



R0479

Alameda County  
January 15, 2004 JAN 22 2004  
Environmental Health

QUARTERLY GROUNDWATER MONITORING REPORT  
DECEMBER GROUNDWATER SAMPLING  
at  
Lim Family Property  
250 8th Street  
Oakland, California

Submitted by:  
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Danville, CA 94526  
(925) 820-9391

## **1.0 INTRODUCTION**

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s quarterly groundwater monitoring at the Lim family property located at 250 8th Street in Oakland, California (*Figures 1 and 2*).

## **2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT**

On December 18, 2003, ASE measured the depth to water in monitoring wells MW-1 through MW-7 using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. Monitoring well MW-3 contained 0.66 feet of free-floating hydrocarbons this quarter. Groundwater elevation data is presented in Table One.

A groundwater elevation (potentiometric surface) contour map is shown as Figure 2. The groundwater flow direction at the site is generally to the south with an approximate gradient of 0.006 feet/foot during this quarterly sampling period. The gradient and flow direction is consistent with previous findings.

## **3.0 MONITORING WELL SAMPLING**

On December 18, 2003, ASE collected groundwater samples from monitoring wells MW-1, MW-2, and MW-4 through MW-7 for analysis. Monitoring well MW-3 was not sampled due to the presence of free-floating hydrocarbons at the time of sampling.

Prior to sampling, the wells were purged of three well casing volumes of groundwater using dedicated polyethylene bailers. The pH, temperature, and conductivity of the purge water were monitored during evacuation, and samples were not collected until these parameters stabilized. Samples were collected from each well using dedicated polyethylene bailers. The groundwater samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid, sealed without headspace and labeled. All samples were stored on ice for transport to Kiff Analytical, LLC, (KIFF) of Davis, California under appropriate chain of custody documentation.

Well sampling purge water was contained in a sealed and labeled 55-gallon steel drum for temporary storage until off-site disposal can be arranged. See Appendix A for copies of the well sampling field logs.

#### **4.0 ANALYTICAL RESULTS FOR GROUNDWATER**

All groundwater samples were analyzed by KIFF for total petroleum hydrocarbons as diesel (TPH-D) by modified EPA Method 3510/8015M, total petroleum hydrocarbons as gasoline (TPH-G), benzene, toluene, ethyl benzene, total xylenes (collectively known as BTEX), lead scavengers, and methyl tertiary butyl ether (MTBE) by EPA Method 8260B. With the approval of the Alameda County Health Care Services Agency (ACHCSA), laboratory analysis for Oil and Grease has been discontinued since concentrations have been consistently near or below laboratory method reporting limits and reportable concentrations have not been detected since December 2002. The analytical results are tabulated in Tables Two and Three, and copies of the certified analytical report and chain of custody form are included in Appendix B.

#### **5.0 CONCLUSIONS**

Monitoring well MW-3 contained 0.61 feet of free-floating hydrocarbons this quarter. Overall, the hydrocarbon concentrations are consistent with previous analytical results and remain elevated in downgradient monitoring wells MW-2, MW-3, MW-4, and MW-7. The TPH-G and BTEX concentrations in groundwater samples collected from monitoring wells MW-2, MW-4, and MW-7 exceeded Environmental Screening Levels (ESLs) as presented in the "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater" document prepared by the California Regional Water Quality Control Board, San Francisco Bay Region dated July 2003. Additionally, the sample collected from monitoring well MW-4 contained 46 ppb 1,2-dichloroethane.

#### **6.0 RECOMMENDATIONS**

ASE has submitted a corrective action plan (CAP) dated August 26, 2002 to the ACHCSA and is awaiting approval of ASE's selection of remediation technology for the site. In the meantime, ASE recommends continued groundwater monitoring on a quarterly basis for monitoring wells MW-2, MW-3, MW-4, and MW-7. Hydrocarbon concentrations in monitoring wells MW-1, MW-5, and MW-6 have consistently been below their respective laboratory method reporting limits or ESLs; therefore, ASE recommends reducing their sampling frequency to semi-annual. The next groundwater sampling is scheduled for March 2004. ASE will also continue periodic product bailing from monitoring well MW-3 during the next quarter.

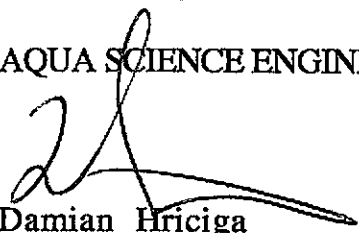
## 7.0 REPORT LIMITATIONS

The results presented in this report represent conditions at the time of the groundwater sampling, at the specific locations where the samples were collected, and for the specific parameters analyzed by the laboratory. It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an independent CAL-DHS certified laboratory. The independent laboratory is solely responsible for the contents and conclusions of the chemical analysis data.

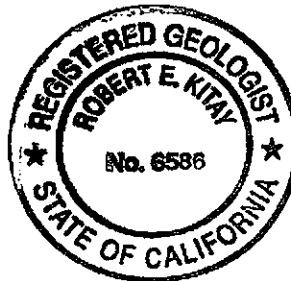
Aqua Science Engineers appreciates the opportunity to assist The Lim Family with their environmental needs. Should you have any questions or comments, please feel free to call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

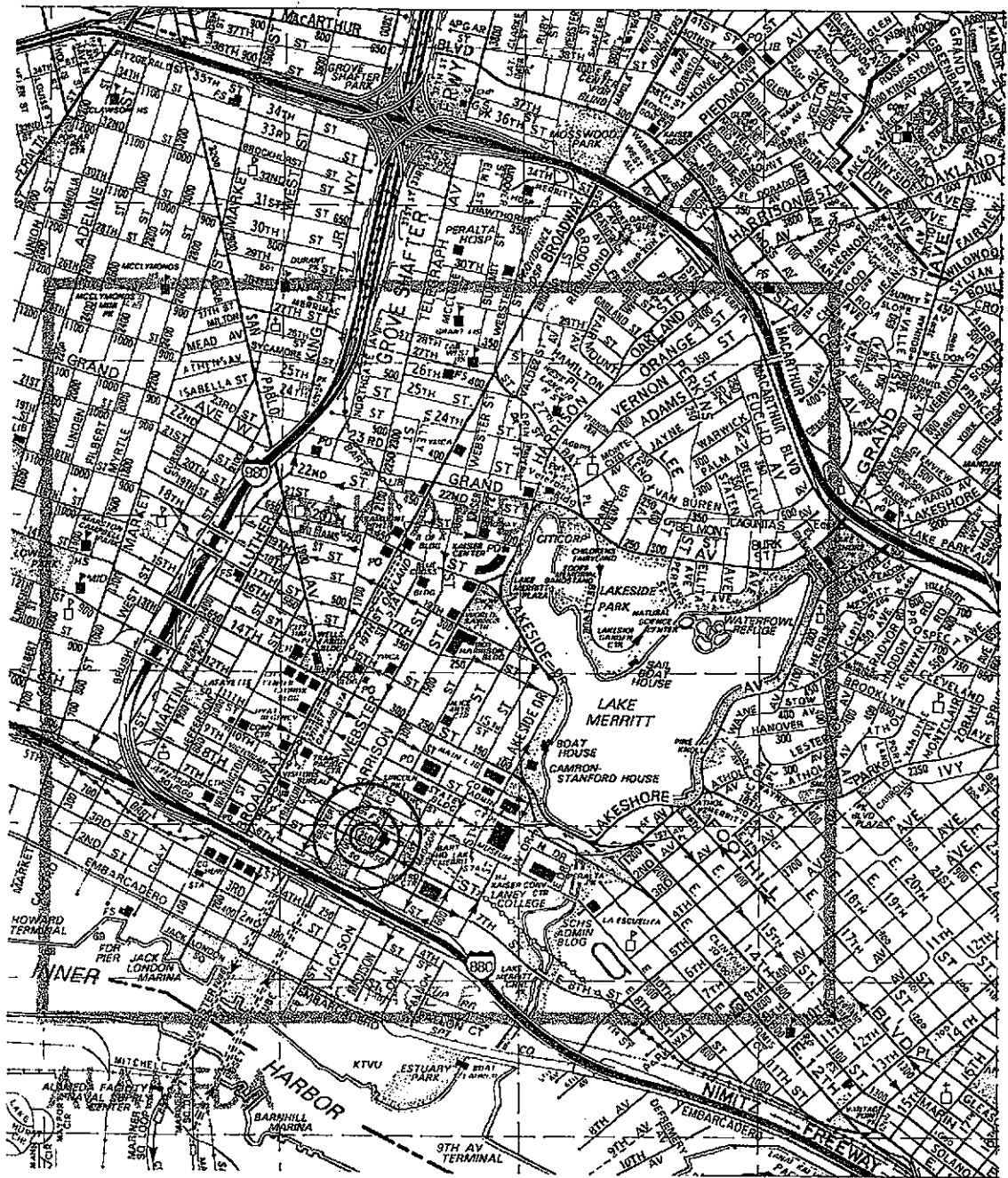
  
Damian Hriciga  
Project Geologist

  
Robert E. Kitay, R.G., R.E.A.  
Senior Geologist



Attachments: Figures 1 and 2  
Tables One, Two, and Three  
Appendices A and B

cc: Mr. Barney Chan, Alameda County Health Care Services  
Mr. Chuck Headlee, RWQCB, San Francisco Bay Region



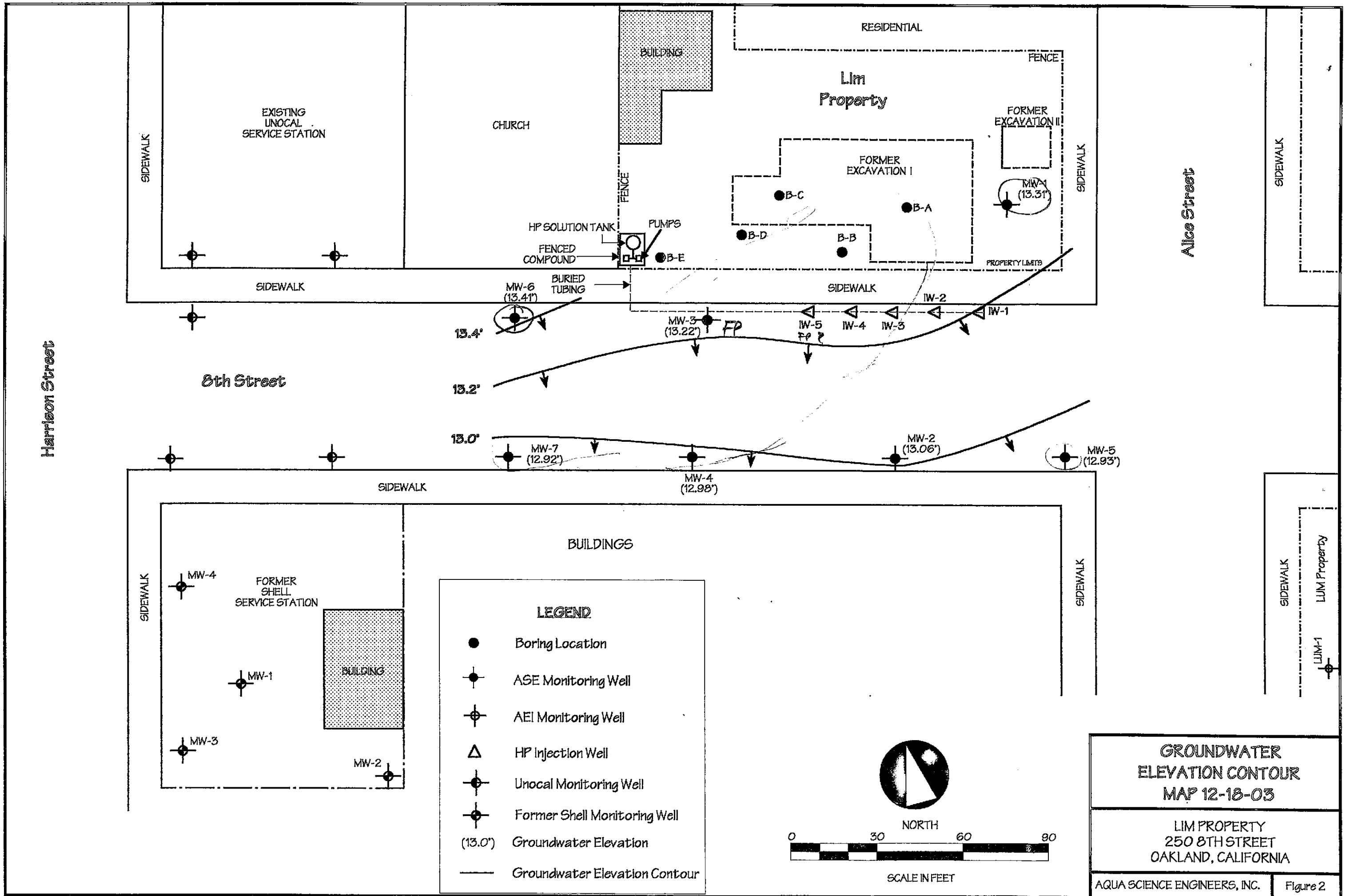
# SITE LOCATION MAP

Lim Property  
250 8th Street  
Oakland, California

Aqua Science Engineers

Figure 1

BASE: The Thomas Guide, Alameda and Contra Costa  
Counties Street Guide & Directory, 1990



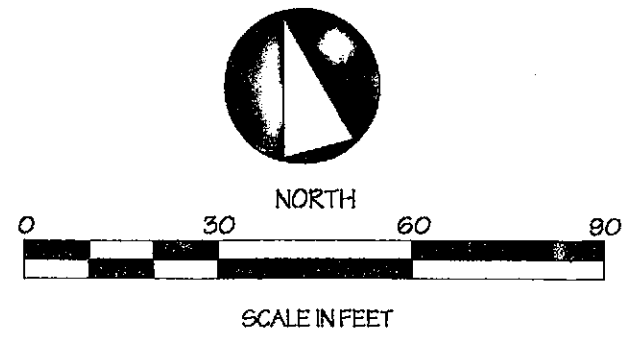
**LEGEND**

- Boring Location
- ⊕ ASE Monitoring Well
- ⊕ AEI Monitoring Well
- △ HP Injection Well
- ⊕ Unocal Monitoring Well
- ⊕ Former Shell Monitoring Well
- (13.0') Groundwater Elevation
- Groundwater Elevation Contour

**GROUNDWATER  
ELEVATION CONTOUR  
MAP 12-18-03**

LIM PROPERTY  
250 8TH STREET  
OAKLAND, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. Figure 2



**TABLE ONE**  
 Groundwater Elevation Data  
 Lim Family Property  
 250 8th Street  
 Oakland, CA

Well I.D.	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (msl)
MW-1	01/30/95	25.51	16.21		9.30
	04/12/95		15.71		9.80
	07/14/95		16.71		8.80
	10/17/95		17.72		7.79
	01/12/96		18.03		7.48
	07/25/96		16.82		8.69
	01/06/97		15.60		9.91
	07/08/97		17.31		8.20
	01/26/98		15.21		10.30
	07/23/98		15.38		10.13
	01/05/99		16.82		8.69
	07/13/99		15.89		9.62
	01/12/00		17.44		8.07
	04/24/00		16.37		9.14
	07/20/00		16.30		9.21
	10/24/00		17.25		8.26
	01/18/01		17.29		8.22
	04/05/01		15.88		9.63
	07/17/01		16.54		8.97
	10/25/01	16.89		8.62	
	01/21/02	14.92		10.59	
	04/11/02	14.02		11.49	
	06/11/02	29.72	15.33		14.39
	09/17/02		15.96		13.76
	12/18/02		16.14		13.58
	03/25/03		16.16		13.56
	06/23/03		16.01		13.71
	09/26/03		16.57		13.15
	12/18/03		16.41		13.31

**TABLE ONE**  
 Groundwater Elevation Data  
 Lim Family Property  
 250 8th Street  
 Oakland, CA

Well I.D.	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (msl)
MW-2	01/30/95	23.99	15.02		8.97
	04/12/95		14.75		9.24
	07/14/95		16.02		7.97
	10/17/95		16.94		7.05
	01/12/96		17.05		6.94
	07/25/96		16.02		7.97
	01/06/97		14.34		9.65
	07/08/97		16.52		7.47
	01/26/98		14.10		9.89
	07/23/98		14.70		9.29
	01/05/99		16.01		7.98
	07/13/99		15.40		8.59
	01/12/00		16.76		7.23
	04/24/00		15.67		8.32
	07/20/00		15.70		8.29
	10/24/00		16.56		7.43
	01/18/01		16.47		7.52
	04/05/01		15.88		8.11
	07/17/01		15.35		8.64
	10/25/01		15.63		8.36
	01/21/02	13.55		10.44	
	04/11/02	13.74		10.25	
	06/11/02	28.19	14.06	14.13	
	09/17/02		14.67	13.52	
	12/18/02		14.88	13.31	
	03/25/03		15.11	13.08	
	06/23/03		14.94	13.25	
	09/26/03		15.49	12.70	
	12/18/03		15.13	13.06	



**TABLE ONE**  
 Groundwater Elevation Data  
 Lim Family Property  
 250 8th Street  
 Oakland, CA

Well I.D.	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (msl)
<b>MW-3</b>	01/12/00	24.25	16.68	0.01	7.58*
	04/24/00		15.58	0.15	8.79*
	07/20/00		16.01	0.41	8.57*
	10/24/00		16.95	0.21	7.47*
	01/18/01		16.63	0.21	7.79*
	04/05/01		15.16	0.23	9.27*
	07/17/01		15.92	0.39	8.64*
	10/25/01		16.26	0.38	8.29*
	01/21/02		14.08	0.16	10.30*
	04/11/02		14.59	0.54	10.09*
	06/11/02	28.58	15.16	0.90	14.14*
	09/17/02		16.04	1.24	13.53*
	10/01/02		16.14	1.23	13.42*
	10/25/02		15.80	0.60	13.26*
	11/12/02		15.87	0.47	13.09*
	12/18/02		15.42	0.47	13.54*
	03/25/03		16.11	1.14	13.38*
	06/23/03		16.58	1.86	13.49*
	09/26/03		16.11	0.66	13.00*
	12/18/03		15.83	0.59	13.22*
<b>MW-4</b>	01/12/00	23.71	17.24		6.47
	04/24/00		16.18		7.53
	07/20/00		16.18		7.53
	10/24/00		17.03		6.68
	01/18/01		16.87		6.84
	04/05/01		15.28		8.43
	07/17/01		15.92		7.79
	10/25/01		16.23		7.48
	01/21/01		14.14		9.57
	04/11/02		14.43		9.28
	06/11/02	28.61	14.72		13.89
	09/17/02		15.29		13.32
	12/18/02		15.20		13.41
	03/25/03		15.53		13.08
	06/23/03		15.35		13.26
	09/26/03		15.91		12.70
	12/18/03		15.63		12.98

TABLE ONE  
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Lim Family Property  
250 8th Street  
Oakland, CA

Well I.D.	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (msl)	
MW-5	06/11/02	28.40	14.23		14.17	
	09/17/02		14.80		13.60	
	12/18/02		15.08		13.32	
	03/25/03		15.31		13.09	
	06/23/03		15.16		13.24	
	09/26/03		15.72		12.68	
	12/18/03		15.47		12.93	
MW-6	06/11/02	29.20	14.95		14.25	
	09/17/02		15.47		13.73	
	12/18/02		15.43		13.77	
	03/25/03		15.67		13.53	
	06/23/03		15.48		13.72	
	09/26/03		NOT MEASURED - SOUNDER MALFUNCTION			
	12/18/03		15.79		13.41	
MW-7	06/11/02	28.95	15.19		13.76	
	09/17/02		15.73		13.22	
	12/18/02		NOT MEASURED - CAR PARKED OVER WELL			
	03/25/03		15.96		12.99	
	06/23/03		15.75		13.20	
	09/26/03		16.29		12.66	
	12/18/03		16.03		12.92	
IW-1	07/13/99	24.05	14.75		9.30	
	06/11/02	28.33				
IW-2	07/13/99	24.21	15.10		9.11	
	06/11/02	28.50				
IW-3	07/13/99	23.93	15.00		8.93	
	06/11/02	28.14				
IW-4	07/13/99	23.83	Unknown		Unknown	
	06/11/02	28.24				

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 Groundwater Elevation Data  
 Lim Family Property  
 250 8th Street  
 Oakland, CA

Well I.D.	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (msl)
IW-5	07/13/99	24.00	15.50	1.00	9.55*
	07/23/99		15.52	1.05	9.32*
	08/03/99		15.58	0.64	8.93*
	08/17/99		15.62	0.86	9.07*
	08/27/99		15.92	0.77	8.70*
	09/10/99		15.82	0.56	8.63*
	09/24/99		15.57	0.26	8.64*
	10/08/99		15.56	0.23	8.62*
	11/02/99		15.59	0.22	8.59*
	11/19/99		15.64	0.07	8.42*
	12/16/99		16.12	0.64	8.39*
	01/12/00		16.54	0.28	7.68*
	06/11/02	28.32			

Notes:

\* = Adjusted for the presence of free-floating oil by the equation: Top of Casing Elevation - Depth to Water + (0.8 x Floating Hydrocarbon Thickness) = Groundwater Elevation (Adjusted).

Top of casing elevations resurveyed by Mid Coast Engineers on 6/27/02 and 7/11/02.

**TABLE TWO**  
 Summary of Chemical Analysis of Groundwater Samples  
 Petroleum Hydrocarbon Concentrations  
 All results are in parts per billion

Well/ Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE
<u>MW-1</u>							
01/30/95	740	200	3	5	1	4	--
04/12/95	400	500	<0.5	<0.5	3	<2	--
07/14/95	520	400	1	<0.5	2	3	--
10/17/95	400	200	0.5	1	3	<2	--
01/12/96	120	890	<0.5	<0.5	<0.5	<1.0	<2.0
07/08/96	320	300	0.52	2.7	1.2	2.3	<5.0
01/06/97	110	75	<0.5	0.68	<0.5	<0.5	<5.0
07/08/97	380	290	<0.5	1.5	1.4	1.9	<5.0
01/26/98	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0
07/23/98	190	<50	0.54	2.8	2	1.8	<5.0
01/05/99	200	<50	1.8	1.6	3.3	<0.5	<5.0
07/13/99	340	<50	<0.5	<0.5	2.6	<0.5	<5.0
01/12/00	300	1,000	22	36	5.5	24	<5.0
04/24/00	360	280*	<0.5	<0.5	<0.5	2.1	<5.0
07/20/00	290	150*	1.8	<0.5	<0.5	<0.5	<5.0
10/24/00	170**	280*	<0.5	<0.5	<0.5	<0.5	<5.0
01/18/01	170**	150*	<0.5	<0.5	<0.5	2.1	<5.0
04/05/01	350**	190*	<0.5	<0.5	<0.5	<0.5	<5.0
07/17/01	310	570	<0.5	<0.5	<0.5	<0.5	<5.0
10/25/01	250	260	<0.5	<0.5	<0.5	<0.5	<5.0
01/22/02	200	250	<0.5	<0.5	<0.5	<0.5	<5.0
04/11/02	260	300	<0.5	<0.5	<0.5	<0.5	<5.0
06/11/02	270	330	<0.5	<0.5	<0.5	<0.5	<5.0
09/17/02	320	1,700	<0.5	<0.5	<0.5	<0.5	<5.0
12/18/02	170	320	<0.5	<0.5	<0.5	<0.5	<5.0
03/25/03	320	<500	<0.5	<0.5	<0.5	<0.5	<5.0
06/23/03	240	310	<0.5	<0.5	<0.5	<0.5	<5.0
09/26/03	110	300	<0.5	<0.5	<0.5	<0.5	<0.5
12/18/03	150	340	<0.5	<0.5	<0.5	<0.5	<0.5

**TABLE TWO**  
 Summary of Chemical Analysis of Groundwater Samples  
 Petroleum Hydrocarbon Concentrations  
 All results are in parts per billion

Well/ Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE
<u>MW-2</u>							
01/30/95	88,000	800	19,000	18,000	2,400	10,000	--
04/12/95	110,000	990	21,000	28,000	2,800	14,000	--
07/14/95	120,000	5,000	20,000	25,000	3,200	15,000	--
10/17/95	190,000	4,000	15,000	26,000	4,900	23,000	--
01/12/96	32,000	2,600	10,000	8,000	1,100	4,800	< 2
07/08/96	110,000	2,500	20,000	18,000	2,500	12,000	< 500
01/06/97	230,000	37,000	11,000	19,000	4,300	20,000	< 1,200
07/08/97	91,000	35,000	16,000	20,000	2,700	13,000	< 1,000
01/26/98	50,000	11,000	12,000	12,000	1,600	6,700	< 250
07/23/98	50,000	8,100#	11,000	8,300	1,800	7,000	1,100
01/05/99	50,000	7,600#	12,000	12,000	2,300	9,600	1,300
07/13/99	73,000	8,500	11,000	13,000	2,200	9,800	< 500
01/12/00	63,000	11,000	10,000	12,000	1,800	7,800	< 500
04/24/00	76,000	23,000*	7,100	14,000	2,000	9,400	< 500
07/20/00	68,000	5,300#	11,000	14,000	2,300	11,000	< 1,000
10/24/00	48,000	6,400*	11,000	9,400	1,500	7,300	< 500
01/18/01	37,000	4,600*	6,900	5,600	1,200	5,300	< 500
04/05/01	59,000	4,600*	7,100	9,800	1,600	7,600	< 500
07/17/01	90,000	< 10,000	9,200	14,000	2,700	11,000	< 50
10/25/01	79,000	< 3,800	9,200	14,000	2,400	11,000	< 50
01/22/02	76,000	< 2,300	7,000	13,000	2,200	9,600	< 50
04/11/02	76,000	< 1,500	7,800	11,000	2,900	12,000	< 50
06/11/02	72,000	< 2,500	7,300	9,600	2,500	12,000	< 50
09/17/02	52,000	< 3,000	5,000	5,400	2,100	9,100	< 20
12/18/02	46,000	< 6,000	2,900	3,000	1,800	7,600	22
03/25/03	87,000	< 8,000	7,900	9,300	2,900	12,000	< 50
06/23/03	46,000	< 3000	7,800	4,000	1,900	6,600	< 50
09/26/03	52,000	< 3000	9,100	3,500	1,300	5,000	< 50
12/18/03	61,000	< 4,000	13,000	3,500	1,600	5,600	< 20

**TABLE TWO**  
 Summary of Chemical Analysis of Groundwater Samples  
 Petroleum Hydrocarbon Concentrations  
 All results are in parts per billion

Well/ Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE
<u>MW-3</u>							
01/12/00	140,000	13,000*	22,000	19,000	2,400	11,000	<500
04/24/00	240,000	700,000*	33,000/ 35,000	52,000/ 87,000	5,700/ 18,000	28,000/ 84,000	<5,000
07/20/00	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
10/24/00	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
01/18/01	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
04/05/01	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
07/17/01	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
10/25/01	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
01/22/02	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
04/11/02	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
06/11/02	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
09/17/02	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
12/18/02	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
03/25/03	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
06/23/03	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
09/26/03	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
12/18/03	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
<u>MW-4</u>							
01/12/00	99,000	7,900*	16,000	20,000	2,100	12,000	<2,500
04/24/00	54,000	44,000*	3,400/ 4,500	13,000/ 20,000	1,800/ 2,800	8,800/ 14,000	<1,300
07/20/00	8,000	3,500	9,200/ 11,000	20,000 22,000	2,500 3,400	12,000/ 13,000	<1,000
10/24/00	98,000	8,000*	21,000	29,000	2,700	15,000	<1,000
01/18/01	91,000	12,000	17,000/ 15,000	21,000/ 21,000	2,500/ 2,800	13,000/ 11,000	<1,000 <5,000
04/05/01	88,000	7,500*	6,900/ 3,200	18,000/ 9,000	2,500/ 1,300	12,000/ 6,400	<1,000 <500
07/17/01	95,000	<3,000	8,000	16,000	2,900	11,000	49
10/25/01	89,000	<2,200	9,300	18,000	2,400	12,000	66
01/22/02	80,000	<2,300	4,600	15,000	2,500	11,000	<50
04/11/02	90,000	<900	6,600	18,000	2,800	12,000	55
06/25/02	110,000	<3,000	10,000	20,000	2,900	13,000	<100
09/17/02	110,000	<3,000	9,600	21,000	2,800	13,000	<100
12/18/02	97,000	<4,000	8,000	20,000	2,600	12,000	<50
03/25/03	97,000	<7,500	7,600	22,000	2,500	12,000	<100
06/23/03	100,000	<3,000	9,600	22,000	3,300	15,000	<100
09/26/03	110,000	<4,000	9,300	17,000	2,100	10,000	<50
12/18/03	110,000	<2,000	8,900	19,000	2,500	12,000	<25

**TABLE TWO**  
**Summary of Chemical Analysis of Groundwater Samples**  
**Petroleum Hydrocarbon Concentrations**  
 All results are in parts per billion

Well/ Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE
<u>MW-5</u>							
06/11/02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	28
09/17/02	< 50	110	< 0.5	< 0.5	< 0.5	< 0.5	4.8
12/18/02	< 50	140	< 0.5	< 0.5	< 0.5	< 0.5	1.8
03/25/03	< 50	130	< 0.5	< 0.5	< 0.5	< 0.5	7.4
06/23/03	< 50	390	< 0.5	< 0.5	< 0.5	< 0.5	17
09/26/03	< 50	700	< 0.5	< 0.5	< 0.5	< 0.5	21
12/18/03	< 50	550	< 0.5	< 0.5	< 0.5	< 0.5	16
<u>MW-6</u>							
06/11/02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	1.2
09/17/02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	1.0
12/18/02	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	0.90
03/25/03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
06/23/03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
09/26/03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
12/18/03	< 50	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
<u>MW-7</u>							
06/25/02	38,000	< 2,000	890	5,100	1,200	5,200	< 20
09/17/02	26,000	< 2,000	590	3,600	880	4,000	< 20
12/18/02	NOT SAMPLED - CAR PARKED OVER WELL						
03/25/03	39,000	< 2,900	410	7,700	1,000	6,400	< 5.0
06/23/03	17,000	< 1,000	440	2,600	630	2,600	< 10
09/26/03	17,000	< 1,000	230	1,800	470	2,200	< 5.0
12/18/03	20,000	< 1,000	290	2,500	590	2,900	< 5.0
ESL	500	640	46	130	290	13	1,800

Notes:

\* = Hydrocarbons reported are in the early diesel range, and do not match the laboratory standard.

\*\* = Hydrocarbons reported do not match the laboratory gasoline standard.

# = Estimated concentration reported due to overlapping fuel patterns.

/ = Results separated by a slash represent results from two different laboratory methods (8020/8260).

Non-detectable concentrations noted by the less than sign (<) followed by the detection limit.

Most recent data in bold.

ESL = Environmental screening levels presented in the "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater (July 2003)" document prepared by the California Regional Water Quality Control Board, San Francisco Bay Region.

**TABLE THREE**  
**Groundwater Analytical Results**  
**Oil & Grease and Volatile Organic Compounds**  
 All results are in parts per billion

Date Sampled & Compound Analyzed	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
<u>7/8/1997</u>							
Hydrocarbon Oil and Grease	-	<1,000	-	-	-	-	-
Tetrachloroethane (PCE)	0.9	<0.5	-	-	-	-	-
Other VOCs	<0.5 - <3	<0.5 - <3	-	-	-	-	-
<u>1/26/1998</u>							
Hydrocarbon Oil and Grease	-	<1,000	-	-	-	-	-
Trichloroethene	0.7	<5.0	-	-	-	-	-
Tetrachloroethene	10	<5.0	-	-	-	-	-
1,2-Dichloroethane	<0.5	11	-	-	-	-	-
Other VOCs	<0.5 - <50	<0.5 - <50	-	-	-	-	-
<u>7/23/1998</u>							
Hydrocarbon Oil and Grease	-	<1,000	-	-	-	-	-
Tetrachloroethene	4	4.6	-	-	-	-	-
1,2-Dichloroethane	<2	9.9	-	-	-	-	-
Other VOCs	<2 - <10	<0.5 - <5.0	-	-	-	-	-
<u>1/5/1999</u>							
Hydrocarbon Oil and Grease	-	<1,000	-	-	-	-	-
Tetrachloroethene	5.1	<50	-	-	-	-	-
Trichloroethene	0.52	<50	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.58	<50	-	-	-	-	-
Chloroform	8.2	<50	-	-	-	-	-
Other VOCs	<0.5 - <5	<50 - <500	-	-	-	-	-
<u>7/13/1999</u>							
Hydrocarbon Oil and Grease	-	<1,000	-	-	-	-	-
Tetrachloroethene	1.5	0.68	-	-	-	-	-
Chloroform	4.6	<50	-	-	-	-	-
1,2-Dichloroethane	<0.50	7.7	-	-	-	-	-
Other VOCs	<0.5 - <5	<0.5 - <500	-	-	-	-	-
<u>1/12/2000</u>							
Hydrocarbon Oil and Grease	-	<1,000	<1,000	<1,000	-	-	-
Tetrachloroethene	0.8	<1.0	<100	<50	-	-	-
Chloroform	3.2	<1.0	<100	<50	-	-	-
1,2-Dichloroethane	<0.50	8.8	120	140	-	-	-
Acetone	-	-	25,000	6,400	-	-	-
Naphthalene	-	-	550	540	-	-	-
Isopropylbenzene	-	-	120	89	-	-	-
Other VOCs	<0.5 - <5.0	<1.0 - <4.0	<100 - <10,000	<50 - <5,000	-	-	-
<u>4/24/2000</u>							
Hydrocarbon Oil and Grease	-	<1,000	4,100	<1,000	-	-	-
1,2-Dichloroethane	<0.5	5.9	<1,000	<250	-	-	-
Naphthalene	-	-	3,800	590	-	-	-
Isopropylbenzene	-	-	1,200	<250	-	-	-
Other VOCs	<0.5 - <5.0	<5.0 - <20	: 1,000 - <10,000	<250 - <25,000	-	-	-



**TABLE THREE**  
**Groundwater Analytical Results**  
**Oil & Grease and Volatile Organic Compounds**  
 All results are in parts per billion

Date Sampled & Compound Analyzed	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
<u>7/20/2000</u>							
Hydrocarbon Oil and Grease	-	< 1,000		< 1,000	-	-	-
Tetrachloroethene	0.59	< 5.0	FREE	< 200	-	-	-
Chloroform	2.1	< 5.0	PRODUCT	< 200	-	-	-
1,2-Dichloroethane	< 0.5	6.7	---	< 200	-	-	-
Acetone	-	-	NOT	< 20,000	-	-	-
Naphthalene	-	-	SAMPLED	730	-	-	-
Other VOCs	< 0.5 - < 2.0	< 5.0 - < 2.0		< 250 - < 20,000	-	-	-
<u>10/24/2000</u>							
Hydrocarbon Oil and Grease	-	< 1,000	FREE	< 1,000	-	-	-
Tetrachloroethene	< 0.5	< 5.0	---	< 250	-	-	-
Chloroform	1.0	< 5.0	NOT	< 250	-	-	-
Other VOCs	< 0.5 - < 2.0	< 5.0 - < 2.0	SAMPLED	< 250 - < 25,000	-	-	-
<u>1/18/2001</u>							
Hydrocarbon Oil and Grease	-	2,100	FREE	1,300	-	-	-
Tetrachloroethene	1.3	< 5.0	---	< 250	-	-	-
Chloroform	6.4	< 5.0	NOT	< 250	-	-	-
Other VOCs	< 0.5 - < 2.0	< 5.0 - < 2.0	SAMPLED	< 250 - < 25,000	-	-	-
<u>4/5/2001</u>							
Hydrocarbon Oil and Grease	-	< 1.0	FREE	1,100.0	-	-	-
Tetrachloroethene	< 0.5	1.1	PRODUCT	< 50	-	-	-
1,2 dichloroethane	< 0.5	4.6	---	< 50	-	-	-
Trichloroethene	< 0.5	0.58	NOT	< 50	-	-	-
Naphthalene	-	-	---	320	-	-	-
Other VOCs	< 0.5 - < 2.0	< 5.0 - < 2.0	SAMPLED	< 50 - < 5,000	-	-	-
<u>7/17/2001</u>							
Hydrocarbon Oil and Grease	-	< 500	FREE	< 500	-	-	-
Tetrachloroethene	-	-	PRODUCT	-	-	-	-
1,2 dichloroethane	< 0.5	< 50	---	69.0	-	-	-
Trichloroethene	-	-	NOT	-	-	-	-
Naphthalene	-	-	---	-	-	-	-
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>10/25/2001</u>							
Hydrocarbon Oil and Grease	-	< 5,000	FREE	< 5,000	-	-	-
1,2 dichloroethane	-	< 50	PRODUCT	72	-	-	-
1,2 dibromoethane	-	< 50	NOT	< 50	-	-	-
Other VOCs	-	-	SAMPLED	---	-	-	-
<u>1/22/2002</u>							
Hydrocarbon Oil and Grease	-	< 5,000	FREE	< 5,000	-	-	-
1,2 dichloroethane	-	< 50	PRODUCT	< 50	-	-	-
1,2 dibromoethane	-	< 50	NOT	< 50	-	-	-
Other VOCs	-	-	SAMPLED	---	-	-	-

**TABLE THREE**  
**Groundwater Analytical Results**  
**Oil & Grease and Volatile Organic Compounds**  
 All results are in parts per billion

Date Sampled & Compound Analyzed	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7
<u>6/11/2002</u>							
Oil and Grease	-	1,100	FREE	-	<1,000	<1,000	-
1,2 dichloroethane	-	< 50	PRODUCT	-	< 0.5	< 0.5	-
1,2 dibromoethane	-	< 50	NOT	-	< 0.5	< 0.5	-
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>6/25/2002</u>							
Oil and Grease	-	-	FREE	1,400	-	-	<1,000
1,2 dichloroethane	-	-	PRODUCT	< 100	-	-	< 20
1,2 dibromoethane	-	-	NOT	< 100	-	-	< 20
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>9/17/2002</u>							
Oil and Grease	-	<1,000	FREE	<1,000	<1,000	<1,000	<1,000
1,2 dichloroethane	-	< 20	PRODUCT	< 100	< 0.50	< 0.50	< 20
1,2 dibromoethane	-	< 20	NOT	< 100	< 0.50	< 0.50	< 20
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>12/18/2002</u>							
Oil and Grease	-	1,200	FREE	<1,000	<1,000	<1,000	CAR PARKED
1,2 dichloroethane	-	< 10	PRODUCT	< 50	< 0.50	< 0.50	OVER WELL
1,2 dibromoethane	-	< 10	NOT	< 50	< 0.50	< 0.50	NOT
Other VOCs	-	-	SAMPLED	-	-	-	SAMPLED
<u>3/25/2003</u>							
Oil and Grease	-	<1,000	FREE	<1,000	<1,000	<1,000	<1,000
1,2 dichloroethane	-	< 50	PRODUCT	< 100	< 0.50	< 0.50	< 2.5
1,2 dibromoethane	-	< 50	NOT	< 100	< 0.50	< 0.50	< 2.5
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>6/23/2003</u>							
Oil and Grease	-	<1,000	FREE	<1,000	<1,000	<1,000	<1,000
1,2 dichloroethane	< 0.5	< 50	PRODUCT	< 100	< 0.50	< 0.50	< 10
1,2 dibromoethane	< 0.5	< 50	NOT	< 100	< 0.50	< 0.50	< 10
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>9/26/2003</u>							
Oil and Grease	-	<1,000	FREE	<1,000	<1,000	<1,000	<1,000
1,2 dichloroethane	< 0.5	< 50	PRODUCT	87	< 0.50	< 0.50	< 5.0
1,2 dibromoethane	< 0.5	< 50	NOT	< 50	< 0.50	< 0.50	< 5.0
Other VOCs	-	-	SAMPLED	-	-	-	-
<u>12/18/2003</u>							
Oil and Grease	-	-	FREE	-	-	-	-
1,2 dichloroethane	< 0.5	< 20	PRODUCT	46	< 0.50	< 0.50	< 5.0
1,2 dibromoethane	< 0.5	< 20	NOT	< 25	< 0.50	< 0.50	< 5.0
Other VOCs	-	-	SAMPLED	-	-	-	-

# **APPENDIX A**

Well Sampling Field Log



# WELL SAMPLING FIELD LOG

L1M7

Project Name and Address: \_\_\_\_\_  
 Job #: 2508 Date of sampling: 12/18/03  
 Well Name: MW-1 Sampled by: \_\_\_\_\_  
 Total depth of well (feet): 26.8 Well diameter (inches): 2  
 Depth to water before sampling (feet): 10.1  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 9.35  
 Number of gallons per well casing volume (gallons): 1.5  
 Number of well casing volumes to be removed: 3  
 Req'd volume of groundwater to be purged before sampling (gallons): 4.5  
 Equipment used to purge the well: SAMPLE  
 Time Evacuation Began: 9:45 Time Evacuation Finished: 10:05  
 Approximate volume of groundwater purged: 4.5  
 Did the well go dry?: No After how many gallons: \_\_\_\_\_  
 Time samples were collected: 10:10  
 Depth to water at time of sampling: \_\_\_\_\_  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: SAMPLE  
 Sample color: \_\_\_\_\_ Odor: HC  
 Description of sediment in sample: \_\_\_\_\_

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1.5</u>	<u>67.3</u>	<u>5.98</u>	<u>721</u>
<u>3.0</u>	<u>66.2</u>	<u>6.10</u>	<u>763</u>
<u>4.5</u>	<u>65.9</u>	<u>6.45</u>	<u>761</u>
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-1</u>	<u>5</u>	<u>40 mL VOA</u>	<u>HC</u>	<u>Y</u>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



# WELL SAMPLING FIELD LOG

LIM

Project Name and Address: \_\_\_\_\_  
 Job #: 2508 Date of sampling: 12/18/03  
 Well Name: MW-2 Sampled by: DA  
 Total depth of well (feet): 26.8 Well diameter (inches): 2  
 Depth to water before sampling (feet): 15.13  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 11.67  
 Number of gallons per well casing volume (gallons): 1.9  
 Number of well casing volumes to be removed: 3  
 Req'd volume of groundwater to be purged before sampling (gallons): 6  
 Equipment used to purge the well: BALLOON  
 Time Evacuation Began: 705 Time Evacuation Finished: 720  
 Approximate volume of groundwater purged: 6  
 Did the well go dry?: no After how many gallons: \_\_\_\_\_  
 Time samples were collected: 723  
 Depth to water at time of sampling: 15.20  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: BALLOON  
 Sample color: \_\_\_\_\_ Odor: Ac  
 Description of sediment in sample: SILT

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>2</u>	<u>69.8</u>	<u>6.38</u>	<u>928</u>
<u>4</u>	<u>66.2</u>	<u>6.49</u>	<u>932</u>
<u>6</u>	<u>65.8</u>	<u>6.31</u>	<u>931</u>
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW2</u>	<u>5</u>	<u>100 mL VOA</u>	<u>HCC</u>	<u>X</u>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



# WELL SAMPLING FIELD LOG

Project Name and Address: LIM  
 Job #: 2808 Date of sampling: 12/18/05  
 Well Name: MW-3 Sampled by: \_\_\_\_\_  
 Total depth of well (feet): \_\_\_\_\_ Well diameter (inches): 2  
 Depth to water before sampling (feet): 15.24 / 15.83  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): \_\_\_\_\_  
 Number of gallons per well casing volume (gallons): \_\_\_\_\_  
 Number of well casing volumes to be removed: \_\_\_\_\_  
 Req'd volume of groundwater to be purged before sampling (gallons): \_\_\_\_\_  
 Equipment used to purge the well: \_\_\_\_\_  
 Time Evacuation Began: \_\_\_\_\_ Time Evacuation Finished: \_\_\_\_\_  
 Approximate volume of groundwater purged: \_\_\_\_\_  
 Did the well go dry?: NO After how many gallons: \_\_\_\_\_  
 Time samples were collected: 10:15  
 Depth to water at time of sampling: \_\_\_\_\_  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: \_\_\_\_\_  
 Sample color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Description of sediment in sample: \_\_\_\_\_

*SAMPLED*

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Used?	Analysis
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



# WELL SAMPLING FIELD LOG

Project Name and Address: LIM  
 Job #: 2808 Date of sampling: 12/18/08  
 Well Name: XXXXXXXXXX Sampled by: RH  
 Total depth of well (feet): 21.8 Well diameter (inches): 2  
 Depth to water before sampling (feet): 15.65  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 6.17  
 Number of gallons per well casing volume (gallons): 1  
 Number of well casing volumes to be removed: 3  
 Req'd volume of groundwater to be purged before sampling (gallons): 3  
 Equipment used to purge the well: SAILER  
 Time Evacuation Began: 8:00 Time Evacuation Finished: 8:15  
 Approximate volume of groundwater purged: 3.54  
 Did the well go dry?: No After how many gallons: -  
 Time samples were collected: 8:20  
 Depth to water at time of sampling: 17.81  
 Percent recovery at time of sampling: -  
 Samples collected with: SAILER  
 Sample color: - Odor: YES AC  
 Description of sediment in sample: -

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>67.8</u>	<u>6.41</u>	<u>851</u>
<u>2</u>	<u>66.1</u>	<u>6.52</u>	<u>853</u>
<u>3</u>	<u>65.7</u>	<u>6.65</u>	<u>853</u>
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-1</u>	<u>5</u>	<u>40ml vial</u>	<u>NO</u>	<u>Y</u>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____



# WELL SAMPLING FIELD LOG

Project Name and Address: LCM  
 Job #: 2808 Date of sampling: 12/18/03  
 Well Name: MW-5 Sampled by: \_\_\_\_\_  
 Total depth of well (feet): 298 Well diameter (inches): 2  
 Depth to water before sampling (feet): 15.47  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 14.13  
 Number of gallons per well casing volume (gallons): 2.3  
 Number of well casing volumes to be removed: 3  
 Req'd volume of groundwater to be purged before sampling (gallons): 6.8  
 Equipment used to purge the well: BALLER  
 Time Evacuation Began: 7:25 Time Evacuation Finished: 7:40  
 Approximate volume of groundwater purged: 7  
 Did the well go dry?: NO After how many gallons: \_\_\_\_\_  
 Time samples were collected: 7:50  
 Depth to water at time of sampling: 15.78  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: BALLER  
 Sample color: \_\_\_\_\_ Odor: \_\_\_\_\_  
 Description of sediment in sample: \_\_\_\_\_

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>2.3</u>	<u>66.1</u>	<u>6.70</u>	<u>689</u>
<u>4.6</u>	<u>65.1</u>	<u>7.12</u>	<u>688</u>
<u>6.8</u>	<u>64.9</u>	<u>7.18</u>	<u>690</u>
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-5</u>	<u>5</u>	<u>40 mL vial</u>	<u>1cc</u>	<u>Y</u>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____







# WELL SAMPLING FIELD LOG

Project Name and Address: LIM  
 Job #: 2808 Date of sampling: 12/18/00  
 Well Name: MW-7 Sampled by: PH  
 Total depth of well (feet): 29.2 Well diameter (inches): 2  
 Depth to water before sampling (feet): 16.03  
 Thickness of floating product if any: \_\_\_\_\_  
 Depth of well casing in water (feet): 13.17  
 Number of gallons per well casing volume (gallons): 2.1  
 Number of well casing volumes to be removed: 3  
 Req'd volume of groundwater to be purged before sampling (gallons): 6.3  
 Equipment used to purge the well: BAILER  
 Time Evacuation Began: 8:30 Time Evacuation Finished: 8:45  
 Approximate volume of groundwater purged: 6.5  
 Did the well go dry?: No After how many gallons: \_\_\_\_\_  
 Time samples were collected: 8:50  
 Depth to water at time of sampling: 17.81  
 Percent recovery at time of sampling: \_\_\_\_\_  
 Samples collected with: BAILER  
 Sample color: \_\_\_\_\_ Odor: HC  
 Description of sediment in sample: \_\_\_\_\_

## CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>2.1</u>	<u>6.65</u>	<u>6.30</u>	<u>710</u>
<u>4.2</u>	<u>6.52</u>	<u>6.41</u>	<u>712</u>
<u>6.3</u>	<u>6.49</u>	<u>6.38</u>	<u>712</u>
_____	_____	_____	_____
_____	_____	_____	_____

## SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-7</u>	<u>5</u>	<u>40 ml vol</u>	<u>HCC</u>	<u>Y</u>	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

## **APPENDIX B**

Certified Analytical Report  
and  
Chain of Custody Documentation



Report Number : 36394

Date : 12/31/2003

David Allen  
Aqua Science Engineers, Inc.  
208 West El Pintado Rd.  
Danville, CA 94526

Subject : 6 Water Samples  
Project Name : LIM  
Project Number : 2808

Dear Mr. Allen,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Dahl", is written over the typed name.

Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Subject : 6 Water Samples  
Project Name : LIM  
Project Number : 2808

## Case Narrative

The Method Reporting Limit for TPH as Diesel is increased due to interference from Gasoline-Range Hydrocarbons for samples MW-2, MW-4 and MW-7.

Approved By:  \_\_\_\_\_  
Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

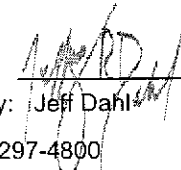
Sample : MW-1

Matrix : Water

Lab Number : 36394-01

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>Toluene</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>Ethylbenzene</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>Total Xylenes</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>Methyl-t-butyl ether (MTBE)</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>TPH as Gasoline</b>	150	50	ug/L	EPA 8260B	12/26/2003
<b>1,2-Dichloroethane</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
<b>1,2-Dibromoethane</b>	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Toluene - d8 (Surr)	101		% Recovery	EPA 8260B	12/26/2003
4-Bromofluorobenzene (Surr)	97.8		% Recovery	EPA 8260B	12/26/2003
Dibromofluoromethane (Surr)	98.4		% Recovery	EPA 8260B	12/26/2003
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	12/26/2003
<b>TPH as Diesel</b>	340	50	ug/L	M EPA 8015	12/30/2003
Octacosane (Diesel Surrogate)	115		% Recovery	M EPA 8015	12/30/2003

Approved By:  Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

Sample : MW-2

Matrix : Water

Lab Number : 36394-02

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>13000</b>	20	ug/L	EPA 8260B	12/24/2003
<b>Toluene</b>	<b>3500</b>	20	ug/L	EPA 8260B	12/24/2003
<b>Ethylbenzene</b>	<b>1600</b>	20	ug/L	EPA 8260B	12/24/2003
<b>Total Xylenes</b>	<b>5600</b>	20	ug/L	EPA 8260B	12/24/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	12/24/2003
<b>TPH as Gasoline</b>	<b>61000</b>	2000	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dichloroethane</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dibromoethane</b>	<b>&lt; 20</b>	20	ug/L	EPA 8260B	12/24/2003
Toluene - d8 (Surr)	95.1		% Recovery	EPA 8260B	12/24/2003
4-Bromofluorobenzene (Surr)	95.6		% Recovery	EPA 8260B	12/24/2003
Dibromofluoromethane (Surr)	95.8		% Recovery	EPA 8260B	12/24/2003
1,2-Dichloroethane-d4 (Surr)	96.0		% Recovery	EPA 8260B	12/24/2003
<b>TPH as Diesel</b>	<b>&lt; 4000</b>	4000	ug/L	M EPA 8015	12/30/2003
Octacosane (Diesel Surrogate)	126		% Recovery	M EPA 8015	12/30/2003

Approved By:  Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

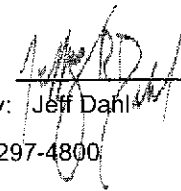
Sample : MW-4

Matrix : Water

Lab Number : 36394-03

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>8900</b>	25	ug/L	EPA 8260B	12/24/2003
<b>Toluene</b>	<b>19000</b>	25	ug/L	EPA 8260B	12/24/2003
<b>Ethylbenzene</b>	<b>2500</b>	25	ug/L	EPA 8260B	12/24/2003
<b>Total Xylenes</b>	<b>12000</b>	25	ug/L	EPA 8260B	12/24/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>&lt; 25</b>	25	ug/L	EPA 8260B	12/24/2003
<b>TPH as Gasoline</b>	<b>110000</b>	2500	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dichloroethane</b>	<b>46</b>	25	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dibromoethane</b>	<b>&lt; 25</b>	25	ug/L	EPA 8260B	12/24/2003
Toluene - d8 (Surr)	93.3		% Recovery	EPA 8260B	12/24/2003
4-Bromofluorobenzene (Surr)	96.3		% Recovery	EPA 8260B	12/24/2003
Dibromofluoromethane (Surr)	94.2		% Recovery	EPA 8260B	12/24/2003
1,2-Dichloroethane-d4 (Surr)	92.0		% Recovery	EPA 8260B	12/24/2003
<b>TPH as Diesel</b>	<b>&lt; 2000</b>	2000	ug/L	M EPA 8015	12/27/2003
Octacosane (Diesel Surrogate)	103		% Recovery	M EPA 8015	12/27/2003

Approved By:  Jeff Dahl





Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

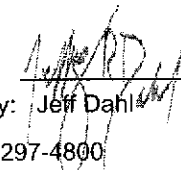
Sample : MW-5

Matrix : Water

Lab Number : 36394-04

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Methyl-t-butyl ether (MTBE)	16	0.50	ug/L	EPA 8260B	12/28/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/28/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Toluene - d8 (Surr)	98.0		% Recovery	EPA 8260B	12/28/2003
4-Bromofluorobenzene (Surr)	90.5		% Recovery	EPA 8260B	12/28/2003
Dibromofluoromethane (Surr)	94.4		% Recovery	EPA 8260B	12/28/2003
1,2-Dichloroethane-d4 (Surr)	98.3		% Recovery	EPA 8260B	12/28/2003
TPH as Diesel	550	50	ug/L	M EPA 8015	12/27/2003
Octacosane (Diesel Surrogate)	120		% Recovery	M EPA 8015	12/27/2003

Approved By:  Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

Sample : MW-6

Matrix : Water

Lab Number : 36394-05

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/28/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/28/2003
Toluene - dB (Surr)	101		% Recovery	EPA 8260B	12/28/2003
4-Bromofluorobenzene (Surr)	89.9		% Recovery	EPA 8260B	12/28/2003
Dibromofluoromethane (Surr)	88.9		% Recovery	EPA 8260B	12/28/2003
1,2-Dichloroethane-d4 (Surr)	95.4		% Recovery	EPA 8260B	12/28/2003
TPH as Diesel	< 50	50	ug/L	M EPA 8015	12/31/2003
Octacosane (Diesel Surrogate)	78.8		% Recovery	M EPA 8015	12/31/2003

Approved By:  Jeff Dahl



Report Number : 36394

Date : 12/31/2003

Project Name : LIM

Project Number : 2808

Sample : MW-7

Matrix : Water

Lab Number : 36394-06

Sample Date :12/18/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
<b>Benzene</b>	<b>290</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>Toluene</b>	<b>2500</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>Ethylbenzene</b>	<b>590</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>Total Xylenes</b>	<b>2900</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>Methyl-t-butyl ether (MTBE)</b>	<b>&lt; 5.0</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>TPH as Gasoline</b>	<b>20000</b>	500	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dichloroethane</b>	<b>&lt; 5.0</b>	5.0	ug/L	EPA 8260B	12/24/2003
<b>1,2-Dibromoethane</b>	<b>&lt; 5.0</b>	5.0	ug/L	EPA 8260B	12/24/2003
Toluene - d8 (Surr)	93.7		% Recovery	EPA 8260B	12/24/2003
4-Bromofluorobenzene (Surr)	103		% Recovery	EPA 8260B	12/24/2003
Dibromofluoromethane (Surr)	102		% Recovery	EPA 8260B	12/24/2003
1,2-Dichloroethane-d4 (Surr)	98.9		% Recovery	EPA 8260B	12/24/2003
<b>TPH as Diesel</b>	<b>&lt; 1000</b>	1000	ug/L	M EPA 8015	12/27/2003
Octacosane (Diesel Surrogate)	95.2		% Recovery	M EPA 8015	12/27/2003

Approved By:  Jeff Dahl

Report Number : 36394

Date : 12/31/2003


**QC Report : Method Blank Data**

Project Name : **LIM**

Project Number : **2808**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	12/26/2003
Octacosane (Diesel Surrogate)	99.2		%	M EPA 8015	12/26/2003
TPH as Diesel	< 50	50	ug/L	M EPA 8015	12/29/2003
Octacosane (Diesel Surrogate)	91.3		%	M EPA 8015	12/29/2003
TPH as Diesel	< 50	50	ug/L	M EPA 8015	12/30/2003
Octacosane (Diesel Surrogate)	80.8		%	M EPA 8015	12/30/2003
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/23/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/23/2003
Toluene - d8 (Surr)	97.2		%	EPA 8260B	12/23/2003
4-Bromofluorobenzene (Surr)	99.8		%	EPA 8260B	12/23/2003
Dibromofluoromethane (Surr)	99.1		%	EPA 8260B	12/23/2003
1,2-Dichloroethane-d4 (Surr)	98.2		%	EPA 8260B	12/23/2003

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/26/2003
Toluene - d8 (Surr)	101		%	EPA 8260B	12/26/2003
4-Bromofluorobenzene (Surr)	98.6		%	EPA 8260B	12/26/2003
Dibromofluoromethane (Surr)	101		%	EPA 8260B	12/26/2003
1,2-Dichloroethane-d4 (Surr)	99.6		%	EPA 8260B	12/26/2003
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/2003
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2003
Toluene - d8 (Surr)	98.6		%	EPA 8260B	12/27/2003
4-Bromofluorobenzene (Surr)	90.2		%	EPA 8260B	12/27/2003
Dibromofluoromethane (Surr)	94.3		%	EPA 8260B	12/27/2003
1,2-Dichloroethane-d4 (Surr)	96.0		%	EPA 8260B	12/27/2003

Approved By:  Jeff Dahl

Report Number : 36394


Date : 12/31/2003

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : LIM

Project Number : 2808

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	36410-01	<0.50	40.0	40.0	41.5	41.6	ug/L	EPA 8260B	12/23/03	104	104	0.120	70-130	25
Toluene	36410-01	<0.50	40.0	40.0	40.5	40.5	ug/L	EPA 8260B	12/23/03	101	101	0.198	70-130	25
Tert-Butanol	36410-01	<5.0	200	200	192	199	ug/L	EPA 8260B	12/23/03	95.9	99.4	3.61	70-130	25
Methyl-t-Butyl Ether	36410-01	<0.50	40.0	40.0	39.6	39.0	ug/L	EPA 8260B	12/23/03	98.9	97.5	1.40	70-130	25
Benzene	36394-01	<0.50	40.0	40.0	40.2	39.4	ug/L	EPA 8260B	12/26/03	101	98.5	2.11	70-130	25
Toluene	36394-01	<0.50	40.0	40.0	42.6	41.6	ug/L	EPA 8260B	12/26/03	106	104	2.49	70-130	25
Tert-Butanol	36394-01	<5.0	200	200	208	211	ug/L	EPA 8260B	12/26/03	104	105	1.40	70-130	25
Methyl-t-Butyl Ether	36394-01	<0.50	40.0	40.0	42.1	41.9	ug/L	EPA 8260B	12/26/03	105	105	0.286	70-130	25
Benzene	36421-04	<0.50	40.0	40.0	46.5	45.0	ug/L	EPA 8260B	12/27/03	116	112	3.30	70-130	25
Toluene	36421-04	<0.50	40.0	40.0	44.3	42.8	ug/L	EPA 8260B	12/27/03	111	107	3.26	70-130	25
Tert-Butanol	36421-04	<5.0	200	200	214	210	ug/L	EPA 8260B	12/27/03	107	105	1.79	70-130	25
Methyl-t-Butyl Ether	36421-04	0.72	40.0	40.0	39.3	41.4	ug/L	EPA 8260B	12/27/03	96.5	102	5.17	70-130	25
TPH as Diesel	Blank	<50	1000	1000	888	960	ug/L	M EPA 8015	12/26/03	88.8	96.0	7.89	70-130	25
TPH as Diesel	Blank	<50	1000	1000	883	977	ug/L	M EPA 8015	12/29/03	88.3	97.7	10.1	70-130	25
TPH as Diesel	Blank	<50	1000	1000	981	981	ug/L	M EPA 8015	12/30/03	98.1	98.1	0.00	70-130	25

Approved By:  Jeff Dahl

KIFF ANALYTICAL, LLC

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Report Number : 36394

Date : 12/31/2003

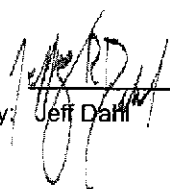
QC Report : Laboratory Control Sample (LCS)

Project Name : LIM

Project Number : 2808

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	12/23/03	107	70-130
Toluene	40.0	ug/L	EPA 8260B	12/23/03	106	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/23/03	95.4	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/23/03	98.9	70-130
Benzene	40.0	ug/L	EPA 8260B	12/26/03	99.0	70-130
Toluene	40.0	ug/L	EPA 8260B	12/26/03	103	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/26/03	101	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/26/03	101	70-130
Benzene	40.0	ug/L	EPA 8260B	12/27/03	116	70-130
Toluene	40.0	ug/L	EPA 8260B	12/27/03	111	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/27/03	107	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/27/03	99.3	70-130

KIFF ANALYTICAL, LLC

Approved By:  Jeff Darr

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

Aqua Science Engineers, Inc.  
 208 W. El Pintado Road  
 Danville, CA 94526  
 (925) 820-9391  
 FAX (925) 837-4853

# Chain of Custody

36394

PAGE 1 OF 1

SAMPLER (SIGNATURE)

PROJECT NAME LIM JOB NO. 2508  
 ADDRESS 848 ST, OAKLAND

## ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:  
 PLEASE SEND EDF  
 T0600100535

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GAS / MTBE & BTEX (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	TPH-DIESEL & MOTOR OIL (EPA 3510/8015)	PURGEABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240/8260)	SEMI-VOLATILE ORGANICS (EPA 625/8270)	OIL & GREASE (EPA 5520)	LIFT METALS (5) (EPA 6010+7000)	CMI17 METALS (EPA 6010+7000)	PCBs & PESTICIDES (EPA 608/8080)	ORGANOPHOSPHORUS PESTICIDES (EPA 8140 EPA 608/8080)	FUEL OXYGENATES (EPA 8260)	Pb (TOTAL or DISSOLVED) (EPA 6010)	TPH-G/BTEX/HALOCARBONS (EPA 8260) LEAD SCAVENGER	TPH-G/BTEX/7 OXY'S / LEAD SCAVENGERS / 1,2-DCP (EPA 8260)	
MW-1	12/18	010	W	5		X												X		
MW-2		0723	W	5		X												X		
MW-3		0820	W	5		X												X		
MW-5		0750	W	5		X												X		
MW-6		0930	W	5		X												X		
MW-7		0850	W	5		X												X		
X																				

01  
02  
03  
04  
05  
06

RELINQUISHED BY:  
  
 (signature) (time) 1640  
 DAMIAN HRICIGA 12/18/03  
 (printed name) (date)  
 Company: ASE

RECEIVED BY:  
  
 (signature) (time)  
 (printed name) (date)  
 Company:

RELINQUISHED BY:  
  
 (signature) (time)  
 (printed name) (date)  
 Company:

RECEIVED BY LABORATORY:  
  
 (signature) (time) 1145  
 michelle washburn 12/19/03  
 (printed name) (date)  
 Company: K.iff Analytical

COMMENTS:  
~~1,2-DCP = 1,2-dichloropropane~~

TURN AROUND TIME  
 STANDARD 24H 48H 72H  
 OTHER: