PES Environmental, Inc.
Engineering & Environmental Services

February 23, 1994

131.0200.001

Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, California 94621

Attention: Mr. Brian Oliva

TRANSMITTAL LETTER
QUARTERLY GROUNDWATER MONITORING REPORT
EMERY BAY MARKETPLACE
EMERYVILLE, CALIFORNIA

Dear Mr. Oliva:

Transmitted herewith is the January 1994 Quarterly Groundwater Monitoring Report for the Emery Bay Marketplace Site, located in Emeryville, California. PES Environmental, Inc. has been retained by Christie Avenue Partners to conduct quarterly groundwater monitoring activities at this site.

We trust this is the information you require at this time. Please contact either of the undersigned if you have any questions or comments.

Very truly yours,

PES ENVIRONMENTAL, INC.

Andrew A. Briefer, P.E.
Senior Engineer

cc: Ms. Lynn Tolin

Enclosure

25

1310200T.004

1682 Novato Boulevard • Suite 100 • Novato, California 94947 • (415) 899-1600 • FAX (415) 899-1601

PES Environmental, Inc.
Engineering & Environmental Services

February 23, 1994

131.0200.001

Ms. Lynn Tolin
Christie Avenue Partners - J.S.
5800 Shellmound, Suite 210
Emeryville, California 94608

QUARTERLY GROUNDWATER MONITORING REPORT
JANUARY 1994 SAMPLING EVENT
EMERY BAY MARKETPLACE
EMERYVILLE, CALIFORNIA

Dear Ms. Tolin:

This letter report presents data collected by PES Environmental, Inc. (PES) during the January 6, 1994 quarterly groundwater monitoring conducted at the Emery Bay Marketplace site, located in Emeryville, California (Plate 1). PES has been retained by Christie Avenue Partners - J.S. to conduct quarterly groundwater monitoring at the subject site. The current groundwater monitoring program consists of measuring product thickness, if any, and depth to groundwater in 17 onsite and off-site monitoring wells on a quarterly basis, and purging and sampling six of the monitoring wells (Wells W-7, W-13, W-14, W-19, W-20 and W-24). Plate 2 shows the locations of monitoring wells at the site.

The purpose of the groundwater monitoring program at this site is to: (1) evaluate the presence of hydrocarbons in groundwater; (2) monitor potential migration of dissolved-phase hydrocarbons; and (3) monitor seasonal water level variations at the subject property. The monitoring is performed in accordance with Alameda County Department of Environmental Health (ACDEH) requirements and the approved workplan for this site entitled *Work Plan for Groundwater Monitoring and Free Product Removal at the Emery Bay Marketplace, Emeryville, California*, dated July 6, 1990.

BACKGROUND

Beginning in the early 1980's, environmental activities at this site have involved removal of underground fuel storage tanks (USTs) and hydrocarbon contaminated soils, performing soil borings, and installing groundwater monitoring wells. As a result of these activities, fuel oil found in onsite soils and groundwater was attributed to leaking USTs and/or piping associated with an asphalt refinery formerly located at the site. Additionally, free floating product was observed in onsite groundwater monitoring wells.

Twenty four monitoring wells have been installed at this site during the course of prior environmental investigations. Seven of these wells have been abandoned and 17 onsite and offsite wells currently remain. Quarterly groundwater monitoring has been conducted since July 1990. The present sampling is the third since PES began performing quarterly groundwater monitoring in July 1993.

GROUNDWATER ELEVATIONS

Water-level Measurement Procedures

Prior to sampling on January 6, groundwater levels in the monitoring wells were measured to a precision of 0.01 foot using an electronic water-level indicator/interface probe. Prior to each measurement, the portion of the water-level indicator that was submerged in the well was cleaned with a mild detergent solution and rinsed with de-ionized water. The presence of free-phase product was evaluated and, if present, was measured to a precision of 0.01 foot using the interface probe.

Results

Two of the 17 wells scheduled for water level measurements were inaccessible during quarterly monitoring activities due to grading related to construction activities along the adjacent railroad property and, therefore, measurements were not obtained for wells W-4 and W-16. Water levels for the remaining 15 wells were measured. These levels were then converted to water-level elevations referenced to mean sea level (MSL). A groundwater elevation map constructed from the data is presented on Plate 3. An historical summary of groundwater elevations and product levels for wells at the site is presented in Table 1. Appendix A contains a report summarizing the water level measurement procedures.

Water levels in some of the onsite and off-site wells have fluctuated since the October 7, 1993 sampling event. Water levels in Wells W-1, W-7, W-13, W-15, W-22, and W-23 have increased, while levels in all other measured wells have decreased slightly or remained approximately the same. Based on measured water levels on January 6, 1994, groundwater at the site flows in a southwesterly direction, with an approximate gradient of 0.001 to 0.07. These measurements show no significant changes from historical groundwater flow direction and gradient.

A free-phase floating product layer 1.17 feet thick was found to be present in Well W-5. This free-phase product layer in Well W-5 has increased since the October 1993 monitoring event. No sheen or free-phase product was found in the remaining wells, however a fuel odor was noted in W-19.

GROUNDWATER SAMPLING AND ANALYTICAL TESTING

Sampling Protocol

Groundwater samples were collected on January 6, 1994 by Blaine Tech Services, Inc. (Blaine Tech) from Wells W-7, W-13, W-14, W-19, W-20, and W-24. A minimum of three well volumes were purged prior to sampling using a clean teflon bailer. Purge water was contained and collected in a 55-gallon drum to be stored onsite prior to obtaining analytical results and subsequent disposal. During purging activities, the discharge water was measured for pH, temperature, electrical conductivity and turbidity. Groundwater samples were collected with a clean teflon bailer and decanted into clean 40-milliliter glass vials with teflon lined caps.

Samples were immediately labeled to designate sample number, time and date collected, and analysis requested, and stored in a chilled, thermally insulated cooler for transport to the analytical laboratory for chemical analysis. The information collected during the groundwater sampling and the chain of custody records is included in a groundwater sampling report prepared by Blaine Tech and presented in Appendix A.

Analytical Program

All groundwater samples collected during this quarterly monitoring event were analyzed by Coast-to-Coast Analytical Services, Inc. (Coast to Coast) in San Jose, California, a State-certified laboratory. Samples were analyzed for total petroleum hydrocarbons quantified as diesel (TPH-diesel) and as motor oil (TPH-oil) by EPA Test Method 8015 (modified).

Analytical Results

Four of the six wells sampled were found to contain detectable levels of TPH-oil. Detected concentrations of TPH-oil ranged from 0.10 milligrams per liter (mg/L) in W-7 to 7.10 mg/L in W-19. No detectable levels of TPH-diesel were found in the six wells sampled.

Analytical results, including historical monitoring data for the previous sampling events are presented in Table 2. The laboratory report and chain of custody records are provided in Appendix B. The distribution of hydrocarbons in groundwater at the site on January 6, 1994 is presented on Plate 4.

SUMMARY

Groundwater elevations have fluctuated since the previous October 7, 1993 sampling event. Generally consistent with historical data, the groundwater flow direction is toward the

southwest. Free product was found on the groundwater in Well W-5 and a fuel odor was noted in Well W-19. The TPH-oil concentration in Well W-19 has increased since the previous monitoring event. Otherwise, concentrations of TPH-oil have decreased or remained approximately the same in the wells sampled this quarter. Concentrations of TPH-diesel in groundwater have decreased to nondetectable levels since the previous monitoring event.

If you have any questions or comments, please do not hesitate to contact the undersigned.

Yours very truly,

PES ENVIRONMENTAL, INC.

Mary E. Williams
Senior Staff Environmental Scientist

Andrew A. Briefer, P.E.
Senior Engineer

Attachments:

Table 1	Summary of Groundwater Elevations
Table 2	Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples
Plate 1	Site Location Map
Plate 2	Well Location Map
Plate 3	Groundwater Elevation Contours on January 6, 1994
Plate 4	Dissolved Hydrocarbons in Groundwater on January 6, 1994
Appendix A	Water Level and Groundwater Sampling Reports
Appendix B	Analytical Laboratory Reports

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-1	07-Aug-81	WCC	11.47	4.30	6.20 (2)	
	10-Sep-81	WCC		4.40	6.10 (2)	
	06-May-87	WCC		6.00	6.08 (2)	
	20-Aug-89	MH		5.60	5.87	
	11-Oct-89	MH		5.63	5.84	
	22-Feb-90	MH		4.92	6.55	
	28-Feb-90	MH		5.02	6.45	
	09-Apr-90	MH		5.44	6.03	
	07-Jun-90	MH		5.37	6.10	
	25-Jul-90	MH		5.26	6.21	
	03-Oct-90	MH		5.43	6.04	
	03-Jan-91	MH		5.69	5.78	
	03-Apr-91	MH		4.74	6.73	
	25-Oct-91	MH		5.22	6.25	
	15-Jan-92	MH		4.88	6.59	
	23-Apr-92	MH		4.98	6.49	
	21-Jul-92	MH		5.16	6.31	
	22-Oct-92	MH		5.79	5.68	
	26-Jan-93	MH		4.82	6.65	
	29-Apr-93	MH		6.01	5.46	
	22-Jul-93	PES		6.05	5.42	
	07-Oct-93	PES		6.15	5.32	
	06-Jan-94	**PES**		**5.50**	**5.97**	
W-4	07-Aug-81	WCC	9.96	4.30	6.20 (2)	
	10-Sep-81	WCC		4.40	6.10 (2)	
	18-Jan-82	WCC		2.50	8.00 (2)	
	27-Mar-85	WCC		NA	8.65	
	20-Aug-89	MH		3.95	6.01	
	11-Oct-89	MH		3.87	6.09	
	22-Feb-90	MH		2.00	7.96	
	28-Feb-90	MH		2.39	7.57	
	09-Apr-90	MH		3.17	6.79	
	07-Jun-90	MH		2.73	7.23	
	25-Jul-90	MH		3.71	6.25	
	03-Oct-90	MH		4.18	5.78	
	03-Jan-91	MH		3.64	6.32	
	03-Apr-91	MH		1.45	8.51	
	25-Oct-91	MH		4.29	5.67	
	15-Jan-92	MH		2.56	7.40	
	23-Apr-92	MH		2.80	7.16	
	21-Jul-92	MH		4.03	5.93	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-4 (cont)	22-Oct-92	MH		4.50	5.46	
	26-Jan-93	MH		1.52	8.44	
	29-Apr-93	MH		3.02	6.94	
	22-Jul-93	PES		3.86	6.10	
	07-Oct-93	PES		NM	NM	
	06-Jan-94	**PES**		**NM**	**NM**	
W-5	07-Aug-81	WCC	11.41	4.70	7.50 (2)	NA
	10-Sep-81	WCC		4.90	7.30 (2)	NA
	18-Jan-82	WCC		2.50	9.60 (2)	NA
	27-Mar-85	WCC		NA	9.28	NA
	11-Oct-89	MH		4.43	7.58	0.71
	22-Feb-90	MH		3.80	8.36	0.88
	28-Feb-90	MH		4.43	8.38	1.65
	09-Apr-90	MH		4.73	8.23	1.82
	07-Jun-90	MH		4.30	8.64	1.80
	25-Jul-90	MH		5.10	8.11	2.12
	03-Oct-90	MH		4.90	7.45	1.11
	03-Jan-91	MH		4.77	7.36	0.85
	03-Apr-91	MH		2.42	9.02	0.03
	25-Oct-91	MH		5.47	6.94	1.18
	15-Jan-92	MH		3.21	8.88	0.80
	23-Apr-92	MH		3.13	8.28	1.41
	21-Jul-92	MH		3.55	9.14	1.50
	22-Oct-92	MH		4.28	8.36	1.45
	26-Jan-93	MH		3.28	9.18	1.24
	29-Apr-93	MH		2.60	8.81	NP
	22-Jul-93	PES		5.78	7.48	2.18
	07-Oct-93	PES		4.46	7.35	0.48
	06-Jan-94	**PES**		**5.38**	**7.02**	**1.17**
W-7	06-May-87	WCC	9.05	3.00	6.88 (2)	
	20-Aug-89	MH		3.59	5.46	
	11-Oct-89	MH		3.08	5.97	
	22-Feb-90	MH		1.75	7.30	
	28-Feb-90	MH		1.31	7.74	
	09-Apr-90	MH		2.42	6.63	
	07-Jun-90	MH		1.21	7.84	
	25-Jul-90	MH		2.76	6.29	
	03-Oct-90	MH		3.22	5.83	
	03-Jan-91	MH		3.17	5.88	
	03-Apr-91	MH		1.18	7.87	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-7 (cont)	25-Oct-91	MH		3.47	5.59	
	15-Jan-92	MH		3.88	5.17	
	23-Apr-92	MH		3.20	5.85	
	21-Jul-92	MH		3.65	5.40	
	22-Oct-92	MH		4.58	4.77	
	26-Jan-93	MH		1.12	7.93	
	29-Apr-93	MH		2.90	6.15	
	22-Jul-93	PES		4.26	4.79	
	07-Oct-93	PES		5.48	3.57	
	06-Jan-94	**PES**		**5.10**	**3.95**	
W-8	06-May-87	WCC	10.43	5.50	6.88 (2)	
	20-Aug-89	MH		3.59	6.84	
	22-Feb-90	MH		1.50	8.93	
	28-Feb-90	MH		1.78	8.65	
	09-Apr-90	MH		3.12	7.31	
	07-Jun-90	MH		2.90	7.53	
	27-Jul-90	MH		3.33	7.10	
	03-Oct-90	MH		3.65	6.78	
	03-Jan-91	MH		3.46	6.97	
	03-Apr-91	MH		1.47	8.96	
	25-Oct-91	MH		3.54	6.89	
	15-Jan-92	MH		2.98	7.45	
	24-Apr-92	MH		3.01	7.42	
	21-Jul-92	MH		3.41	7.02	
	22-Oct-92	MH		4.23	6.20	
	26-Jan-93	MH		NM	NM	
	29-Apr-93	MH		2.29	8.14	
	22-Jul-93	PES		3.17	7.26	
	07-Oct-93	PES		NM	NM	
	06-Jan-94	**PES**		**2.69**	**7.74**	
W-13	20-Aug-89	MH	8.15	4.64	3.51	
	11-Oct-89	MH		4.60	3.55	
	22-Feb-90	MH		3.85	4.30	
	28-Feb-90	MH		4.18	3.97	
	09-Apr-90	MH		4.31	3.84	
	07-Jun-90	MH		3.93	4.22	
	25-Jul-90	MH		4.40	3.75	
	03-Oct-90	MH		4.67	3.48	
	03-Jan-91	MH		4.43	3.72	
	03-Apr-91	MH		3.64	4.51	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-13 (cont)	25-Oct-91	MH		4.54	3.72	
	15-Jan-92	MH		3.82	4.33	
	23-Apr-92	MH		4.12	4.03	
	21-Jul-92	MH		4.44	3.71	
	22-Oct-92	MH		4.42	3.73	
	26-Jan-93	MH		3.10	5.05	
	29-Apr-93	MH		4.04	4.11	
	22-Jul-93	PES		4.30	3.85	
	07-Oct-93	PES		4.32	3.83	
	06-Jan-94	**PES**		**4.07**	**4.08**	
W-14	20-Aug-89	MH	7.97	5.02	2.95	
	22-Feb-90	MH		4.19	3.78	
	28-Feb-90	MH		4.46	3.51	
	09-Apr-90	MH		4.36	3.61	
	07-Jun-90	MH		5.29	2.68	
	25-Jul-90	MH		4.83	3.14	
	03-Oct-90	MH		5.09	2.88	
	03-Jan-91	MH		4.32	3.65	
	03-Apr-91	MH		4.31	3.66	
	25-Oct-91	MH		4.41	3.56	
	15-Jan-92	MH		4.18	3.79	
	23-Apr-92	MH		4.93	3.04	
	21-Jul-92	MH		4.57	3.40	
	22-Oct-92	MH		5.28	2.69	
	26-Jan-93	MH		3.94	4.03	
	29-Apr-93	MH		4.59	3.38	
	22-Jul-93	PES		5.30	2.67	
	07-Oct-93	PES		5.18	2.79	
	06-Jan-94	**PES**		**5.09**	**2.88**	
W-15	20-Aug-89	MH	11.53	3.43	8.10	
	11-Oct-89	MH		4.26	7.27	
	22-Feb-90	MH		2.58	8.95	
	28-Feb-90	MH		2.53	9.00	
	09-Apr-90	MH		2.48	9.05	
	07-Jun-90	MH		4.54	6.99	
	25-Jul-90	MH		4.00	7.53	
	03-Oct-90	MH		3.46	8.07	
	03-Jan-91	MH		2.97	8.56	
	03-Apr-91	MH		3.05	8.48	
	25-Oct-91	MH		2.88	8.65	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-15 (cont)	15-Jan-92	MH		3.54	7.99	
	23-Apr-92	MH		2.78	8.75	
	21-Jul-92	MH		2.67	8.86	
	22-Oct-92	MH		2.65	8.88	
	26-Jan-93	MH		2.47	9.06	
	29-Apr-93	MH		2.56	8.97	
	29-Apr-93	PES		3.38	8.15	
	07-Oct-93	PES		3.88	7.65	
	06-Jan-94	**PES**		**3.03**	**8.50**	
W-16	11-Oct-89	MH	10.94	4.81	6.19	0.07
	22-Feb-90	MH		3.92	7.02	NP
	28-Feb-90	MH		3.88	7.06	NP
	09-Apr-90	MH		7.81	3.13	NP
	07-Jun-90	MH		6.19	4.75	NP
	27-Jul-90	MH		4.44	6.50	NP
	03-Oct-90	MH		4.38	6.58	0.02
	03-Jan-91	MH		4.67	6.29	0.02
	03-Apr-91	MH		3.50	7.46	0.02
	25-Oct-91	MH		4.64	6.30	NP
	15-Jan-92	MH		4.11	6.83	NP
	23-Apr-92	MH		3.89	7.05	NP
	21-Jul-92	MH		4.28	6.66	NP
	22-Oct-92	MH		NM	NM	NM
	26-Jan-93	MH		2.47	8.47	NP
	22-Jul-93	PES		NM	NM	NM
	07-Oct-93	PES		NM	NM	NM
	06-Jan-94	**PES**		**NM**	**NM**	**NM**
W-17	11-Oct-89	MH	12.14	9.12	3.02	
	22-Feb-90	MH		5.42	6.72	
	28-Feb-90	MH		5.35	6.79	
	09-Apr-90	MH		5.72	6.42	
	07-Jun-90	MH		NM	NM	
	26-Jul-90	MH		5.59	6.55	
	03-Oct-90	MH		5.72	6.42	
	03-Jan-91	MH		6.28	5.86	
	03-Apr-91	MH		4.69	7.45	
	25-Oct-91	MH		6.00	6.14	
	15-Jan-92	MH		5.57	6.57	
	23-Apr-92	MH		5.17	6.97	
	21-Jul-92	MH		5.54	6.60	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-17 (cont)	22-Oct-92	MH		6.10	6.04	
	26-Jan-93	MH		4.45	7.69	
	29-Apr-93	MH		5.25	6.89	
	22-Jul-93	PES		NM	NM	
	07-Oct-93	PES		NM	NM	
	06-Jan-94	**PES**		**5.88**	**6.26**	
W-18	11-Oct-89	MH	11.34	5.52	5.82	
	22-Feb-90	MH		4.42	6.92	
	28-Feb-90	MH		4.77	6.57	
	09-Apr-90	MH		5.24	6.10	
	07-Jun-90	MH		4.28	7.06	
	25-Jul-90	MH		4.98	6.36	
	03-Oct-90	MH		5.44	5.90	
	03-Jan-91	MH		5.84	5.50	
	03-Apr-91	MH		4.94	6.40	
	25-Oct-91	MH		5.55	5.79	
	15-Jan-92	MH		5.24	6.10	
	23-Apr-92	MH		4.81	6.53	
	21-Jul-92	MH		5.01	6.33	
	22-Oct-92	MH		5.55	5.79	
	26-Jan-93	MH		4.72	6.62	
	29-Apr-93	MH		4.68	6.66	
	22-Jul-93	PES		5.07	6.27	
	07-Oct-93	PES		5.48	5.86	
	06-Jan-94	**PES**		**5.49**	**5.85**	
W-19	09-Apr-90	MH	10.27	5.11	5.16	
	07-Jun-90	MH		4.77	5.50	
	25-Jul-90	MH		4.93	5.34	
	03-Oct-90	MH		4.95	5.32	
	03-Jan-91	MH		5.95	4.32	
	03-Apr-91	MH		5.39	4.88	
	25-Oct-91	MH		5.47	4.80	
	15-Jan-92	MH		5.18	5.09	
	23-Apr-92	MH		5.34	4.93	
	21-Jul-92	MH		5.08	5.19	
	22-Oct-92	MH		5.31	4.96	
	26-Jan-93	MH		4.82	5.45	
	29-Apr-93	MH		5.09	5.18	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-19 (cont)	22-Jul-93	PES		5.04	5.24	0.01
	07-Oct-93	PES		5.09	5.18	NP
	06-Jan-94	**PES**		**5.13**	**5.14**	**NP**
W-20	09-Apr-90	MH	6.82	4.08	2.74	
	07-Jun-90	MH		3.79	3.03	
	25-Jul-90	MH		4.00	2.82	
	03-Oct-90	MH		4.03	2.79	
	03-Jan-91	MH		4.12	2.70	
	03-Apr-91	MH		3.84	2.98	
	25-Oct-91	MH		4.07	2.75	
	15-Jan-92	MH		3.75	3.07	
	23-Apr-92	MH		4.08	2.74	
	21-Jul-92	MH		4.02	2.80	
	22-Oct-92	MH		4.07	2.75	
	26-Jan-93	MH		3.30	3.52	
	29-Apr-93	MH		4.00	2.82	
	22-Jul-93	PES		3.84	2.98	
	07-Oct-93	PES		3.79	3.03	
	06-Jan-94	**PES**		**3.84**	**2.98**	
W-21	09-Apr-90	MH	9.48	5.21	4.27	
	07-Jun-90	MH		4.84	4.64	
	25-Jul-90	MH		5.05	4.43	
	03-Oct-90	MH		5.18	4.30	
	03-Jan-91	MH		5.47	4.01	
	03-Apr-91	MH		4.80	4.68	
	25-Oct-91	MH		5.04	4.44	
	15-Jan-92	MH		4.95	4.53	
	23-Apr-92	MH		5.17	4.31	
	21-Jul-92	MH		5.07	4.41	
	22-Oct-92	MH		5.28	4.20	
	26-Jan-93	MH		4.46	5.02	
	29-Apr-93	MH		5.39	4.09	
	22-Jul-93	PES		5.32	4.16	
	07-Oct-93	PES		5.38	4.10	
	06-Jan-94	**PES**		**5.30**	**4.18**	
W-22	09-Apr-90	MH	11.67	7.50	4.17	
	07-Jun-90	MH		7.36	4.31	
	25-Jul-90	MH		7.49	4.18	
	03-Oct-90	MH		7.68	3.99	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-22 (cont)	03-Jan-91	MH		7.88	3.79	
	03-Apr-91	MH		7.64	4.03	
	25-Oct-91	MH		6.69	4.98	
	15-Jan-92	MH		7.61	4.06	
	23-Apr-92	MH		7.21	4.46	
	21-Jul-92	MH		7.69	3.98	
	22-Oct-92	MH		7.82	3.85	
	26-Jan-93	MH		7.40	4.27	
	29-Apr-93	MH		7.71	3.96	
	22-Jul-93	PES		7.76	3.91	
	07-Oct-93	PES		7.35	4.32	
	06-Jan-94	**PES**		**7.04**	**4.63**	
W-23	09-Apr-90	MH	9.16	1.51	7.65	
	07-Jun-90	MH		1.78	7.38	
	27-Jul-90	MH		2.63	6.53	
	03-Oct-90	MH		3.20	5.96	
	03-Jan-91	MH		2.36	6.80	
	03-Apr-91	MH		0.60	8.56	
	25-Oct-91	MH		2.36	6.80	
	15-Jan-92	MH		1.62	7.54	
	23-Apr-92	MH		1.18	7.98	
	21-Jul-92	MH		2.17	6.99	
	22-Oct-92	MH		2.76	6.40	
	26-Jan-93	MH		0.39	8.77	
	29-Apr-93	MH		0.97	8.19	
	22-Jul-93	PES		1.87	7.29	
	07-Oct-93	PES		2.86	6.30	
	06-Jan-94	**PES**		**1.88**	**7.28**	
W-24	07-Jun-90	MH	8.72	4.75	3.97	
	25-Jul-90	MH		5.02	3.70	
	03-Oct-90	MH		5.00	3.72	
	03-Jan-91	MH		5.25	3.47	
	03-Apr-91	MH		4.56	4.16	
	25-Oct-91	MH		5.09	3.63	
	15-Jan-92	MH		4.82	3.90	
	23-Apr-92	MH		4.94	3.78	
	21-Jul-92	MH		5.00	3.72	
	22-Oct-92	MH		5.13	3.59	
	26-Jan-93	MH		3.38	5.34	
	29-Apr-93	MH		4.98	3.74	

Table 1. Summary of Groundwater Elevations Through January 1994

Emery Bay Marketplace
Emeryville, California

Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-24	22-Jul-93	PES		5.02	3.70	
(cont)	07-Oct-93	PES		4.46	4.26	
	06-Jan-94	**PES**		**4.83**	**3.89**	

NOTES:

(1) Well W-1 is located on the Nielson property.
(2) Groundwater elevation taken from earlier reports does not agree with calculated elevation using current top of casing elevation.

feet MSL = Feet above mean sea level.
NA = Data not available.
NM = Not measured.
NP = Product not present or insufficient amount present to perform measurements.
WCC = Woodward Clyde Consultants
MH = McLaren Hart
PES = PES Environmental, Inc.

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through January 1994

Emery Bay Marketplace
Emeryville, California

Concentrations expressed in milligrams per liter [mg/L] - equivalent to parts per million [ppm]

Well Number	Sample Date	Sampled by	TPH as Diesel	TPH as Motor Oil
W-1	14-Apr-87	WCC	NA	<5
	28-Feb-90	MH	<0.5	NA
	11-Apr-90	MH	<0.1	0.57
W-4	01-Mar-90	MH	<0.5	NA
	10-Apr-90	MH	<0.1	<0.25
W-5	27-Sep-89	MH	20	NA
	25-Oct-91	MH	NA	NA
W-7	26-Sep-89	MH	1.1	NA
	28-Feb-90	MH	<0.5	NA
	11-Apr-90	MH	5.6	7.5
	30-Jul-90	MH	2.6	2.0
	04-Oct-90	MH	5.0	6.0
	04-Jan-91	MH	4.0	12
	03-Apr-91	MH	<1.0	3.2
	25-Oct-91	MH	1.4 (3)	2.3
	16-Jan-92	MH	1.6	3.6
	24-Apr-92	MH	3.3	4.9
	23-Jul-92	MH	2.6	4.0
	23-Oct-92	MH	3.8	4.2
	27-Jan-93	MH	<0.5	8.0 (1)
	29-Apr-93	MH	1.6	1.7(1)
	22-Jul-93	PES	1.50	1.50
	07-Oct-93	PES	2.90	2.90
	06-Jan-94	**PES**	**<0.05**	**0.11**
W-8	17-Apr-87	WCC	10(2)	NA
	26-Sep-89	MH	7.1	NA
	01-Mar-90	MH	4.5	NA
	18-Apr-90	MH	5.3	NA
W-13	28-Feb-90	MH	<0.5	NA
	12-Apr-90	MH	<0.5	NA
	27-Jul-90	MH	<0.5	<1
	04-Oct-90	MH	<0.5	<1
	03-Jan-91	MH	<0.5	<1

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through January 1994

Emery Bay Marketplace
Emeryville, California

Concentrations expressed in milligrams per liter [mg/L] - equivalent to parts per million [ppm]

Well Number	Sample Date	Sampled by	TPH as Diesel	TPH as Motor Oil
W-13 (cont)	04-Apr-91	MH	<0.5	<1
	25-Oct-91	MH	<0.5	<1
	16-Jan-92	MH	<0.5	<0.5
	24-Apr-92	MH	<0.5	<0.5
	22-Jul-92	MH	<0.5	<0.5
	23-Oct-92	MH	<0.5	<0.5
	27-Jan-93	MH	<0.05	0.11(1)
	29-Apr-93	MH	<0.5	0.12(1)
	22-Jul-93	PES	<0.05	0.25
	07-Oct-93	PES	<0.05	0.35
	06-Jan-94	**PES**	**<0.05**	**<0.10**
W-14	28-Feb-90	MH	<0.5	NA
	11-Apr-90	MH	<0.1	<0.25
	30-Jul-90	MH	<0.6	<1
	04-Oct-90	MH	<0.5	<1
	04-Jan-91	MH	<0.5	<1
	04-Apr-91	MH	<0.5	<1
	25-Oct-91	MH	<0.5	<1
	16-Jan-92	MH	<0.5	<0.5
	24-Apr-92	MH	<0.5	<0.5
	22-Jul-92	MH	<0.5	<0.5
	23-Oct-92	MH	<0.5	<0.5
	27-Jan-93	MH	<0.05	0.13
	29-Apr-93	MH	<0.05	0.15
	22-Jul-93	PES	<0.05	0.16
	07-Oct-93	PES	<0.05	0.34
	06-Jan-94	**PES**	**<0.05**	**0.15**
W-15	25-Sep-89	MH	1.2	NA
	13-Apr-90	MH	1.5	NA
W-16	27-Sep-89	MH	4.7	NA
	28-Feb-90	MH	22	NA
	13-Apr-90	MH	9.0	NA
W-17	25-Sep-89	MH	0.7	NA
	13-Apr-90	MH	1.6	NA

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through January 1994

Emery Bay Marketplace
Emeryville, California

Concentrations expressed in milligrams per liter [mg/L] - equivalent to parts per million [ppm]

Well Number	Sample Date	Sampled by	TPH as Diesel	TPH as Motor Oil
W-18	26-Sep-89	MH	3.1	NA
	13-Apr-90	MH	5.1	NA
W-19	12-Apr-90	MH	1.1	NA
	16-Apr-90	MH	<0.5	NA
	27-Jul-90	MH	<1	8.0
	03-Oct-90	MH	<0.5	3.0
	03-Jan-91	MH	<0.5	<1
	03-Apr-91	MH	<2.5	8.4
	25-Oct-91	MH	<0.5	34
	17-Jan-92	MH	<10.0	29
	23-Apr-92	MH	<2.0	7.1
	23-Jul-92	MH	<0.1	7.3
	22-Oct-92	MH	<10	28
	26-Jan-93	MH	0.79	35
	29-Apr-93	MH	<0.05	8.2
	22-Jul-93	PES	<0.50	20.00
	07-Oct-93	PES	0.45	2.00
	06-Jan-94	**PES**	**0.50**	**7.10**
W-20	12-Apr-90	MH	<0.5	NA
	16-Apr-90	MH	<0.5	NA
	30-Jul-90	MH	<0.5	<1
	03-Oct-90	MH	<0.5	<1
	04-Jan-91	MH	<0.5	<1
	04-Apr-91	MH	<0.5	2.3
	25-Oct-91	MH	<0.5	<1
	17-Jan-92	MH	<0.5	<0.5
	24-Apr-92	MH	<0.5	<0.5
	22-Jul-92	MH	<0.5	<0.5
	22-Oct-92	MH	<0.5	<0.5
	27-Jan-93	MH	<0.10	0.42 (1)
	29-Apr-93	MH	<0.05	0.38(1)
	22-Jul-93	PES	<0.05	1.90
	07-Oct-93	PES	<0.05	0.12
	06-Jan-94	**PES**	**<0.05**	**0.17**

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through January 1994

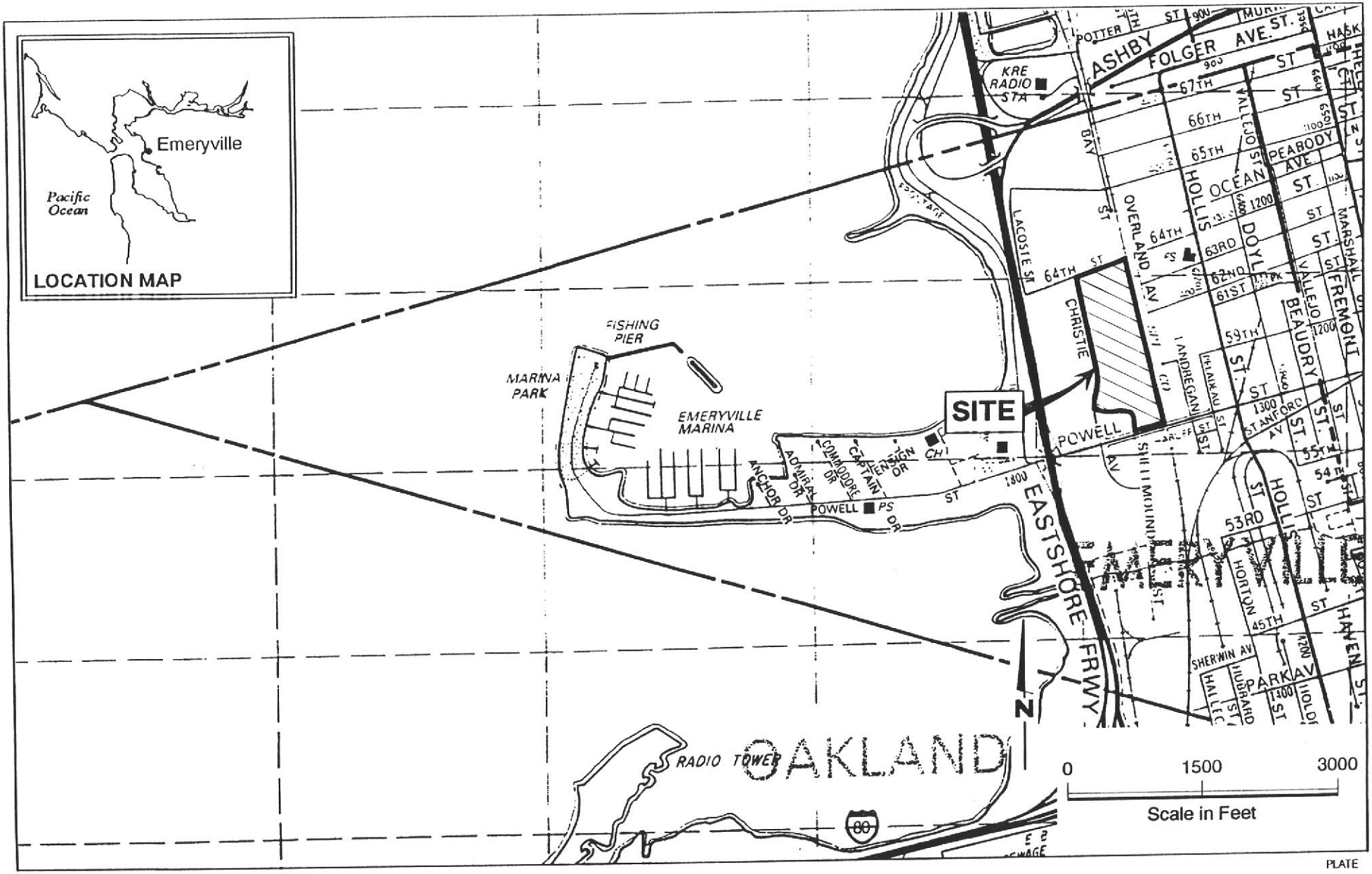
Emery Bay Marketplace
Emeryville, California

Concentrations expressed in milligrams per liter [mg/L] - equivalent to parts per million [ppm]

Well Number	Sample Date	Sampled by	TPH as Diesel	TPH as Motor Oil
W-21	12-Apr-90	MH	1.4	NA
	18-Apr-90	MH	1.7	NA
W-22	12-Apr-90	MH	<0.5	NA
	18-Apr-90	MH	<0.5	NA
W-23	12-Apr-90	MH	2.9	NA
	18-Apr-90	MH	3.6	NA
W-24	07-Jun-90	MH	<0.5	NA
	27-Jul-90	MH	<0.5	<1
	03-Oct-90	MH	<0.5	<1
	03-Jan-91	MH	<0.5	<1
	03-Apr-91	MH	<0.5	1.1
	25-Oct-91	MH	<0.5	<1
	17-Jan-92	MH	<0.5	<0.5
	24-Apr-92	MH	<0.5	<0.5
	23-Jul-92	MH	<0.5	<0.5
	22-Oct-92	MH	<0.5	<0.5
	26-Jan-93	MH	<0.05	0.20 (1)
	29-Apr-93	MH	<0.05	0.14 (1)
	22-Jul-93	PES	<0.05	0.42
	07-Oct-93	PES	<0.05	0.45
	06-Jan-94	**PES**	**<0.05**	**<0.10**

Notes:

(1) = TPH quantified as motor oil although chromatogram pattern not typical of motor oil.
(2) = Semiquantified results include gasoline, diesel, and some oil and grease in Well W-8.
(3) = TPH quantified as diesel although chromatograph pattern not typical of diesel.
< 0.5 = Not detected above indicated detection limit.
TPH = Total petroleum hydrocarbons
NA = Not Analyzed
WCC = Woodward Clyde Consultants
MH = McLaren Hart
PES = PES Environmental, Inc.



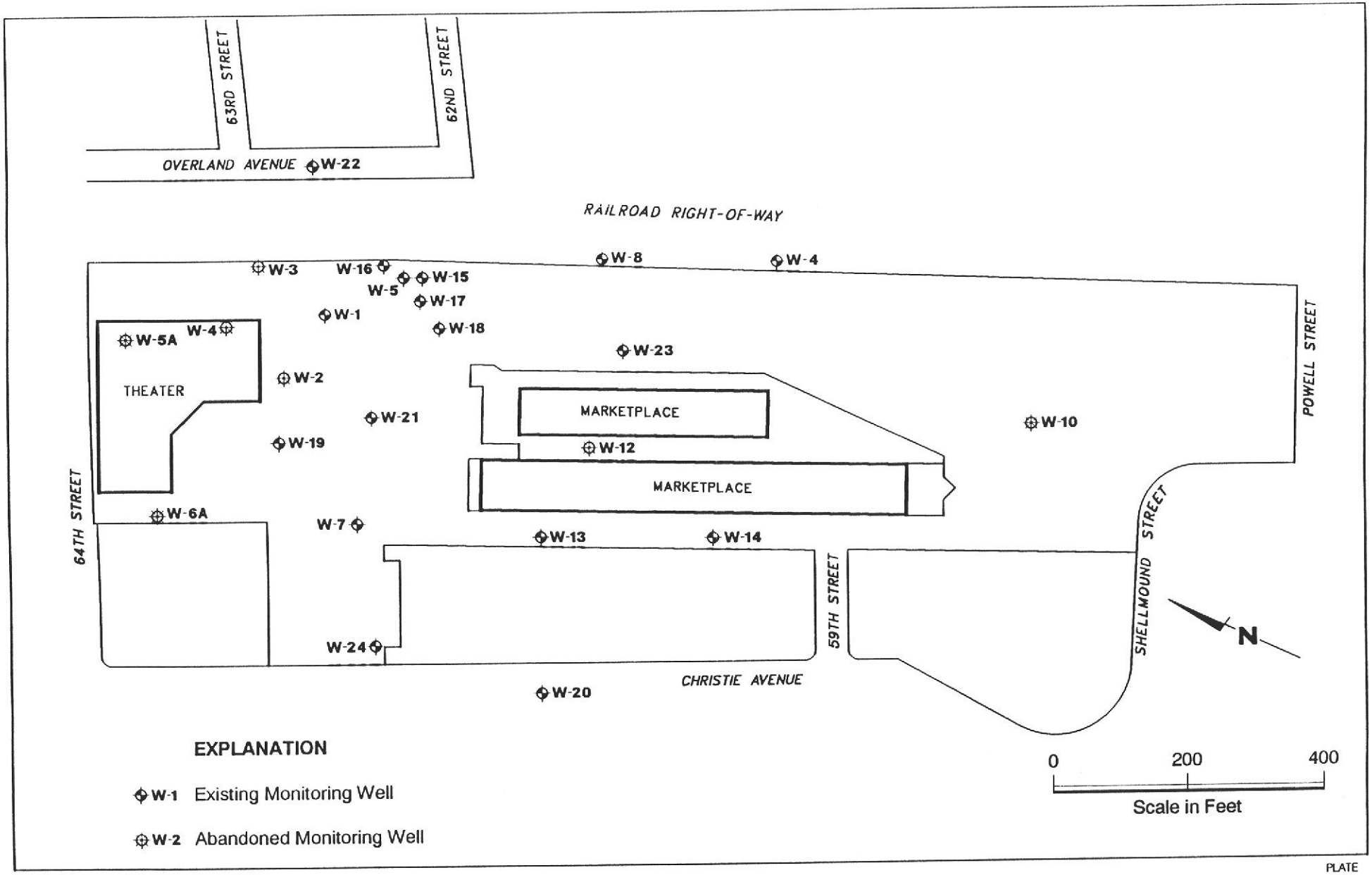
PLATE

1

PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
Emery Bay Marketplace Site
Emeryville, California

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
131.0200.001	MW	2/94		



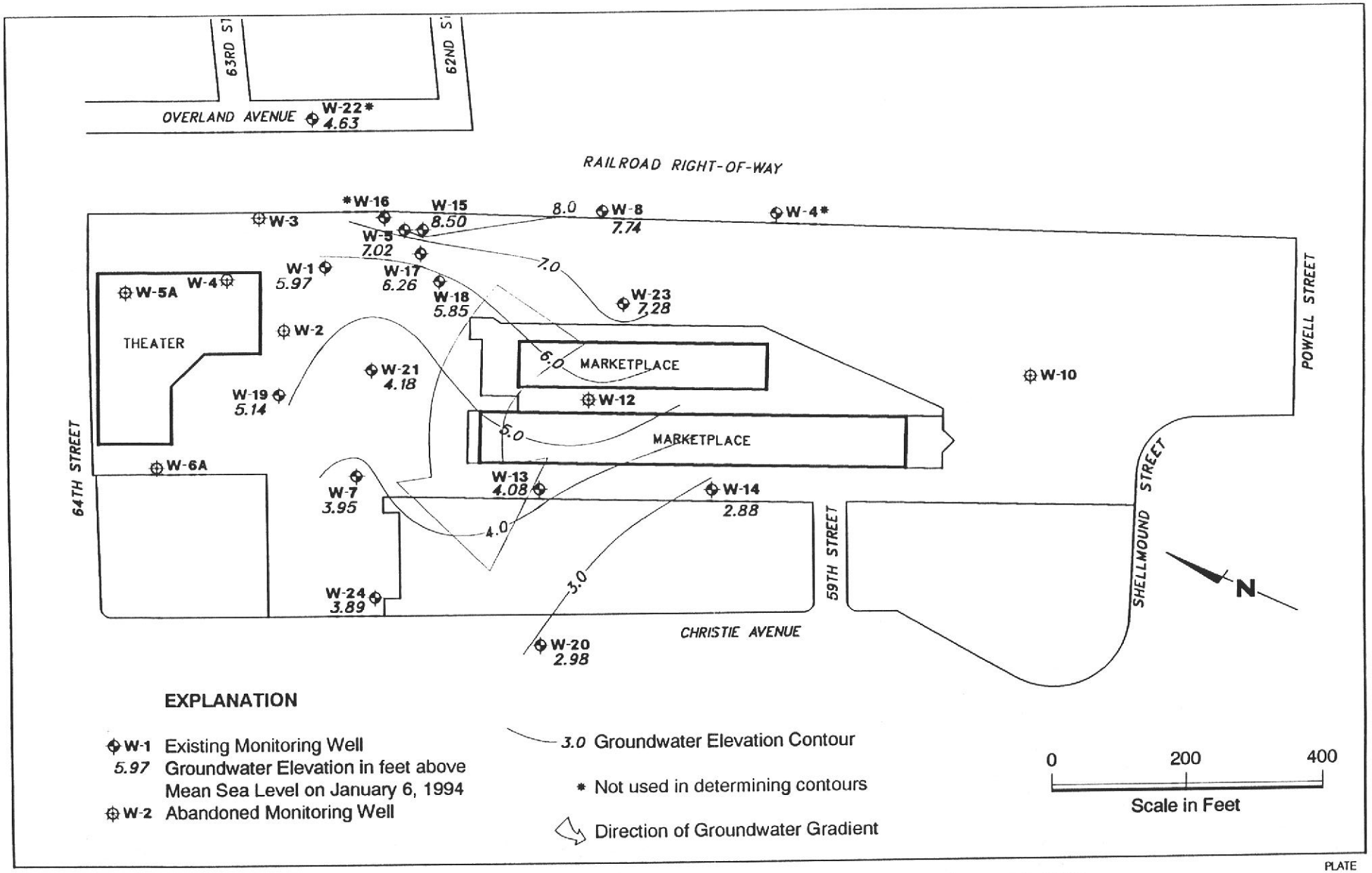
PLATE

PES Environmental, Inc.
Engineering & Environmental Services

Well Location Map
Emery Bay Marketplace
Emeryville, California

2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
131.0200.001	MW	2/94		



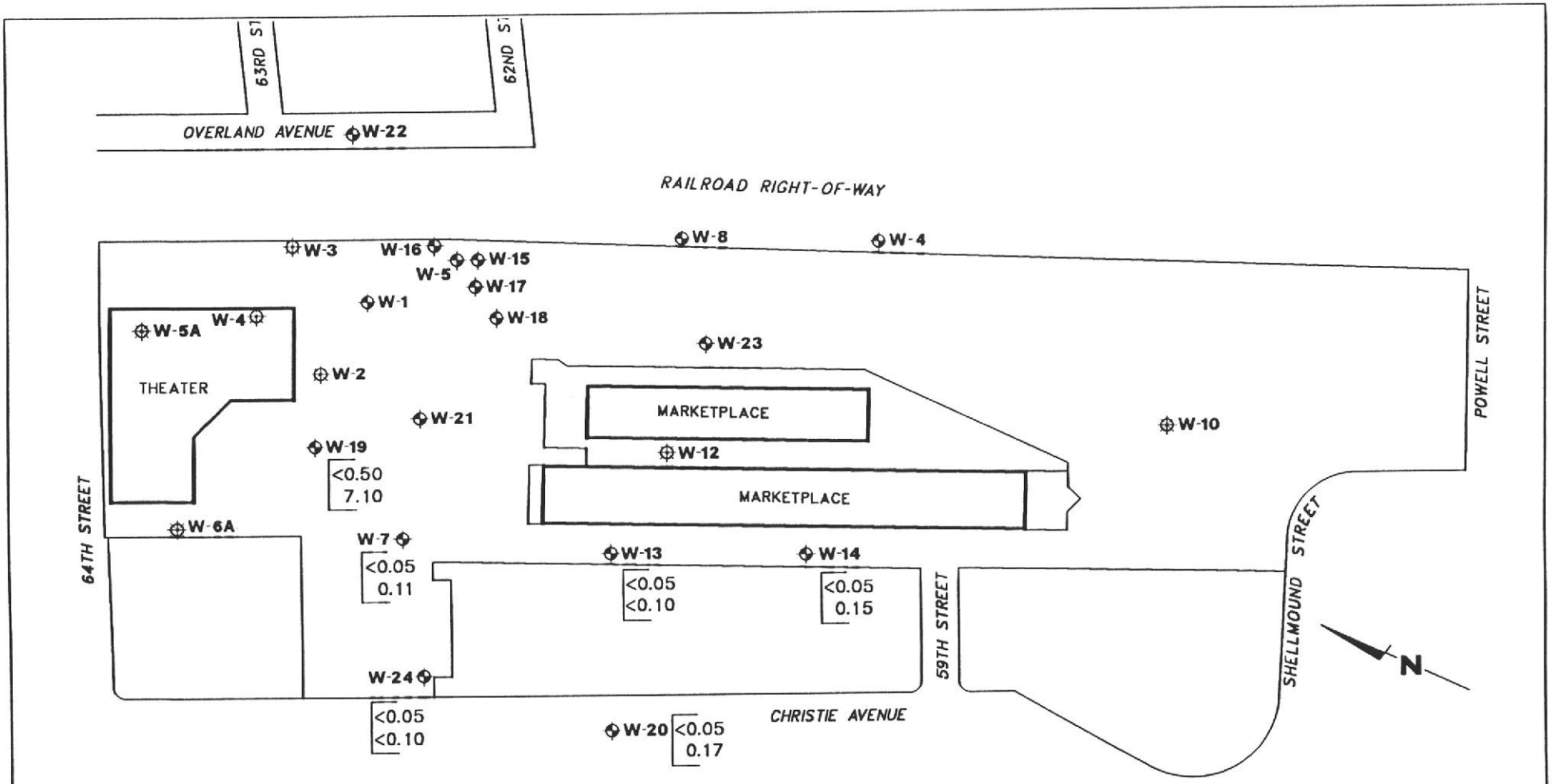
PLATE

PES Environmental, Inc.
Engineering & Environmental Services

Groundwater Elevation Contours on January 6, 1994
Emery Bay Marketplace
Emeryville, California

3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
131.0200.001	MW	2/94		



PLATE

4

PES Environmental, Inc.
Engineering & Environmental Services

Dissolved Hydrocarbons in Groundwater on January 6, 1994
Emery Bay Marketplace
Emeryville, California

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE	REVISED DATE
131.0200.001	MW	2/94		

APPENDIX A

WATER LEVEL AND GROUNDWATER SAMPLING REPORTS

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

January 17, 1994

PES Environmental
1682 Novato Blvd.
Novato, CA 91947

Attention: Mary Williams

SITE:
Emery Bay Market Place
Christie Street
Emeryville, California

PROJECT:
Monthly Water Levels

DATE:
January 6, 1994

Monthly Water Levels Report 940106-A-1

Personnel from our office was present at the site on Tuesday, January 6, 1994, to obtain water levels and conduct a sheen and odor check. Please note that we are reporting only the water levels, not elevations.

Well designation	Well diameter	Depth to water	Well depth	Sheen/Odor	Measured to: Top of Pipe or Grade
W-1	2"	5.50′	10.56′	None	Pipe
W-4	Unlocated.				
W-5	2"	5.38′	--	Free Product*	Pipe
W-7	2"	5.10′	12.44′	--	Pipe
W-8	2"	2.69′	11.79′	None	Pipe
W-13	2"	4.07′	10.03′	None	Pipe
W-14	2"	5.09′	9.89′	None	Pipe
W-15	2"	3.03′	20.18′	None	Pipe
W-16	Unlocated.				
W-17	2"	5.88′	24.80′	None	Pipe
W-18	2"	5.49′	20.02′	None	Pipe
W-19	2"	5.13′	13.58′	Odor	Pipe
W-20	2"	3.84′	16.88′	None	Pipe

* A free product zone measuring 1.17′ stood on water column.
Depth to immicsible liquid from the top of well case measured 4.21′.

Well designation	Well diameter	Depth to water	Well depth	Sheen/Odor	Measured to: Top of Pipe or Grade
W-21	2"	5.30′	12.36′	None	Pipe
W-22	2"	7.04′	15.05′	None	Pipe
W-23	2"	1.88′	9.0′	None	Pipe
W-24	2"	4.83′	12.36′	None	Pipe

Richard C. Blaine

RCB/lp

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

January 18, 1994

PES Environmental, Inc.
1682 Novato Blvd.
Suite 100
Novato, CA 94947

Attn: Mary Williams

SITE:
Emery Bay Market Place
Emeryville, California

SAMPLING EVENT:
Evacuate and sample six wells

DATE:
January 6, 1994

GROUNDWATER SAMPLING REPORT 940106-A-1

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. does not participate in the interpretation of analytical results or become involved with the marketing or installation of remedial systems.

This report deals with the groundwater well sampling performed by our firm in response to your request. Data collected in the course of our work at the site is presented in the TABLE OF WELL MONITORING DATA. This data was collected during our inspection, well evacuation, and sample collection. Measurements include the total depth of the well and depth to water. Water surfaces were further inspected for the presence of immiscibles. A series of electrical conductivity, pH, and temperature readings were obtained during well evacuation and at the time of sample collection. Recharge performance can be evaluated by comparing the anticipated three, four, or five case volume evacuation gallonage with the volume which could actually be purged.

TABLE OF WELL MONITORING DATA

Well I.D.	W-7			W-13			W-14	
Date Sampled	01/06/94			01/06/94			01/06/94	
Well Diameter (in.)	2			2			2	
Total Well Depth (ft.)	12.44			10.03			9.89	
Depth To Water (ft.)	5.10			4.07			5.09	
Free Product (ft.)	NONE			NONE			NONE	
Reason If Not Sampled	--			--			--	
1 Case Volume (gal.)	1.19			0.97			0.78	
Did Well Dewater?	NO			NO			YES @ 1.20 gals.	
Gallons Actually Evacuated	3.60			3.0			1.20	
Purging Device	BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER	
Time	13:28	13:32	13:40	12:22	12:25	12:30	11:52	13:05
Temperature (Fahrenheit)	68.5	68.0	66.9	62.7	61.2	60.4	61.8	62.2
pH	7.5	7.1	6.9	7.7	7.7	7.8	7.2	7.4
Conductivity (micromhos/cm)	2200	3400	5600	1000	900	800	2700	2600
Nephelometric Turbidity Units	>200	>200	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	940106-A-1			940106-A-1			940106-A-1	
BTS Sample I.D.	W-7			W-13			W-14	
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST	
Analysis	EPA 8015 (DIESEL & MOTOR OIL)			EPA 8015 (DIESEL & MOTOR OIL)			EPA 8015 (DIESEL & MOTOR OIL)	

TABLE OF WELL MONITORING DATA

Well I.D.	W-19			W-20			W-24	
Date Sampled	01/06/94			01/06/94			01/06/94	
Well Diameter (in.)	2			2			2	
Total Well Depth (ft.)	13.58			16.88			12.36	
Depth To Water (ft.)	5.13			3.84			4.83	
Free Product (ft.)	NONE			NONE			NONE	
Reason If Not Sampled	--			--			--	
1 Case Volume (gal.)	1.37			2.12			1.22	
Did Well Dewater?	NO			NO			NO	
Gallons Actually Evacuated	4.5			6.5			3.90	
Purging Device	BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER	
Time	11:24	11:30	11:34	14:28	14:31	14:34	14:00	14:03	14:06
Temperature (Fahrenheit)	63.8	63.5	62.8	62.0	63.0	62.6	62.2	61.5	60.8
pH	7.3	7.3	7.3	7.0	6.9	6.9	7.6	7.6	7.6
Conductivity (micromhos/cm)	4200	3700	3200	870	680	680	1700	1500	1300
Nephelometric Turbidity Units	>200	>200	>200	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	940106-A-1			940106-A-1			940106-A-1	
BTS Sample I.D.	W-19			W-20			W-24	
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST	
Analysis	EPA 8015 (DIESEL & MOTOR OIL)			EPA 8015 (DIESEL & MOTOR OIL)			EPA 8015 (DIESEL & MOTOR OIL)	

EQUIPMENT

Selection of Sampling Equipment

The determination of what apparatus is to be used on particular wells may be made by the property owner, but is usually made by the professional consultant directing the performance of the monitoring on the property owner's behalf. When no specific requirement is made, our personnel will select equipment that will accomplish the work in the most efficient manner. Our personnel are equipped with a variety of sampling devices that include USGS/Middleburg pumps, down hole electric submersible pumps, air lift pumps, suction pumps, and bailers made of both Teflon and stainless steel.

Bailers were selected for the collection of samples at this site.

Bailers: A bailer, in its simplest form, is a hollow tube which has been fitted with a check valve at the lower end. The device can be lowered into a well by means of a cord. When the bailer enters the water, the check valve opens and liquid flows into the interior of the bailer. The bottom check valve prevents water from escaping when the bailer is drawn up out of the well.

Two types of bailers are used in groundwater wells at sites where fuel hydrocarbons are of concern. The first type of bailer is made of a clear material such as acrylic plastic and is used to obtain a sample of the surface and the near surface liquids in order to detect the presence of visible or measurable fuel hydrocarbon floating on the surface. The second type of bailer is made of Teflon or stainless steel and is used as an evacuation and/or sampling device.

Bailers are inexpensive and relatively easy to clean. Because they are manually operated, variations in operator technique may have a greater influence than would be found with more automated sampling equipment. Also where fuel hydrocarbons are involved, the bailer may include near surface contaminants that are not representative of water deeper in the well.

STANDARD PRACTICES

Evacuation

Groundwater well sampling protocols call for the evacuation of a sufficient volume of water from the well to insure that the sample is collected from water than has been newly drawn into the well from the surrounding geologic formation. The protocol used on these

wells called for a volumetric removal of three case volumes with stabilization of standard water parameters. There are situations where up to ten case volumes of evacuation may be removed, especially when attempting to stabilize turbidity in undeveloped wells. Different professional consultants may specify different levels of evacuation prior to sampling or may request that specific parameters be used to determine when to collect the sample. Our personnel use several standard instruments to record the changes in parameters as the well is evacuated. These instruments are used regardless of whether or not a specific volumetric standard has been called for. As a result, the consultant will always be provided with a record of the pH, EC, and temperature changes that occurred during the evacuation process. Additional information obtained with different types of instruments (such as dissolved oxygen and turbidity meters) can also be collected if requested in advance.

Effluent Materials

The evacuation of purge water creates a volume of effluent water which, in most cases, must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new DOT 17 E drums to the site which are appropriate for the containment of the effluent materials. The determination of how to properly dispose of the effluent water must usually await the results of laboratory analyses of the sample collected from the groundwater well.

Observations and Measurements

Included in the scope of work are routine measurements and investigative procedures which are intended to determine if the wells are suitable for evacuation and sampling. These include measurement (from the top of the well case) of the total depth of the well; the depth to water, and the thickness of any free product zone (FPZ) encountered. The presence of a significant free product zone may interfere with efforts to collect a water sample that accurately reflects the condition of groundwater lying below the FPZ. This interference is caused by adhesion of petroleum to any device being lowered through the FPZ and the likelihood that minute globules of petroleum may break free of the sampling device and be included in the sample. Accordingly, evaluation of analytical results from wells containing any amount of free petroleum should take into account the possibility that positive results have been skewed higher by such an inclusion. The decision to sample or not sample such wells is left to the discretion of our field personnel at the site and the consultant who establishes sampling guidelines based on the need for current information on groundwater conditions at the site.

Sampling Methodology

Samples were obtained by standardized sampling procedures that follow an evacuation and sample collection protocol. The sampling methodology conforms with State and Regional Water Quality Control Board standards and specifically adheres to EPA requirements for apparatus, sample containers and sample handling as specified in publication SW 846 and the T.E.G.D. which is published separately.

Sample Containers

Sample material is collected in specially prepared containers appropriate to the type of analyses intended. Our firm uses new sample containers of the type specified by either EPA or the RWQCB. Often times analytical laboratories wish to supply the sample containers because checks performed on these bottles are often part of a comprehensive laboratory QC program. In cases where the laboratory does not supply sample containers our personnel collect water samples in new containers that are appropriate to the type of analytical procedure that the sample is to receive. For example, 40 ml volatile organic analysis vials (VOAs) are used when analysis for gasoline and similar light volatile compounds is intended. These containers are prepared according to EPA SW 846 and will usually contain a small amount of preservative when the analysis is for TPH as gasoline or EPA 602. Vials intended for EPA 601 analysis and EPA 624 GCMS procedures are not preserved. The closure of volatile organic analysis water sample containers is accomplished with an open headed (syringe accessible) plastic screw cap brought down on top of a Teflon faced septum which is used to seal the sample without headspace.

Water samples intended for semivolatile and nonvolatile analysis such as total oil and grease (TOG) and diesel (TPH HBF) are collected and transported in properly prepared new glass liter bottles. Dark amber glass is used in the manufacture of these bottles to reduce any adverse effect on the sample by sunlight. Antimicrobial preservative may be added to the sample liquid if a prolonged holding time is expected prior to analysis. Closure is accomplished with a heavy plastic screw cap.

Groundwater well samples intended for metals analysis are transported in new plastic bottles and preserved with nitric acid. Our personnel can field filter the sample liquid prior to placing it in the sample container if instructed to perform this procedure.

Sample Handling Procedures

Water samples are collected in any of several appropriate devices such as bailers, Coliwasas, Middleburg sampling pumps etc. which are described in detail only as warranted by their employment at a given site. Sample liquid is decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA procedures for handling volatile organic and semi-volatile compounds.

Groundwater samples that are to receive metals analyses can be filtered prior to being placed in the plastic sample bottles that contain the nitric acid preservative. The filtration process employs new glass containers which are discarded and laboratory quality disposable filtering containers which are also discarded. A frequently used filtering procedure employs a vacuum pump to draw sample material through a 0.45 micron filter. The 0.45 micron pore size is standard, but the amount of filter available varies with the type of package selected. Filters are selected on the basis of the relative turbidity of the water sample. Samples which are relatively clean can be efficiently filtered with relatively inexpensive filters while very turbid water will require a very large filter with a high tolerance for sediments. One of several such filters our firm uses are the Nalgene Type A filters in which an upper and lower receptacle chamber are affixed to the filter. Sample material is poured into the upper chamber and a vacuum pump attached to the lower chamber. Simple actuation of the vacuum pump induces the flow of water through the filter and into the lower chamber. The sample is then decanted into the laboratory contain

er and the filter assembly discarded. Cartridge type flow-through filters are more expensive but can be fitted directly to the discharge line of most sampling pumps (USGS/Middleburg pumps) and electric submersible pumps.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

All sample containers are identified with both a sampling event number and a discrete sample identification number. Please note that the sampling event number is the number that appears on our chain of custody. It is roughly equivalent to a job number, but applies only to work done on a particular day of the year rather than spanning several days as jobs and projects often do.

Chain of Custody

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under our standard chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to Coast to Coast Analytical Laboratory.

Personnel

All Blaine Tech Services, Inc. personnel receive 29 CFR 1910.120(e)(2) training as soon after being hired as is practical. In addition, many of our personnel have additional certifications that include specialized training in level B supplied air apparatus and the supervision of employees working on hazardous materials sites. Employees are not sent to a site unless we are confident they can adhere to any site safety provisions in force at the site and unless we know that they can follow the written provisions of an SSP and the verbal directions of an SSO.

In general, employees sent to a site to perform groundwater well sampling will assume an OSHA level D (wet) environment exists unless otherwise informed. The use of gloves and double glove protocols protects both our employees and the integrity of the samples being collected. Additional protective gear and procedures for higher OSHA levels of protection are available.

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Decontamination procedures include complete disassembly of the device to a point where a jet of steam cleaner water can be directed onto all the internal surfaces. Blaine Tech Services, Inc. frequently modifies apparatus to allow complete disassembly and proper cleaning.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/lp

attachments: chain of custody

BLAINE TECH SERVICES INC

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

CHAIN OF CUSTODY 940106A-1

CLIENT PES

SITE EMERYBAY MARKETPLACE
CHRISTIE STREET
EMERYVILLE

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT: 8015 Modified Diesel & Motor Oil

LAB Coast to Coast DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLE I.D.	MATRIX (S = SOIL, W = H2O)	CONTAINERS: TOTAL	CONTAINERS	C	8015 Modified Diesel & Motor Oil	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
W 7	W	2	VOAs		X				
W 13		2			X				
W14		2			X				
W19		2			X				
W20		2			X				
W24		2			X				

SAMPLING COMPLETED DATE 1-6-94 TIME 1500

SAMPLING PERFORMED BY Jeff Wattier

RESULTS NEEDED NO LATER THAN ROUTINE

		DATE	TIME		DATE	TIME
RELEASED BY	Jeff Wattier	1/7/94	1030	RECEIVED BY	Raymond Salazar	1/7/94 1030
RELEASED BY		DATE	TIME	RECEIVED BY		DATE TIME
RELEASED BY		DATE	TIME	RECEIVED BY		DATE TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

BLAINE TECH SERVICES INC

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

CHAIN OF CUSTODY 940106A1

CLIENT PES

SITE EMERYBAY MARKETPLACE
CHRISTIE STREET
EMERYVILLE

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT: 8015 Modified Diesel & Motor oil

LAB Coast to Coast DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND

☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

SAMPLE I.D.	MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C		ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
W7	W	2	VOAs		X -1	JK0057			
W13		2			X -2				
W14		2			X -3				
W19		2			X -4				
W20		2			X -5				
W24		2			X -6				

SAMPLING COMPLETED DATE 1-6-94 TIME 1500

SAMPLING PERFORMED BY Jeff Curtis

RESULTS NEEDED NO LATER THAN ROUTINE

		DATE	TIME		DATE	TIME
RELEASED BY	Jeff Curtis	1/7/94	1030	RECEIVED BY	Raymond E. DeLoe	1/7/94	1030
RELEASED BY	Raymond E. DeLoe	1/7/94	1040	RECEIVED BY	Alison A. Abraham	01/07/94	1040
RELEASED BY	World Courier			RECEIVED BY	cool, intact		

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

APPENDIX B

ANALYTICAL LABORATORY REPORTS

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-1
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W7	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		100.	110.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C035
DT/et/ttn
DSL011294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-2
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W13	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		100.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C036
DT/et/ttn
DSL011294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-3
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W14	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		100.	150.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C037
DT/et/ttn
DSLO11294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-4
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W19	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		500.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		1000.	7100.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C038
DT/et/ttn
DSL011294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-5
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W20	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		100.	170.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C041
DT/et/ttn
DSL011294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: PES Environmental Inc
1682 Novato Boulevard, Suite 100
Novato, CA 94947

Lab Number : JK-0057-6
Project : Emerybay Marketplace

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
W24	Aqueous	Blaine Tech Services	01/06/94	01/07/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	
Total Petroleum Hydrocarbons (Motor Oil)		100.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C034
DT/et/ttn
DSL011294C

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: DSL011294C

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Aqueous			

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
TOTAL PETROLEUM HYDROCARBONS				1
Total Petroleum Hydrocarbons (Diesel)		50.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C024
DT/et/ttn
JK0057-6

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: DSL011294C

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Aqueous			

CONSTITUENT	*PQL µg/L	SPIKE AMOUNT	RESULT µg/L	%REC	NOTE
TOTAL PETROLEUM HYDROCARBONS					1
Total Petroleum Hydrocarbons (Diesel)	50.	1047.	695.	66.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C025
DT/et/ttn
JK0057-6

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: DSL011294C

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/94
Analyzed by: TN
Method : EPA 8015M

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
QC SPIKE DUPLICATE	Aqueous		

CONSTITUENT	*PQL µg/L	SPIKE AMOUNT	RESULT µg/L	%REC	%DIFF	NOTE
TOTAL PETROLEUM HYDROCARBONS						1
Total Petroleum Hydrocarbons (Diesel)	50.	1047.	794.	76.	13.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) Sample Preparation on 01/12/94 by AG

01/14/94
ECD2-112C026
DT/et/ttn
JK0057-6

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Dudley Torres
Organics Manager