



March 21, 2000

Mr. Scott Seery  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 34502-6577

**Subject: Quarterly Groundwater Monitoring and Sampling Report**  
First Quarter 2000  
1075 40<sup>th</sup> Street  
Oakland, CA 94608  
AEI Project No. 3119  
STID 3341

Dear Mr. Seery:

Enclosed is a copy of the First Quarter 2000 Groundwater Monitoring Report for the property referenced above. Please call me at (925) 283-6000 if you have any questions.

Sincerely,

Carrie E. Locke  
Project Engineer

ENVIRONMENTAL  
PROTECTION  
00 MAR 22 PM 4:42

March 21, 2000

**QUARTERLY GROUNDWATER  
AND SAMPLING REPORT**

1075 40<sup>TH</sup> Street  
Oakland, California

Project No. 3119

Prepared For

Fidelity Roof Company  
1075 40<sup>th</sup> Street  
Oakland, CA 94608

Prepared By

**AEI Consultants**  
3210 Old Tunnel Road, Suite B  
Lafayette, CA 94549  
(800) 801-3224

**AEI**



March 21, 2000

Mr. Monte Upshaw  
Fidelity Roof Company  
1075 40<sup>th</sup> Street  
Oakland, CA 94608

**RE: Quarterly Groundwater Monitoring and Sampling Report**  
First Quarter 2000  
1075 40<sup>th</sup> Street  
Oakland, California  
Project No. 3119

Dear Mr. Upshaw:

AEI Consultants (AEI) has prepared this report on your behalf, in response to your request for a groundwater investigation at the above referenced site (Figure 1: Site Location Map). The investigation was initiated by the property owner in accordance with the requirements of the Alameda County Health Care Services Agency (ACHCSA). The purpose of this activity is to monitor groundwater quality in the vicinity of previous underground storage tanks. This report presents the findings of the first episode of groundwater monitoring and sampling conducted on February 24, 2000.

### Site Description and Background

The site is located in a mixed residential and commercial area of Oakland at 1075 40th Street. The site currently supports the operation of Fidelity Roof Company.

On December 19, 1995, Tank Protect Engineering removed one (1) 1,000 gallon diesel underground storage tank (UST) and one (1) 500 gallon gasoline UST from the southeast corner of the property. The removal of the tanks produced a single excavation. The excavated soil was stockpiled north of the excavation. Three discrete soil samples were collected from beneath the USTs. Analysis of the samples indicated that soil beneath the 1,000 gallon UST was impacted with minor concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline, TPH as diesel, benzene, toluene, ethylbenzene and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE). A single soil sample collected from beneath the 500 gallon UST indicated 100 mg/kg of TPH as gasoline and 96 mg/kg of TPH as diesel were present.

On September 12, 1996, AEI advanced four soil borings in the vicinity of the former UST excavation (Ref. 1). Soil samples were collected from all of the borings and

groundwater samples were collected from two of the borings. Analytical results from the subsurface investigation revealed significant levels of gasoline and diesel present in soil to the south and to the west of the open excavation, believed to extend beneath the existing pump island. Groundwater analysis indicated maximum concentrations of 5,500 µg/l of TPH as gasoline, 340 µg/l of benzene, and 2,100 µg/l of TPH as diesel. Due to the high concentrations of petroleum hydrocarbons within the groundwater, the ACHCSA required further investigation into the extent and magnitude of the groundwater contaminant plume.

During the Phase II Subsurface Investigation, AEI collected four soil samples from the stockpile. The samples were combined by the laboratory into one composite sample for analysis. Analysis of the samples indicated concentrations of 3.8 mg/kg of TPH as gasoline, 28 mg/kg of TPH as diesel, and minor concentrations of BTEX. Approval was granted by Ms. Hugo of the ACHCSA to reuse the stockpiled soil as backfill material.

On October 25, 1996, AEI extended the excavation laterally 7 feet to the south and 12 feet to west (Ref. 2). Soil was removed to a depth of 9 feet below ground surface (bgs). The contaminated soil was stockpiled on-site and profiled for disposal into a Class III Landfill. The dispenser island and associated piping were also removed. Groundwater was not encountered during the excavation activities. Four confirmation soil samples were collected from the excavation sidewalls. Analyses of the soil samples collected from the excavation sidewalls indicated that up to 150 mg/kg of TPH as gasoline, 16 mg/kg of benzene, and 300 mg/kg of TPH as diesel remains within the western sidewall of the excavation.

The excavated soil was profiled and accepted for disposal at the BFI Vasco Road Sanitary Landfill, in Livermore, California. In November 1996, approximately 235 tons of contaminated soil was loaded and transported to the landfill, under non-hazardous waste manifest, for disposal.

On March 6, 1997, AEI installed three groundwater monitoring wells (Ref. 3). The wells were subsequently sampled in March 1997, June 1997, October 1997 and January 1998. The analytical data from January 1998 indicated 29,000 µg/l of TPH as gasoline, 5,600 µg/l of benzene and 7,300 µg/l of TPH as diesel were present in the groundwater.

At the request of the ACHCSA, six additional soil borings were drilled south and west of the well locations on November 4, 1998 (Ref. 4). The locations of these borings were chosen to assess the lateral extent of impacted groundwater at the site. TPH as diesel was detected in the groundwater to the south of the former excavation at 2,400 µg/L. No significant concentrations of petroleum hydrocarbons were detected from the other borings.

Based on the results of these six soil borings, the ACHCSA requested the installation of a fourth groundwater monitoring well at the site, located south of the former tank locations, along Yerba Buena Avenue. Monitoring well MW-4 was installed on July 15, 1999 and two soil samples at 10 and 14 feet bgs were analyzed from the boring (Ref. 5). No detectable concentrations of petroleum hydrocarbons were found in the soil samples.

The analytical results of prior groundwater sampling episodes are included in Table 2. This report describes the results of the subsequent groundwater monitoring event which took place on February 24, 2000.

### Summary of Activities

AEI measured the depth to groundwater in the four wells on February 24, 2000. The depth from the top of the well casings was measured prior to sampling with an electric water level indicator. The wells were purged and sampled using disposable Teflon bailers. Temperature, pH, and turbidity were measured during the purging of the wells. AEI removed at least 3 well volumes. Once the temperature, pH, and turbidity stabilized, a water sample was collected. The well locations are shown in Figure 2.

Water was poured from the bailers into 1 liter amber bottles and 40 ml VOA vials and capped so that there was no head space or visible air bubbles within the sample containers. Samples were shipped on ice under proper chain of custody protocol to McCampbell Analytical, Inc. of Pacheco, California (State Certification #1644).

Groundwater samples were submitted for chemical analyses for Total Petroleum Hydrocarbons (TPH) as gasoline (EPA Method 5030/8015), MTBE (EPA Method 8020/602), benzene, toluene, ethylbenzene, and xylenes (BTEX) (EPA Method 8020/602), and TPH as diesel (EPA Method 3510/8015).

### Field Results

A strong hydrocarbon odor was detected during the sampling of monitoring well MW-3, and a hydrocarbon sheen was observed, just as in the previous sampling episode in November of 1999. No sheen or free product was encountered during monitoring activities of the remaining wells. Groundwater levels for the current monitoring episode ranged from 35.88 to 38.29 feet above Mean Sea Level (MSL). These groundwater elevations were an average of 2.35 feet higher than the previous monitoring episode. The direction of the groundwater flow at the time of measurement was towards the west/northwest, which is the same as the last sampling event in November of 1999. The latest estimated groundwater gradient is approximately 0.094 feet per foot.

Groundwater elevation data is summarized in Table 1. The groundwater elevation contours and the groundwater flow direction are shown in Figure 2. Refer to Appendix B for the Groundwater Monitoring Well Field Sampling Forms.

### **Groundwater Quality**

Analysis of groundwater samples from well MW-3 continues to indicate high levels of hydrocarbon contamination: 110,000 µg/L of TPH as gasoline, 6,300 µg/L of TPH as diesel, and 12,000 µg/L of benzene. TPH as gasoline and benzene were detected in wells MW-1 and MW-3 at significantly higher concentrations than the previous sampling event. This could be due to groundwater being located at a shallower depth, where remnant concentrations of hydrocarbons may remain. Concentrations of MTBE were detected in wells MW-2 and MW-4 at 880 µg/L and 20 µg/L, respectively.

A summary of groundwater quality data is presented in Table 2. Laboratory results and chain of custody documents are included in Appendix B. Previous laboratory results and chain of custody documents are included in Appendix C.

### **Recommendations**

It is apparent from this monitoring episode, as well as those conducted previously, that significant amounts of petroleum hydrocarbons remain in the groundwater. AEI Consultants recommends the continued quarterly groundwater monitoring and sampling of the wells. The next monitoring and sampling episode is scheduled for May, 2000, as per the requirements of the ACHCSA.

### **References**

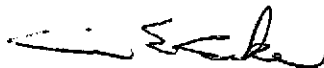
1. Phase II Soil and Groundwater Investigation report, October 7, 1996, prepared by AEI.
2. Excavation and Disposal of Contaminated Soil report, January 7, 1997, prepared by AEI.
3. Groundwater Monitoring Well Installation report, dated May 30, 1997, prepared by AEI.
4. Phase II Subsurface Investigation report, December 9, 1998, prepared by AEI.
5. Groundwater Monitoring Well Installation and Sampling report, September 3, 1999, prepared by AEI.

### Report Limitations and Signatures

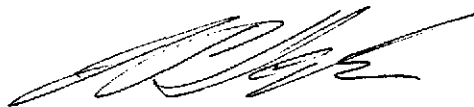
This report presents a summary of work completed by All Environmental, Inc., including observations and descriptions of site conditions. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide required 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 which existed at the time and location of the work.

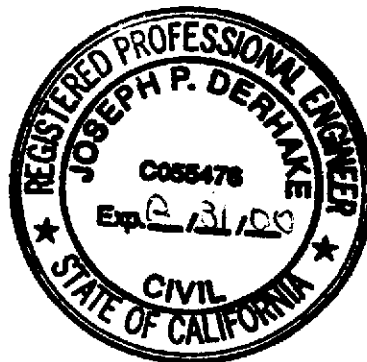
Sincerely,  
AEI Consultants



Carrie E. Locke  
Project Engineer



J. P. Derhake, PE, CAC  
Senior Author



### Figures

- Figure 1 Site Location Map
- Figure 2 Site Plan

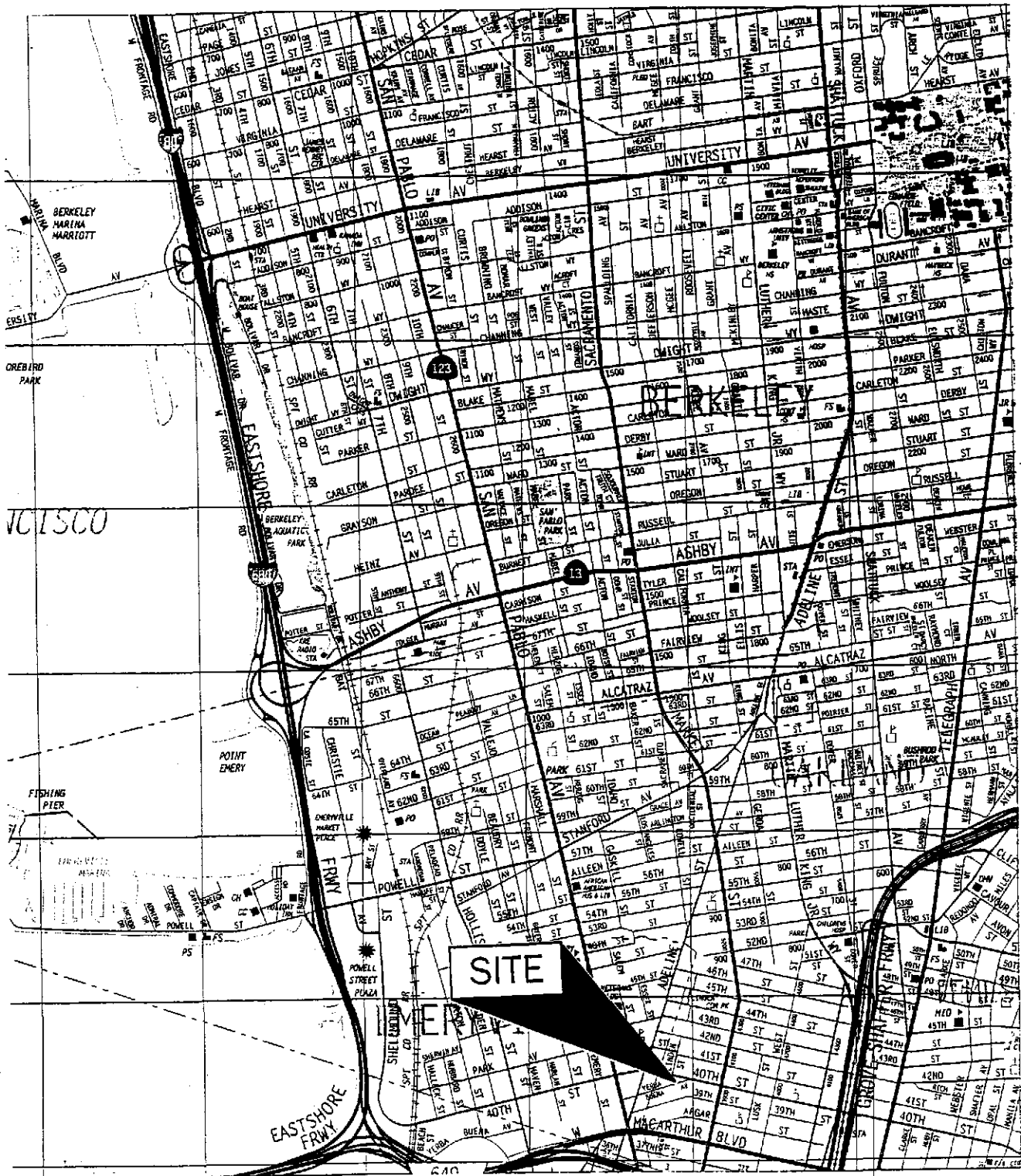
### Tables

- Table 1 Groundwater Levels
- Table 2 Groundwater Sample Analytical Data

### Appendices

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

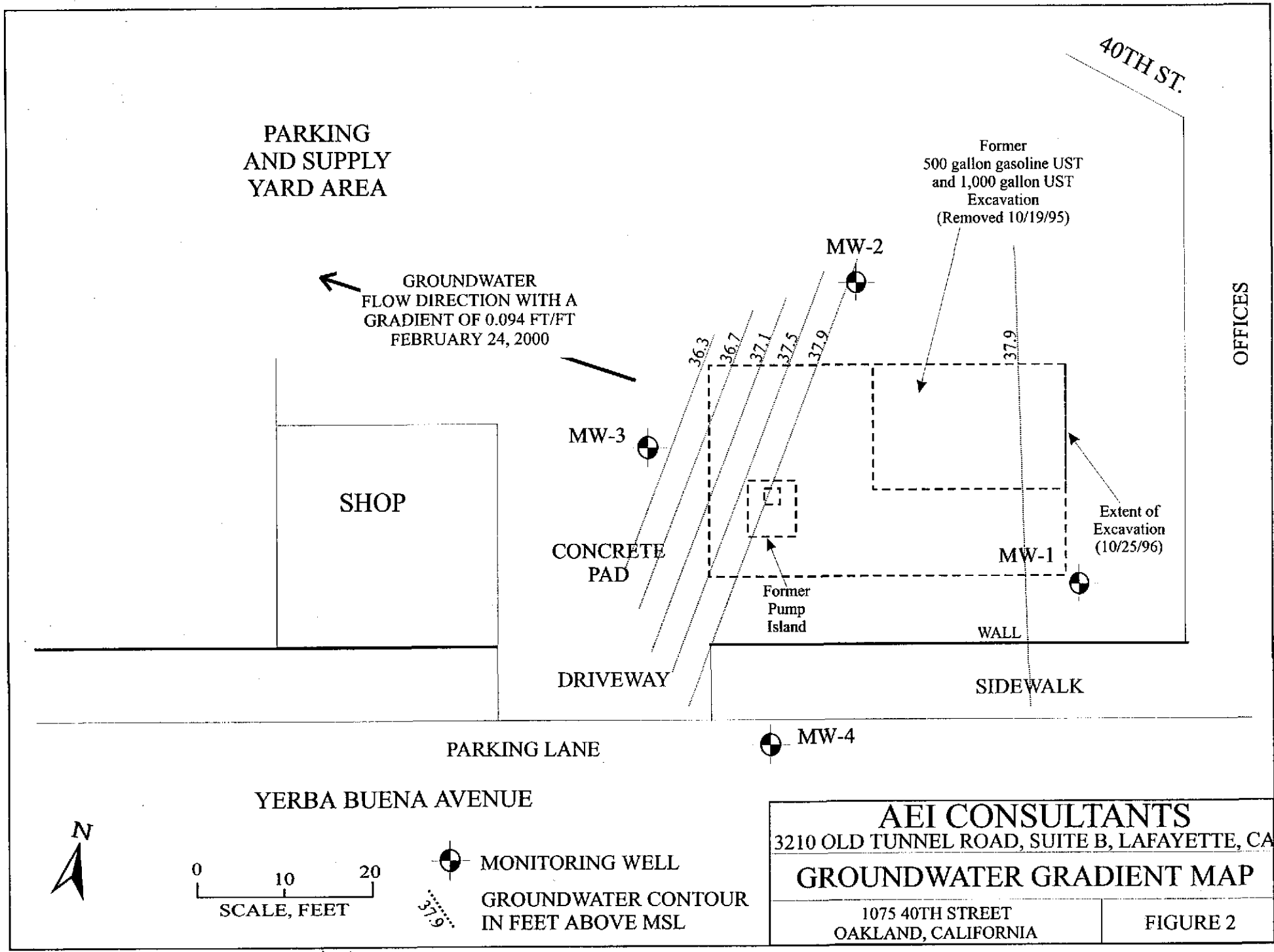
cc: Mr. Scott Seery, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502-6577



SOURCE:  
 THOMAS GUIDE  
 1997  
 SCALE: 1" = 2,400'

<b>AEI CONSULTANTS</b> 3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA	
<b>SITE LOCATION MAP</b>	
1075 40th STREET OAKLAND, CALIFORNIA	<b>FIGURE 1</b> PROJECT NO. 3119





**Table 1  
Groundwater Levels**

Well ID	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)
MW-1	3/19/97	45.41	8.25	37.16
	6/20/97	45.41	9.10	36.31
	10/8/97	45.41	9.95	35.46
	1/16/98	45.41	7.57	37.84
	8/5/99	45.49	10.16	35.33
	11/18/99	45.49	8.52	36.97
	2/24/00	45.49	7.65	37.84
MW-2	3/19/97	44.94	8.40	36.54
	6/20/97	44.94	8.85	36.09
	10/8/97	44.94	9.80	35.14
	1/16/98	44.94	5.28	39.66
	8/5/99	44.98	9.32	35.66
	11/18/99	44.98	10.20	34.78
	2/24/00	44.98	7.03	37.95
MW-3	3/19/97	44.32	7.59	36.73
	10/8/97	44.32	9.98	34.34
	6/20/97	44.32	8.36	35.96
	1/16/98	44.32	9.18	35.14
	8/5/99	44.37	10.56	33.81
	11/18/99	44.37	10.92	33.45
	2/24/00	44.37	8.49	35.88
MW-4	8/5/99	43.48	8.79	34.69
	11/18/99	43.48	8.11	35.37
	2/24/00	43.48	5.19	38.29

Notes:

All wells re-surveyed after the installation of MW-4

All well elevations are measured from the top of the casing and not from the ground surface

ft msl = feet above mean sea level

**Table 2**  
**Groundwater Sample Analytical Data**

Well ID	Date	Consultant/ Lab	TPHg (µg/l)	MTBE (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl- Benzene (µg/l)	Xylenes (µg/l)	TPHd (µg/l)
MW - 1	3/19/97	AEI/MAI	<50	23	<0.5	<0.5	<0.5	<0.5	<50
	6/23/97	AEI/MAI	1,300	14	150	2.1	12	19	420
	10/8/97	AEI/MAI	56	5.8	2.8	<0.5	<0.5	<0.5	66
	1/16/98	AEI/MAI	1,500	<33	95	0.72	69	8.4	910
	8/5/99	AEI/MAI	160	<15	1.6	<0.5	0.56	1.1	63
	11/18/99	AEI/MAI	79	<5.0	<0.5	<0.5	<0.5	<0.5	<50
	2/24/00	AEI/MAI	300	<5.0	14	0.82	3.5	1.6	160
MW - 2	3/19/97	AEI/MAI	<50	65	<0.5	<0.5	<0.5	<0.5	<50
	6/23/97	AEI/MAI	<50	70	3.4	<0.5	<0.5	<0.5	<50
	10/8/97	AEI/MAI	<50	90	<0.5	<0.5	<0.5	<0.5	<50
	1/16/98	AEI/MAI	<50	65	<0.5	<0.5	<0.5	<0.5	<50
	8/5/99	AEI/MAI	<50	600	<0.5	<0.5	<0.5	<0.5	<50
	11/18/99	AEI/MAI	<50	370	<0.5	<0.5	<0.5	<0.5	<50
	2/24/00	AEI/MAI	<50	880	<0.5	<0.5	<0.5	<0.5	<50
MW - 3	3/19/97	AEI/MAI	26,000	230	3,000	530	340	2,300	5,000
	6/23/97	AEI/MAI	25,000	270	4,400	120	540	1,500	7,000
	10/8/97	AEI/MAI	17,000	ND<280	4,400	47	280	410	5,100
	1/16/98	AEI/MAI	29,000	ND<360	5,600	740	950	3,500	7,300
	8/5/99	AEI/MAI	31,000	ND<200	5,400	150	1100	2,300	5,100
	11/18/99	AEI/MAI	74,000	ND<1,000	8,100	5,000	2,100	8,100	490,000
	2/24/00	AEI/MAI	110,000	ND<200	12,000	1,400	2,900	14,000	6,300
MW-4	8/5/99	AEI/MAI	<50	37	<0.5	<0.5	<0.5	<0.5	<50
	11/18/99	AEI/MAI	<50	20	<0.5	<0.5	<0.5	<0.5	<50
	2/24/00	AEI/MAI	<50	20	<0.5	<0.5	<0.5	<0.5	<50

Notes: µg/l = micrograms per liter  
 ND = Not detected  
 MTBE Methyl Tertiary Butyl Ether  
 TPHg Total Petroleum Hydrocarbons as gasoline  
 TPHd Total Petroleum Hydrocarbons as diesel  
 AEI All Environmental, Inc.  
 MAI McCampbell Analytical Inc., Pacheco, California

**AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD  
SAMPLING FORM**

**Monitoring Well Number: MW-1**

Project Name: Fidelity Roof, Co	Date of Sampling: 02/24/00
Job Number: 3119	Name of Sampler: CL
Project Address: 1075 40 <sup>th</sup> Street, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	45.49
Depth of Well	21.0
Depth to Water	7.65
Water Elevation	37.84
Three Well Volumes (gallons)*	
2" casing: (TD - DTW)(0.16)(3)	6.41
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	7
Appearance of Purge Water	Murky

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	(2) 40 ml VOAS, 1-liter amber bottle
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Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
10:25AM	2	58.9	8.57	1265	
10:29AM	4	60.1	8.34	1159	
10:36	6	60.7	8.22	1113	

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

No hydrocarbon sheen or odor

TD - Total Depth of Well  
DTW - Depth To Water

**AEI CONSULTANTS – GROUNDWATER MONITORING WELL FIELD  
SAMPLING FORM**

**Monitoring Well Number: MW-2**

Project Name: Fidelity Roof, Co	Date of Sampling: 2/24/00
Job Number: 3119	Name of Sampler: CL
Project Address: 1075 40 <sup>th</sup> Street, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	44.98
Depth of Well	21.0
Depth to Water	7.03
Water Elevation	37.95
<b>Three Well Volumes (gallons)*</b>	
2" casing: (TD - DTW)(0.16)(3)	6.71
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	7
Appearance of Purge Water	Murky

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	(2) 40 ml VOAS, 1-liter amber bottle
----------------------------------	--------------------------------------

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
9:59AM	2	60.0	8.54	1235	
10:05AM	4	61.1	8.28	1266	
10:12AM	6	61.1	8.21	1263	

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

No hydrocarbon sheen or odor

TD - Total Depth of Well  
DTW - Depth To Water

AEI CONSULTANTS - GROUNDWATER MONITORING WELL FIELD SAMPLING FORM					
<b>Monitoring Well Number: MW-3</b>					
Project Name: Fidelity Roof, Co			Date of Sampling: 2/24/00		
Job Number: 3119			Name of Sampler: CL		
Project Address: 1075 40 <sup>th</sup> Street, Oakland					
MONITORING WELL DATA					
Well Casing Diameter (2"/4"/6")			2"		
Seal at Grade -- Type and Condition			Cement / Good		
Well Cap & Lock -- OK/Replace			OK		
Elevation of Top of Casing			44.37		
Depth of Well			21.0		
Depth to Water			8.49		
Water Elevation			35.88		
Three Well Volumes (gallons)*					
2" casing: (TD - DTW)(0.16)(3)			6.00		
4" casing: (TD - DTW)(0.65)(3)					
6" casing: (TD - DTW)(1.44)(3)					
Actual Volume Purged (gallons)			6		
Appearance of Purge Water			Murky		
GROUNDWATER SAMPLES					
Number of Samples/Container Size			(2) 40 ml VOAS, 1-liter amber bottle		
Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
9:06AM	2	57.8	8.19	1820	
9:15AM	4	61.3	8.18	1913	
9:21AM	6	60.4	8.17	1797	
COMMENTS (i.e., sample odor, well recharge time & percent, etc.)					
Strong hydrocarbon odor and sheen present					

TD - Total Depth of Well  
DTW - Depth To Water

**AEI CONSULTANTS- GROUNDWATER MONITORING WELL FIELD  
SAMPLING FORM**

**Monitoring Well Number: MW-4**

Project Name: Fidelity Roof, Co	Date of Sampling: 2/24/00
Job Number: 3119	Name of Sampler: CL
Project Address: 1075 40 <sup>th</sup> Street, Oakland	

**MONITORING WELL DATA**

Well Casing Diameter (2"/4"/6")	2"
Seal at Grade -- Type and Condition	Cement / Good
Well Cap & Lock -- OK/Replace	OK
Elevation of Top of Casing	43.48
Depth of Well	20.0
Depth to Water	5.19
Water Elevation	38.29
<b>Three Well Volumes (gallons)*</b>	
2" casing: (TD - DTW)(0.16)(3)	7.12
4" casing: (TD - DTW)(0.65)(3)	
6" casing: (TD - DTW)(1.44)(3)	
Actual Volume Purged (gallons)	7
Appearance of Purge Water	Murky and cloudy

**GROUNDWATER SAMPLES**

Number of Samples/Container Size	(2) 40 ml VOAS, 1-liter amber bottle
----------------------------------	--------------------------------------

Time	Vol Remvd (gal)	Temp (deg C)	pH	Cond (mS)	Comments
9:35AM	2	59.2	8.92	1276	
9:41AM	4	61.3	8.54	1274	
9:46AM	6	61.1	8.57	1275	

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

No hydrocarbon odor or sheen

TD - Total Depth of Well

DTW - Depth To Water



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. 3210 Old Tunnel Road, Suite B Lafayette, CA 94549-4157	Client Project ID: #3119; Fidelity	Date Sampled: 02/24/00
		Date Received: 02/24/00
	Client Contact: Carrie E. Locke	Date Extracted: 02/24-02/25/00
	Client P.O:	Date Analyzed: 02/24-02/25/00

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) <sup>+</sup>	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
31661	MW-1	W	300,a	ND	14	0.82	3.5	1.6	— <sup>#</sup>
31662	MW-2	W	ND	880	ND	ND	ND	0.54	97
31663	MW-3	W	110,000,a,h	ND<200	12,000	1400	2900	14,000	99
31664	MW-4	W	ND	20	ND	ND	ND	ND	96
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

<sup>#</sup> 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 (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.





**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](mailto:main@mccampbell.com)

All Environmental, Inc. 3210 Old Tunnel Road, Suite B Lafayette, CA 94549-4157	Client Project ID: #3119; Fidelity	Date Sampled: 02/24/00
		Date Received: 02/24/00
	Client Contact: Carrie E. Locke	Date Extracted: 02/24/00
	Client P.O:	Date Analyzed: 02/24/00

**Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel \***

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) <sup>+</sup>	% Recovery Surrogate
31661	MW-1	W	160,d,b	106
31662	MW-2	W	ND	104
31663	MW-3	W	6300,d,b,h	113
31664	MW-4	W	ND	106
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L		
	S	1.0 mg/kg		

\* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

\* cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

\*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 diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

*Edward Hamilton* Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

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

## QC REPORT

Date: 02/24/00 Matrix: Water

Extraction: N/A

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	

SampleID: 22300

Instrument: GC-3

Surrogate1	0.000	101.0	102.0	100.00	101	102	1.0
Xylenes	0.000	331.0	310.0	300.00	110	103	6.6
Ethyl Benzene	0.000	109.0	102.0	100.00	109	102	6.6
Toluene	0.000	111.0	107.0	100.00	111	107	3.7
Benzene	0.000	113.0	112.0	100.00	113	112	0.9
MTBE	0.000	89.0	89.0	100.00	89	89	0.0
GAS	0.000	1012.4	958.1	1000.00	101	96	5.5

SampleID: 22400

Instrument: MB-1

Oil & Grease	0.000	24.2	24.3	20.00	121	122	0.5
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SampleID: 22400

Instrument: GC-2 A

Surrogate1	0.000	112.0	112.0	100.00	112	112	0.0
TPH (diesel)	0.000	292.0	296.0	300.00	97	99	1.4

SampleID: 22400

Instrument: IR-1

Surrogate1	0.000	96.4	96.3	100.00	96	96	0.1
TRPH	0.000	26.9	26.5	23.70	114	112	1.5

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

RPD means Relative Percent Deviation

