AEI CONSULTANTS
Environmental & Civil Engineering

2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597
Phone: (925) 283-6000 Fax: (925) 944-2895

May 30, 2003

Vic Lum
Vic's Automotive
245 8th Street
Oakland, CA 94607

Subject: **Quarterly Monitoring Report – 8th Episode**
245 8th Street
Oakland, CA
AEI Project #4332

Dear Mr. Lum:

Enclosed are two copies of the Quarterly Monitoring Report for the eighth episode of sampling and an invoice.

Please call Peter McIntyre or me at (925) 283-6000 if you have any questions.

Sincerely,

Brandi Reese

Brandi K. Reese
Staff Geologist

Cc: Mr. Barney Chan, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94501.

May 30, 2003

GROUNDWATER MONITORING REPORT
8th Episode, 2003

245 8th Street
Oakland, California

Project No. 4332

Prepared For

Mr. Vic Lum
Vic's Automotive
245 8th Street
Oakland, CA 94607

Prepared By

AEI Consultants
2500 Camino Diablo Blvd., Suite 200
Oakland, CA 94607
(925) 283-6000

AEI

AEI CONSULTANTS
Environmental & Civil Engineering

2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597
Phone: (925) 283-6000 Fax: (925) 944-2895

May 30, 2003

Mr. Vic Lum
Vic's Automotive
245 8th Street
Oakland, CA 94607

Subject: **Quarterly Groundwater Monitoring Report**
13th Episode, 2003
245 8th Street
Oakland, California
Project No. 4332

Dear Mr. Lum:

AEI Consultants (AEI) has prepared this report on your behalf to document the continued groundwater investigation at the above referenced site (Figure 1: Site Location Map). This work is being performed in accordance with the requirements of the Alameda County Health Care Services Agency (ACHCSA) to document the groundwater quality and free product recovery associated with the release of fuel hydrocarbons from the former underground storage tank system. This report presents the findings of the eighth episode of groundwater monitoring and sampling for the four onsite wells conducted on May 2, 2003.

Site Description and Background

The subject property (hereafter referred to as the "site" or "property") is located in a commercial and residential area of Oakland. The site is a lot on the south corner of Alice Street and 8th Street, and is currently developed with a gasoline station and auto repair facility. Refer to Figure 2 for a visual description of the site.

Between June 1993 and August 1994, AEI removed a total of seven (7) underground storage tanks (USTs) from the property. The tanks consisted of four (4) 1,000 gallon and two (2) 6,000 gallon gasoline tanks and one (1) 250 gallon waste oil tank. The former locations of the tanks are shown on Figure 2. Impacted soil was removed from beneath the former tank area. Groundwater was encountered beneath the former 6,000 gallon tanks. Non-aqueous phase liquid (NAPL) was observed on the water table beneath the southern tank. The excavated soil was transported to an appropriate disposal facility and the excavation was backfilled with clean fill material. A new tank system was installed just west of the dispenser island.

Two groundwater monitoring wells (MW-1 and MW-2) were installed in July 1995. The first two episodes of monitoring revealed total petroleum hydrocarbons as gasoline (TPH-g) and benzene up to 210,000 µg/l and 720 µg/l, respectively, in MW-2. Floating gasoline product, a NAPL, was

discovered in MW-1, which ranged from 1.20 to 4.39 feet thick between December 1995 and March 1996.

Three soil borings (SB-1 through SB-3) were advanced in August 1996. Groundwater samples collected from each of the borings contained TPH-g and benzene ranging from 120,000 to 140,000 µg/l, and from 12,000 to 19,000 µg/l, respectively. Methyl tertiary butyl ether (MTBE) was also present in all three samples, up to 27,000 µg/l. Although free product was not observed in the field, qualitative laboratory observations indicated immiscible sheen. Manual bailing and pumping of NAPL from MW-1, and monitoring of MW-2 occurred intermittently through 1997.

Two additional groundwater monitoring wells (MW-3 and MW-4) were installed in May 2001. Refer to Tables 1 and 2 for data collected from these wells. A NAPL recovery pump was installed in MW-1 in June 2001.

This report documents the results of the eighth episode of groundwater monitoring and sample collection of the four wells performed at the site.

Summary of Monitoring Activities

Monitoring of water and product levels and sample collection occurred on May 2, 2003. The well locations are shown in Figure 2. The depth to static groundwater from the top of the well casings was measured prior to sampling with an electric water level indicator. A floating product interface meter was used in MW-1 and MW-2. The three wells with no measurable thickness of floating product (MW-2 through MW-4) were purged using a battery powered submersible pump, and groundwater samples were collected from the wells using clean, disposable plastic bailers.

Temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and specific conductivity were measured and the turbidity was visually noted during the purging of the wells. Approximately three well volumes of water were purged from each well prior to sample collection. Once the above parameters had stabilized, and the wells were allowed to recharge to a minimum of 90% of their original water volume, a water sample was collected.

Water was poured from the bailers into two 40 ml VOA vials and capped so no head space or air bubbles were visible within the sample containers. Samples were shipped on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (Department of Health Services Certification #1644).

The three groundwater samples collected were analyzed for TPH-g by EPA method 8015C and benzene, toluene, ethylbenzene, and xylenes (BTEX) with MTBE by EPA method 8021B.

Field Results

Well MW-1 had approximately 0.08 feet of NAPL when measured with an interface meter. No measurable thickness of free product was apparent using an interface meter in any of the remaining wells. For this reason, no samples were collected from MW-1, and the depth to water reading was not used in the calculation of groundwater flow direction and gradient.

Groundwater levels for the current monitoring episode ranged from 12.66 to 13.76 feet above mean sea level (msl) in the three wells (MW-2 through MW-4). These groundwater elevations were an average of 0.32 feet higher than the previous monitoring episode. The slight rise in water table elevation appears to be a seasonal occurrence. The groundwater flow direction at the time of measurement was south-southeast. This is a significant shift from previous episodes when groundwater flowed northeast. The hydraulic gradient of the water table was 0.01 foot per foot, which is the same as the previous episode.

Groundwater elevation data are summarized in Table 1. The water table contours and the groundwater flow direction are depicted in Figure 2. Refer to Appendix A for the Groundwater Monitoring Well Field Sampling Forms.

Groundwater Quality

Hydrocarbon concentrations in the wells sampled remained highest in MW-2, as they have been for the previous seven episodes. TPH-g, benzene, and MTBE were detected at 150,000 µg/l, 39,000 µg/l, and 35,000 µg/l in this well. A significant increase in all hydrocarbon concentrations was detected in well MW-4. No hydrocarbons were detected in MW-4 for the past seven episodes. The shift in concentration levels in MW-4 may be associated with the shift in groundwater flow direction. Well MW-3 showed a slight decrease in concentrations of TPH-g and showed a slight increase in concentrations of BTEX. A summary of groundwater quality data is presented in Table 2. Laboratory results and chain of custody documents are included in Appendix B.

Conclusions

As requested by the ACHCSA, further investigation and active groundwater remediation was conducted on April 3 and 4, 2003 to assess whether the volatile organics present represent a human health risk for residents of the area, and to mitigate the hydrocarbon plume. A total of 14 soil borings were advanced with the intent of gaining information regarding soil vapor and groundwater contamination data surrounding the subject property. An additional three groundwater monitoring wells are scheduled to be installed with their locations based on the data gathered from the recent investigation.

Quarterly groundwater monitoring will continue and the next episode is scheduled for August 2003.

Report Limitations and Signatures

This report presents a summary of work completed by AEI Consultants, 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 required 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, 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 that existed at the time and location of the work.

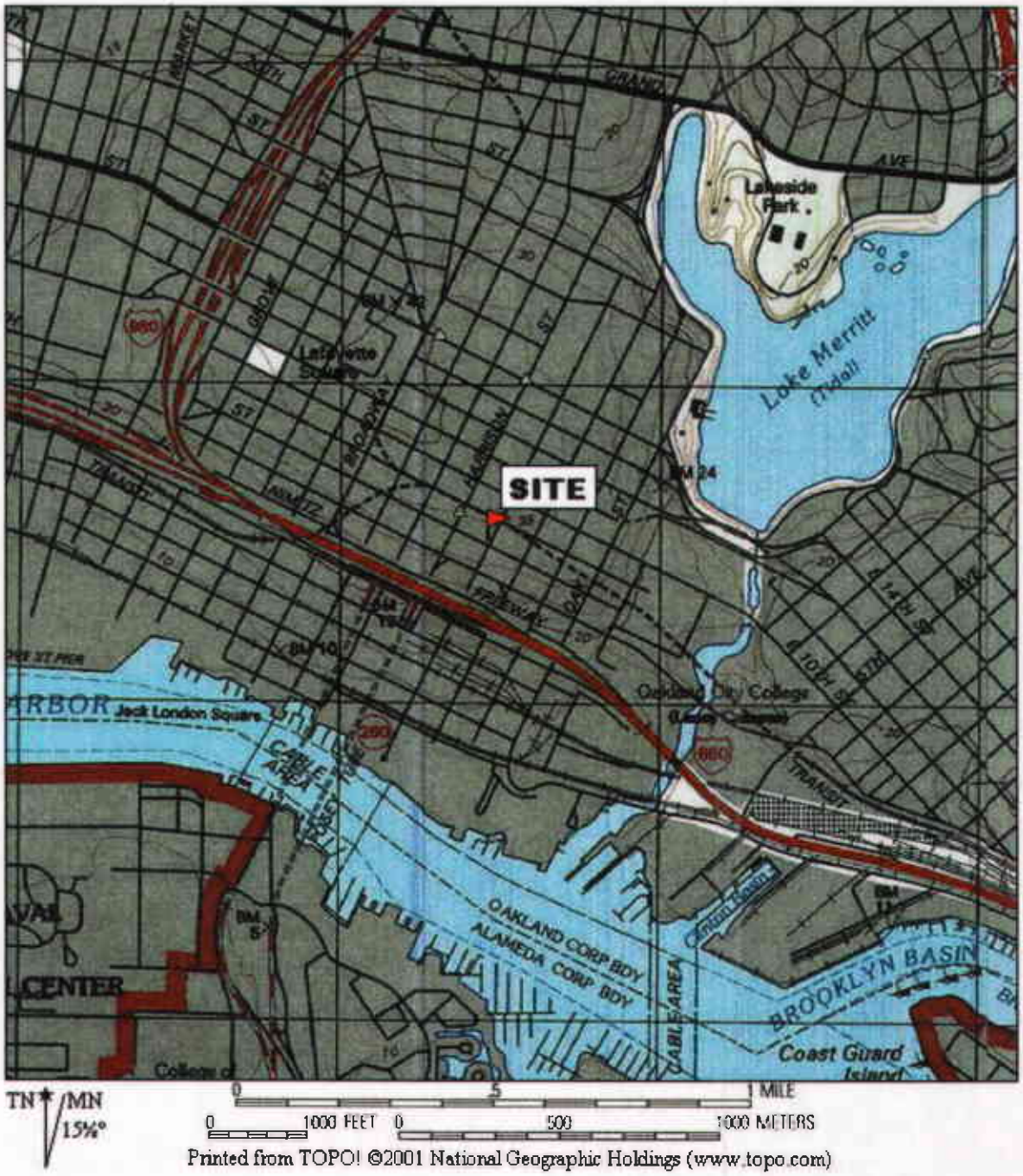
Sincerely,
AEI Consultants

Brandi Kiel Reese
Staff Geologist

Joseph Derhake, PE
Principal

Figure 1	Site Location Map
Figure 2	Site Plan with Water Table Contours
Figure 3	Site Plan with Dissolved Hydrocarbons
Table 1	Groundwater Elevation Data
Table 2	Groundwater Sample Analytical Data
Appendix A	Well Field Sampling Forms
Appendix B	Laboratory Reports

cc: Mr. Barney Chan
ACHCSA, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94501



Printed from TOPO! ©2001 National Geographic Holdings (www.topo.com)

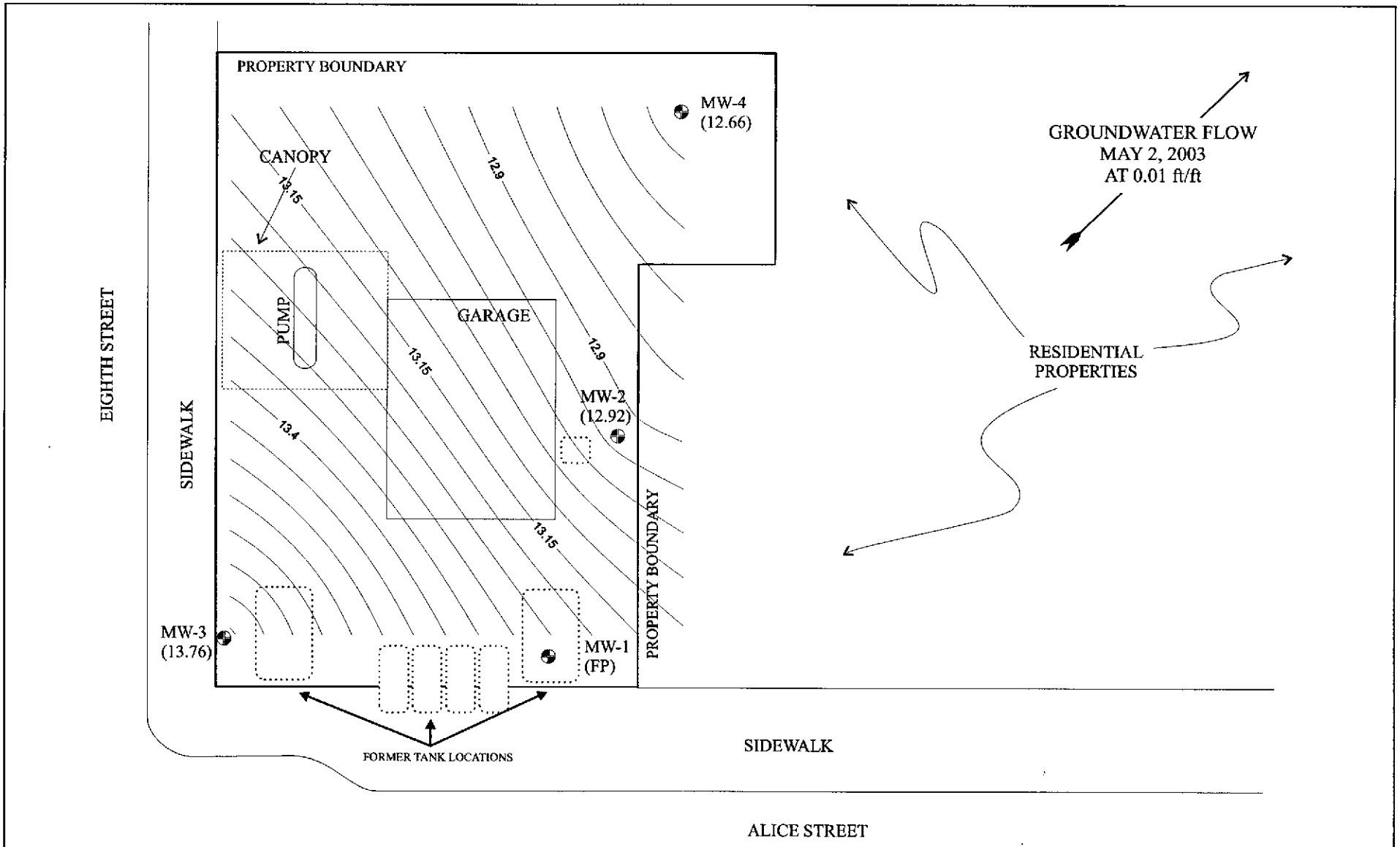
AEI CONSULTANTS

2500 CAMINO DIABLO BLVD, STE 200, WALNUT CREEK

SITE LOCATION MAP

245 8th STREET
OAKLAND, CALIFORNIA

FIGURE 1
PROJECT NO. 4332



AEI CONSULTANTS

2500 CAMINO DIABLO BLVD, STE 200, WALNUT CREEK, CA

WATER TABLE CONTOURS

245 8th STREET
OAKLAND, CALIFORNIA

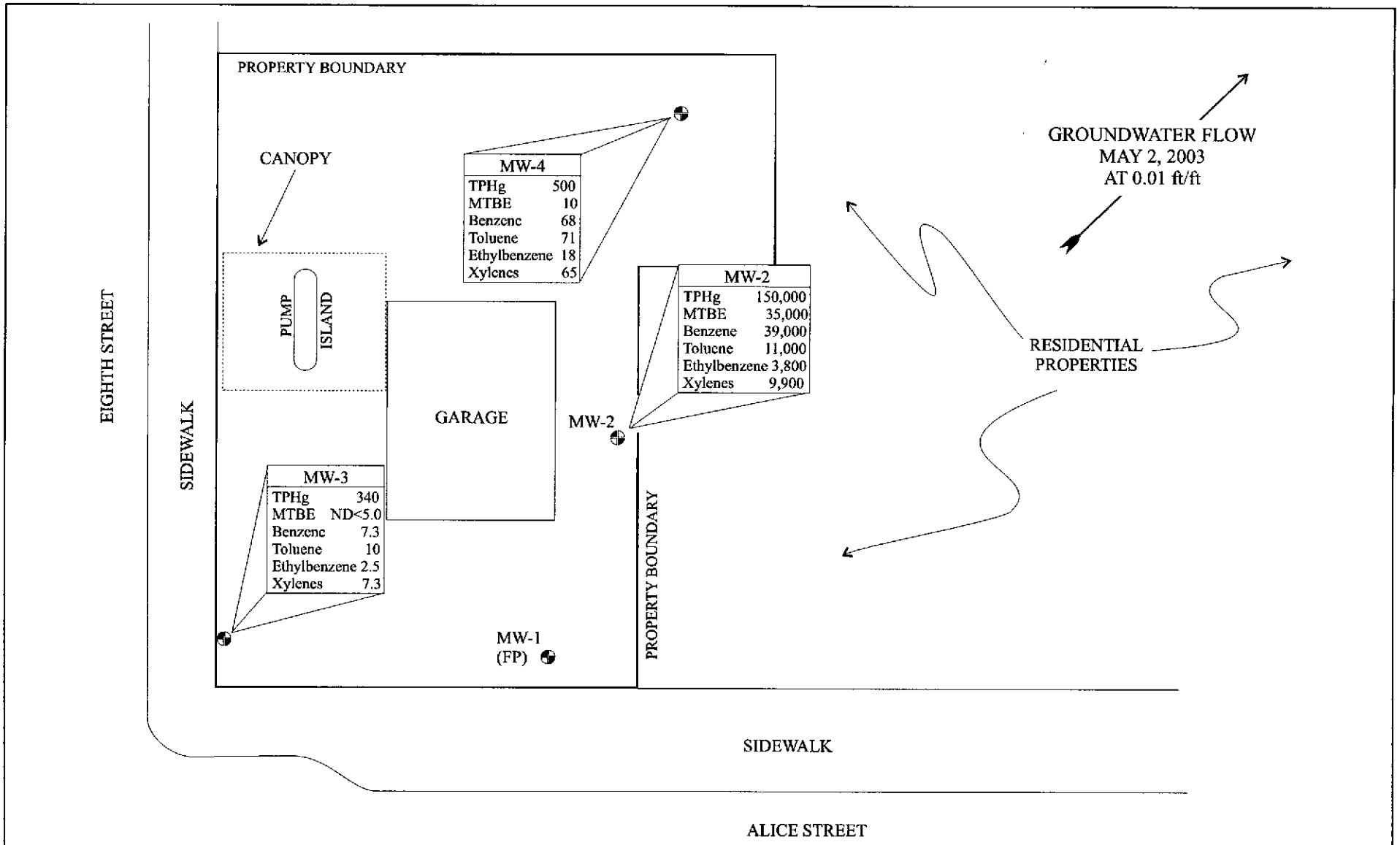
FIGURE 2
PROJECT NO. 4332

N

● MONITORING WELLS WITH WATER TABLE ELEVATIONS EXPRESSED IN FEET ABOVE MEAN SEA LEVEL
(FP = Floating Product)

SCALE: 1 in = 25 ft

12.8 WATER TABLE CONTOURS WITH ELEVATIONS ABOVE SEA LEVEL. CONTOUR INTERVAL IS 0.05 FEET
(drawn with Surfer V.7.0)
Well MW-1 not used in calculating groundwater flow direction or gradient



AEI CONSULTANTS

2500 CAMINO DIABLO BLVD, STE 200, WALNUT CREEK, CA

DISSOLVED HYDROCARBONS

245 8th STREET
OAKLAND, CALIFORNIA

FIGURE 3
PROJECT NO. 4332

N

MONITORING WELLS:
HYDROCARBON CONCENTRATION
EXPRESSED IN ug/l IN WATER

SCALE: 1 in = 25 ft

TPHg = Total Petroleum Hydrocarbons as gasoline
MTBE = Methyl tert-Butyl Ether
FP = Floating Product (NAPL)

Table 1
Groundwater Elevation Data

Well ID	Date Collected	Well Elevation (ft amsl)	Depth to Water (ft)	Groundwater Elevation (ft aamsl)	Depth to LNAPL (ft)	Apparent LNAPL Thickness (ft)
MW-1	6/29/01	27.73	16.52	*	14.89	1.63
	10/10/01	27.73	15.45	*	15.37	0.08
	1/9/02	27.73	12.61	15.12*	-	<0.01
	4/24/02	27.73	13.35	14.38*	-	<0.01
	7/24/02	27.73	14.19	13.44*	-	<0.01
	11/5/02	27.73	14.85	12.88*	-	<0.01
	2/4/03	27.73	14.91	12.82*	-	<0.01
	5/2/03	**27.73**	**14.43**	**13.30***	-	**0.08**
MW-2	6/29/01	28.16	16.14	12.02	-	-
	10/10/01	28.16	16.43	11.73	-	-
	1/9/02	28.16	13.50	14.66	-	-
	4/24/02	28.16	14.40	13.76	-	-
	7/24/02	28.16	14.91	13.25	-	-
	11/5/02	28.16	16.96	11.20	-	-
	2/4/03	28.16	15.42	12.74	-	-
	5/2/03	**28.16**	**15.24**	**12.92**	-	-
MW-3	6/29/01	29.21	16.60	12.61	-	-
	10/10/01	29.21	16.92	12.29	-	-
	1/9/02	29.21	14.20	15.01	-	-
	4/24/02	29.21	15.07	14.14	-	-
	7/24/02	29.21	16.40	12.81	-	-
	11/5/02	29.21	16.47	12.74	-	-
	2/4/03	29.21	16.92	12.29	-	-
	5/2/03	**29.21**	**15.45**	**13.76**	-	-
MW-4	6/29/01	29.38	17.71	11.67	-	-
	10/10/01	29.38	18.00	11.38	-	-
	1/9/02	29.38	15.02	14.36	-	-
	4/24/02	29.38	15.74	13.64	-	-
	7/24/02	29.38	16.69	12.69	-	-
	11/5/02	29.38	17.64	11.74	-	-
	2/4/03	29.38	16.02	13.36	-	-
	5/2/03	**29.38**	**16.72**	**12.66**	-	-

Episode #	Date	Average Water Table Elevation**	Change from Previous Episode	Flow direction (gradient)
1	6/29/01	12.10	-	SSE (0.0074)
2	10/10/01	11.80	-0.30	SSE (0.0071)
3	1/9/02	14.68	2.88	SE (0.0054)
4	4/24/02	13.85	-0.83	SSW (0.005)
5	7/24/02	12.92	-0.93	NE (0.021)
6	11/5/02	11.89	-1.02	SW (0.019)
7	2/4/03	12.80	0.90	NNW (0.01)
8	**5/2/03**	**13.11**	**0.32**	**SSE (0.01)**

LNAPL = light non-aqueous phase liquid (floating free product)

* = Measured groundwater level affected by LNAPL and/or pump presence, not used to calculate water table elevation

All well elevations are measured from the top of the casing

- = not applicable

ft amsl = feet above mean sea level

Note = Historical groundwater elevation and quality data for wells MW-1 and MW-2 was not available

Table 2
Groundwater Sample Analytical Data

Well/Sample ID	Date Collected	NAPL thickness (ft)	TPHg µg/L	MTBE µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L
MW-1	6/29/01	1.63	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	10/10/01	0.08	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	1/9/02	<0.01	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	4/24/02	<0.01	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	7/24/02	~0.01	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	11/5/02	~0.01	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	2/4/03	~0.01	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp	ns/fp
	5/2/03	**0.08**	**ns/fp**	**ns/fp**	**ns/fp**	**ns/fp**	**ns/fp**	**ns/fp**
MW-2	6/29/01	0.0	69,000	4100/4400*	7,200	6,100	1,500	7,000
	10/10/01	0.0	87,000	14,000	22,000	12,000	2,700	9,100
	1/9/02	0.0	130,000	11,000	30,000	19,000	3,800	14,000
	4/24/02	Sheen	210,000	32,000	38,000	23,000	4,600	19,000
	7/24/02	Sheen	170,000	36,000	48,000	12,000	3,700	8,600
	11/5/02	Sheen	190,000	36,000	45,000	25,000	4,600	16,000
	2/4/03	Sheen	150,000	27,000	51,000	24,000	4,200	14,000
	5/2/03	**Sheen**	**150,000**	**35,000**	**39,000**	**11,000**	**3,800**	**9,900**
MW-3	6/29/01	0.0	550	ND<5.0	ND<0.5	3.1	3.2	1.2
	10/10/01	0.0	470	ND<5.0	0.77	5.3	3.3	5.9
	1/9/02	0.0	1,000	ND<5.0	0.90	7.6	7.8	25
	4/24/02	0.0	1,500	ND<5.0	0.64	7.2	12	14
	7/24/02	0.0	1,200	ND<5.0	10	17.0	11	25
	11/5/02	0.0	1,800	ND<25	33	43.0	18	31
	2/4/03	0.0	450	ND<5.0	ND<0.5	5.0	ND<0.5	0.77
	5/2/03	**0.0**	**340**	**ND<5.0**	**7.3**	**10.0**	**2.5**	**7.3**
MW-4	6/29/01	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	10/10/01	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	1/9/02	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	4/24/02	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	7/24/02	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/5/02	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	2/4/03	0.0	ND<50	ND<5.0	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	5/2/03	**0.0**	**500**	**10**	**68**	**71**	**18**	**65**

µg/L micrograms per liter

TPHg total petroleum hydrocarbons as gasoline

MTBE methyl tertiary butyl ether

* samples re-analyzed by EPA Method 8260 (expressed as EPA 8020 / EPA 8260)

ns/fp = not sampled / free product

ND = not detected

Please refer to Appendix B: Lab Results for further detailed lab information including dilution factors

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-1

Project Name:	Lum	Date of Sampling:	5/2/2003
Job Number:	4332	Name of Sampler:	AN
Project Address:	245 8th Street, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	27.73		
Depth of Well	25.00		
Depth to Water (from top of casing)	14.43		
Depth to Free Product (from top of casing)	14.35		
Water Elevation (feet above msl)	13.30		
Well Volumes Purged			
Gallons Purged: formula valid only for casing sizes of 2" (.16 gal/ft), 4" (.65 gal/ft), and 6" (1.44 gal/ft)	**0.0**		
Actual Volume Purged (gallons)	na		
Appearance of Purge Water	na		
Free Product Present?	Yes	Thickness (ft):	~0.08

GROUNDWATER SAMPLES

Number of Samples/Container Size: (2) 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments

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

well not sampled, free product present

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-2

Project Name:	Lum	Date of Sampling:	5/2/2003
Job Number:	4332	Name of Sampler:	AN
Project Address:	245 8th Street, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	2		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	28.16		
Depth of Well	25.00		
Depth to Water (from top of casing)	15.24		
Water Elevation (feet above msl)	12.92		
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)	**4.7**		
Actual Volume Purged (gallons)	5.0		
Appearance of Purge Water	clear at 2 gallons		
Free Product Present?	Yes	Thickness (ft):	Sheen

GROUNDWATER SAMPLES

Number of Samples/Container Size: (2) 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	1	17.77	6.64	1280	1.22	-91.5	
	3	17.73	6.63	1196	0.88	-91.1	
	5	17.78	6.59	1118	0.50	-88.3	

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

Strong hydrocarbon odor, slight sheen

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-3

Project Name:	Lum	Date of Sampling:	5/2/2003
Job Number:	4332	Name of Sampler:	AN
Project Address:	245 8th Street, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	29.21		
Depth of Well	25.00		
Depth to Water (from top of casing)	15.45		
Water Elevation (feet above msl)	13.76		
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)	**18.6**		
Actual Volume Purged (gallons)	19.0		
Appearance of Purge Water	clear at 5 gallons		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: (2) 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	4	18.71	6.65	310	1.01	33.9	gray
	8	18.73	6.56	288	0.83	8.8	clear
	12	18.76	6.55	278	0.63	-17.9	
	16	18.80	6.57	272	0.35	-36.1	
	19	18.83	6.60	265	0.24	-42.2	

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

Slight hydrocarbon odor

AEI CONSULTANTS

GROUNDWATER MONITORING WELL FIELD SAMPLING FORM

Monitoring Well Number: MW-4

Project Name:	Lum	Date of Sampling:	5/2/2003
Job Number:	4332	Name of Sampler:	AN
Project Address:	245 8th Street, Oakland		

MONITORING WELL DATA

Well Casing Diameter (2"/4"/6")	4		
Wellhead Condition	OK		
Elevation of Top of Casing (feet above msl)	29.38		
Depth of Well	25.00		
Depth to Water (from top of casing)	16.72		
Water Elevation (feet above msl)	12.66		
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)	**16.1**		
Actual Volume Purged (gallons)	17.0		
Appearance of Purge Water	clear		
Free Product Present?	No	Thickness (ft):	-

GROUNDWATER SAMPLES

Number of Samples/Container Size: (2) 40mL VOA

Time	Vol Removed (gal)	Temperature (deg C)	pH	Conductivity (µS/cm)	DO (mg/L)	ORP (meV)	Comments
	3	17.57	6.57	407	2.66	18.8	
	6	17.64	6.44	416	2.83	60.8	
	9	17.61	6.36	418	2.74	70.9	
	12	17.64	6.37	424	2.36	78.6	
	15	17.69	6.37	461	2.40	84.3	
	17	17.74	6.36	493	2.30	87.4	

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

Slight hydrocarbon odor

McCampbell Analytical Inc.

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

All Environmental, Inc. 2500 Camino Diablo, Ste. #200 Walnut Creek, CA 94597	Client Project ID: #5404; LUM	Date Sampled: 05/02/03
		Date Received: 05/02/03
	Client Contact: Brandi Kiel-Reese	Date Reported: 05/09/03
	Client P.O.:	Date Completed: 05/09/03

WorkOrder: 0305059

May 09, 2003

Dear Brandi:

Enclosed are:

1). the results of **3** analyzed samples from your **#5404; LUM 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. McCampbell 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

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

All Environmental, Inc.	Client Project ID: #5404; LUM	Date Sampled: 05/02/03
2500 Camino Diablo, Ste. #200		Date Received: 05/02/03
Walnut Creek, CA 94597	Client Contact: Brandi Kiel-Reese	Date Extracted: 05/06/03
	Client P.O.:	Date Analyzed: 05/06/03

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0305059

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-2	W	150,000,a	35,000	39,000	11,000	3800	9900	200	110
002A	MW-3	W	340,a	ND	7.3	10	2.5	7.3	1	---#
003A	MW-4	W	500,a	10	68	71	18	65	1	112
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	1	µg/L
	S	NA	NA	NA	NA	NA	NA	1	mg/Kg

*water and vapor samples are reported in µg/L, soil and sludge samples in mg/kg, wipe samples in µg/wipe, and TCLP extracts in µg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~2 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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

QC SUMMARY REPORT FOR SW8021B/8015Cm

Matrix: W WorkOrder: 0305059

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 6771 Spiked Sample ID: 0305043-001A

Compound	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	111	116	3.82	98.9	108	8.62	70	130
MTBE	ND	10	107	103	3.65	94.9	102	6.70	70	130
Benzene	ND	10	109	104	4.84	98.8	98.8	0	70	130
Toluene	ND	10	106	103	3.50	103	106	2.48	70	130
Ethylbenzene	ND	10	107	105	1.83	105	104	0.585	70	130
Xylenes	ND	30	103	103	0	110	110	0	80	120
%SS:	96.2	100	102	97	4.88	101	103	1.89	80	120

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 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.

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0305059

Client:

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

TEL: (925) 283-6000
FAX: (925) 283-6121
ProjectNo: #5404; LUM
PO:

Date Received: 5/2/03
Date Printed: 5/2/03

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests						
					M8021B/8015C						
0305059-001	MW-2	Water	5/2/03	☐	A						
0305059-002	MW-3	Water	5/2/03	☐	A						
0305059-003	MW-4	Water	5/2/03	☐	A						

Prepared by: Melissa Valles

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.

030505 9

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: Brandi Reese **Bill To:**
Company: AEI Consultants
2500 Camino Diablo, Suite 200
Walnut Creek, cA 94597 **E-Mail:**
Tele: ( )925/283-6000 **Fax:** ( ) 925/283-6121
Project #: 5404 **Project Name:** LUM
Project Location: OAKLAND
Sampler Signature:

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	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 (7240/7421/239.2/6010)	RCI	Other	Comments
MW-2		5/2		2	VOA	X					X	X			X																
MW-3		"		1	"	X					X	X			X																
MW-4		"		1	"	X					X	X			X																

Relinquished By:	Date:	Time:	Received By:
	5/2	8:45	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

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