	180.19	7200	<50	<0.5	-	43	21	21	71
	2/7/1996	196.44	9.34	187.10	11000	<50	0.6	-	17	9.3	9.3	25
	9/6/1996	196.44	15.22	181.22	15000	1900	<5.0	ND	4300	920	460	1600
	6/19/1997	196.44	13.33	183.11	26000	2900	<5.0	<200	5300	1500	910	3200
	1/24/2002	196.44	9.72	186.72	34000	5300	-	<200	3100	1100	1100	2900
	7/15/2003	196.44	12.42	184.02	18000	6600	-	<1000	2300	310	690	1600
	10/10/2003	196.44	13.79	182.65	19000	1800	-	<500	2700	460	850	1800
	4/6/2004	196.44	10.55	185.89	6900	1300	-	<200	1100	100	380	780
7/9/2004	196.44	13.78	182.66	17000	4400	-	<450	2800	240	710	1300	
MW - 3	11/22/1994	198.93	11.53	187.40	200	<50	3	-	<0.5	<0.5	<0.5	2
	2/23/1995	198.93	11.89	187.04	1500	<50	0.9	-	6.6	6.4	4.2	13
	5/24/1995	198.93	12.71	186.22	710	<50	<0.5	-	2.5	3.2	3.1	16
	8/18/1995	198.93	16.14	182.79	310	<50	<0.5	-	3.1	2.1	2.2	11
	2/7/1996	198.93	6.22	192.71	400	<50	2.2	-	1.4	2.5	2.2	7
	9/6/1996	198.93	13.51	185.42	<50	<50	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
	6/19/1997	198.93	12.46	186.47	<50	<50	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5
	1/24/2002	198.93	10.08	188.85	58	<50	-	<5.0	4	2.7	2.3	6.7
	7/15/2003	198.93	12.45	186.48	<50	<50	-	<5.0	<0.5	<0.5	<0.5	<0.5
	10/10/2003	198.93	14.00	184.93	350	75	-	<5.0	14	16	23	60
	4/6/2004	198.93	10.78	188.15	<50	<50	-	<5.0	<0.5	1.7	<0.5	1.7
7/9/2004	198.93	14.14	184.79	260	<50	-	<5.0	12	13	14	36	

Well Elevation in feet above mean sea level (msl)
 Depth to water in feet below the tops of the well casings
 Water Table Elevations in feet above msl
 TPH-g - Total petroleum hydrocarbons (TPH) as gasoline

TOG - Total oil and grease
 MTBE - Methyl tertiary butyl ether
 E-benzene: Ethyl-benzene
 TPH-d - TPH as diesel

mg/l - milligrams per liter
 µg/l - micrograms per liter
 - = sample not analyzed by this method
 ND = non detect (detection limit not known)

Table 2
Fuel Oxygenate Analyses

Well ID	Date	TAME	TBA	EDB	1,2-DCA	DIPE	Ethanol	ETBE	Methanol	MTBE
		(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
		EPA method 8260								
MW - 1	4/6/2004	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<0.5	<500	<0.5
	7/9/2004	-	-	-	-	-	-	-	-	-
MW - 2	4/6/2004	<5.0	110	<5.0	<5.0	<5.0	<500	<5.0	<5000	87
	7/9/2004	-	98	-	-	-	-	-	-	120
MW -3	4/6/2004	<0.5	<5.0	<0.5	<0.5	<0.5	<50	<0.5	<500	<0.5
	7/9/2004	-	-	-	-	-	-	-	-	-

TAME: tert amyle methyl ether
TBA: t-butyl alcohol
EDB: 1,2-Dibromoethane
1,2-DCA: 1,2-Dichloroethane
DIPE: Diisopropyl ether

ETBE: Ethyl tert-butyl ether
MTBE: Methyl tert-butyl ether
µg/l - micrograms per liter
- = sample not analyzed by this method
ND = non detect

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GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-1

Project Name:	Williamson	Date of Sampling:	7/9/2004
Job Number:	6906	Name of Sampler:	A Nieto
Project Address:	3635 13th Avenue, Oakland		

MONITORING WELL DATA	
Well Casing Diameter (2" / 4" / 6")	2
Wellhead Condition	OK <input type="button" value="v"/>
Elevation of Top of Casing (feet above msl)	194.75
Depth of Well	23.50
Depth to Water (from top of casing)	14.34
Water Elevation (feet above msl)	180.41
Well Volumes Purged	3
Calculated Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	4.4
Actual Volume Purged (gallons)	6.0
Appearance of Purge Water	Clears quickly
Free Product Present?	no
Thickness (ft):	

GROUNDWATER SAMPLES							
Number of Samples/Container Size				3 VOAs & 1-liter			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	2	19.22	7.07	1741	0.04	46.3	
	4	19.00	7.24	1818	0.04	-37.9	
	6	19.04	7.19	2016	0.04	-59.3	

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

Initially brown, no hydrocarbon sheen or odor

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GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name:	Williamson	Date of Sampling:	7/9/2004
Job Number:	6906	Name of Sampler:	A Nieto
Project Address:	3635 13th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"14"/6")	2		
Wellhead Condition	OK		▼
Elevation of Top of Casing (feet above msl)	196.44		
Depth of Well	36.00		
Depth to Water (from top of casing)	13.78		
Water Elevation (feet above msl)	182.66		
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)	10.7		
Actual Volume Purged (gallons)	12.0		
Appearance of Purge Water	clears at 4 gallons		
Free Product Present?	no	Thickness (ft):	

GROUNDWATER SAMPLES

Number of Samples/Container Size				3 VOAs & 1-liter			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	2	20.09	7.59	1183	0.03	-342.3	
	4	20.10	7.53	1175	0.03	-335.6	
	6	20.20	7.46	1116	0.03	-307.9	
	8	20.20	7.39	1193	0.03	-306.5	
	10	20.17	7.28	1205	0.03	-299.1	
	12	20.16	7.16	1208	0.03	-292.8	

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

Initially dark grey, clears by 4 gallons, strong HC odor and slight sheen

AEI CONSULTANTS
GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-3

Project Name:	Williamson	Date of Sampling:	7/9/2004
Job Number:	6906	Name of Sampler:	A Nieto
Project Address:	3635 13th Avenue, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2	
Wellhead Condition	OK	
Elevation of Top of Casing (feet above msl)	198.93	
Depth of Well	35.50	
Depth to Water (from top of casing)	14.14	
Water Elevation (feet above msl)	184.79	
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)	10.3	
Actual Volume Purged (gallons)	12.0	
Appearance of Purge Water	clears at 2.5 gallons	
Free Product Present?	no	Thickness (ft):

GROUNDWATER SAMPLES

Number of Samples/Container Size				3 VOAs & 1-liter			
Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	2	19.58	7.44	759	0.09	-228.9	
	4	19.53	7.53	757	0.04	-232.7	
	6	19.50	7.47	750	0.04	-234.4	
	8	19.55	7.22	769	0.08	-229.4	
	10	19.56	7.18	768	0.08	-227.7	
	12	19.58	7.14	777	0.12	-216.1	

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

Initially grey, clears by 2.5 gallons



McC Campbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #8499; Williamson	Date Sampled: 07/09/04
		Date Received: 07/09/04
	Client Contact: Peter McIntyre	Date Reported: 07/14/04
	Client P.O.:	Date Completed: 07/14/04

WorkOrder: 0407137

July 14, 2004

Dear Peter:

Enclosed are:

- 1). the results of 3 analyzed samples from your #8499; Williamson project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill 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 please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager



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All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #8499; Williamson	Date Sampled: 07/09/04
		Date Received: 07/09/04
	Client Contact: Peter McIntyre	Date Extracted: 07/09/04
	Client P.O.:	Date Analyzed: 07/09/04

Methyl tert-Butyl Ether*

Extraction method: SW5030B Analytical methods: SW8260B Work Order: 0407137

Lab ID	Client ID	Matrix	t-Butyl alcohol (TBA)	Methyl-t-butyl ether (MTBE)	DF	% SS
0407137-002C	MW-2	W	98	120	10	96.0


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

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

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

surrogate diluted out of range or surrogate coelutes with another peak.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content.

 Angela Rydelius, Lab Manager



McC Campbell Analytical, Inc.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W

WorkOrder: 0407137

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		BatchID: 12290		Spiked Sample ID: 0407141-003A				
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) [£]	ND	60	94.9	96.8	1.98	96.1	100	4.41	70	130
MTBE	ND	10	103	113	9.76	105	116	9.51	70	130
Benzene	ND	10	105	112	5.99	104	113	7.90	70	130
Toluene	ND	10	100	107	6.93	106	114	6.78	70	130
Ethylbenzene	ND	10	101	113	11.5	108	117	7.47	70	130
Xylenes	ND	30	95.3	100	4.78	95.3	100	4.78	70	130
%SS:	96.1	10	103	107	3.53	104	104	0	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

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 and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or 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.



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QC SUMMARY REPORT FOR SW8015C

Matrix: W

WorkOrder: 0407137

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 12307		Spiked Sample ID: N/A			
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	120	113	5.93	70	130
%SS:	N/A	2500	N/A	N/A	N/A	113	107	5.09	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

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 and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with 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.

DHS Certification No. 1644

V.P. QA/QC Officer



McC Campbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

QC SUMMARY REPORT FOR SW8260B

Matrix: W

WorkOrder: 0407137

EPA Method: SW8260B		Extraction: SW5030B		BatchID: 12299		Spiked Sample ID: 0407145-006B				
	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Methyl-t-butyl ether (MTBE)	ND	10	128	129	0.614	107	106	0.914	70	130
%SS1:	105	10	99.2	98.3	0.935	94.5	94.5	0	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										

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 and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogeneous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with 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.

DHS Certification No. 1644

V. J. QA/QC Officer

McC Campbell Analytical, Inc.



110 Second Avenue South, #D7
 Pacheco, CA 94553-5560
 (925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0407137

ClientID: AEL

Report to:

Peter McIntyre
 All Environmental, Inc.
 2500 Camino Diablo, Ste. #200
 Walnut Creek, CA 94597

TEL: (925) 283-6000
 FAX: (925) 283-6121
 ProjectNo: #8499; Williamson
 PO:

Bill to:

Lesleigh Alderman
 All Environmental, Inc.
 2500 Camino Diablo, Ste. #200
 Walnut Creek, CA 94597

Requested TAT: 5 days

Date Received: 7/9/04

Date Printed: 7/9/04

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
0407137-001	MW-1	Water	7/9/04	<input type="checkbox"/>	A		B													
0407137-002	MW-2	Water	7/9/04	<input type="checkbox"/>	A	C	B													
0407137-003	MW-3	Water	7/9/04	<input type="checkbox"/>	A		B													

Test Legend:

1	G-MBTX_W	2	MTBE_W	3	TPH(D)_W	4		5	
6		7		8		9		10	
11		12		13		14		15	

Prepared by: Elisa Venegas

Comments:

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

0407137

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560

Telephone: (925) 798-1620

Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

EDF Required? Yes No

Report To: Peter McIntyre Bill To:
Company: AEI Consultants
2500 Camino Diablo, Suite 200
Walnut Creek, CA 94597 E-Mail:
Tele: (925) 944-2899 Fax: (925) 944-2895
Project #: ~~8499~~ 8499 Project Name: Willigumson
Project Location: 3635 13th Ave, Oakland
Sampler Signature: *Adrian M...*

Analysis Request

Analysis Request		Other	Comments
BTEX & TPH as Gas (602/8020 + 8015)/MTBE			
TPH as Diesel (8015)			
Total Petroleum Oil & Grease (5520 E&F/B&F)			
Total Petroleum Hydrocarbons (418.1)			
EPA 601 / 8010			
BTEX ONLY (EPA 602 / 8020)			
EPA 608 / 8080			
EPA 608 / 8080 PCB's ONLY			
EPA 624 / 8240 / 8260			
EPA 625 / 8270			
PAH's / PNA's by EPA 625 / 8270 / 8310			
CAM-17 Metals			
LUFT 5 Metals			
Lead (7240/7421/239/26010)			
RCI			
		MTBE + TBA (8260)	

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED									
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO ₃	Other						
X MW-1		7/9/04	am	4	VOA/A	x					x	x								
X MW-2				4							x	x								
X MW-3				4		x					x	x								

Relinquished By: *Adrian M...* Date: 7/9 Time: 3:55 Received By: *[Signature]*
Relinquished By: Date: Time: Received By:
Relinquished By: Date: Time: Received By:

ICE/IT GOOD CONDITION / HEAD SPACE ABSENT / DECHLORINATED IN LAB
PRESERVATION APPROPRIATE CONTAINERS / PRESERVED IN LAB
VOAS / O&G / METALS / OTHER