PES Environmental, Inc.
Engineering & Environmental Services

May 31, 1995

131.0200.001

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

QUARTERLY GROUNDWATER MONITORING REPORT
APRIL 1995 SAMPLING EVENT
EMERY BAY MARKETPLACE
EMERYVILLE, CALIFORNIA

Dear Ms. Tolin:

This letter report presents data collected by PES Environmental, Inc. (PES) during the April 1995 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 location 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 work plan for this site entitled *Work Plan for Groundwater Monitoring and Free Product Removal at the Emery Bay Marketplace, Emeryville, California*, prepared by McLaren Hart and dated July 6, 1990.

BACKGROUND

Beginning in the early 1980's, environmental activities at this site consisted of 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.

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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 off-site wells currently remain. McLaren Hart began quarterly groundwater monitoring activities at the subject site in July 1990. The present sampling is the eighth since PES began performing quarterly groundwater monitoring in July 1993.

GROUNDWATER ELEVATIONS

Water-level Measurement Procedures

Prior to sampling on April 6, 1995, 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 and therefore measurements were not obtained for these wells. Wells W-4 and W-16 were inaccessible due to grading related to construction activities along the adjacent railroad property. Water levels for the remaining 15 wells were measured on April 6. 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, and a report summarizing the water level measurement procedures is presented in Appendix A.

Water levels in all measured wells have varied relative to the January 1995 sampling event. Water levels decreased in ten of the wells and increased in the five remaining wells. Additionally, water levels in two wells (W-17 and W-18) represent historically high measurements. Based on measured water levels on April 6, 1995, groundwater at the site flows in a southwesterly direction with an approximate gradient of .006 to .017. These measurements show no significant changes from historical groundwater flow direction and gradient.

Consistent with historical monitoring results, a free-phase floating product layer 0.92 feet thick was found in Well W-5 and a thin layer (0.03 feet) was present in Well W-19. No free-phase product or sheen were found in the remaining wells.

GROUNDWATER SAMPLING AND ANALYTICAL TESTING

Sampling Protocol

Groundwater samples were collected on April 6, 1995 by Blaine Tech Services, Inc. (Blaine Tech) and Lowney Associates (Lowney). Blaine Tech collected samples from W-7, W-20, and W-24. Wells W-13 and W-14 were sampled by Lowney and the samples were transferred to Blaine Tech. Well W-19 was not sampled due to the presence of free-phase product on the surface of the water column. 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 1-liter glass bottles preserved with hydrochloric acid.

Samples were immediately labeled to designate sample number, time and date collected, and analyses requested, and stored in a chilled, thermally insulated cooler for transport to the analytical laboratory for chemical analyses. The information collected during groundwater sampling activities and the chain of custody record 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 American Environmental Network (AEN), a State-certified laboratory located in Pleasant Hill, California. 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

Sample analytical results from the recent groundwater monitoring event indicate that TPH-diesel was detected in all five of the wells sampled, at concentrations ranging from 0.3 milligrams per liter (mg/l) in W-13 and W-14 to 25 mg/l in W-7. TPH-oil was detected only in Well W-7 at a concentration of 4 mg/l. Concentrations of TPH-diesel and TPH-oil have increased in Well W-7, and TPH-diesel concentrations have increased in Well W-20 since the prior monitoring event. TPH-diesel concentrations have not changed significantly in the remaining wells sampled during the recent groundwater monitoring activities.

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 April 6, 1995 is presented on Plate 4.

SUMMARY

Groundwater elevations have fluxuated since the January 1995 sampling event, however, the groundwater flow direction and gradient have remained approximately the same. Historically high water levels were recorded in two of the wells during recent monitoring activities. Consistent with historical monitoring results, free-phase product was found on the groundwater in Wells W-5 and W-19. Reported concentrations of TPH-diesel have increased or remained approximately the same since the January 1995 monitoring activities. TPH-oil was detected only in one of the wells sampled, at a concentration within the range of previously reported levels.

Yours very truly,

PES ENVIRONMENTAL, INC.

Mary E. Williams
Senior Environmental Scientist

Andrew A. Briefer, P. E.
Associate 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 April 6, 1995
	Plate 4	Dissolved Hydrocarbons in Groundwater on April 6, 1995
	Appendix A	Water Level and Groundwater Sampling Report
	Appendix B	Analytical Laboratory Report

cc: Mr. Brian Oliva - Alameda County Department of Environmental Health

Table 1. Summary of Groundwater Elevations Through April 1995

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	
	05-Apr-94	PES		5.87	5.60	
	08-Jul-94	PES		5.86	5.61	
	04-Oct-94	PES		5.94	5.53	
	11-Jan-95	PES		4.93	6.54	
	06-Apr-95	**PES**		**5.02**	**6.45**	
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	

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Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-4	15-Jan-92	MH		2.56	7.40	
Cont	23-Apr-92	MH		2.80	7.16	
	21-Jul-92	MH		4.03	5.93	
	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	
	05-Apr-94	PES		NM	NM	
	08-Jul-94	PES		NM	NM	
	4-Oct-94	PES		NM	NM	
	11-Jan-95	PES		NM	NM	
	06-Apr-95	**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
	05-Apr-94	PES		4.62	7.86	1.26
	08-Jul-94	PES		4.95	7.79	1.57
	04-Oct-94	PES		5.20	7.35	1.34
	11-Jan-95	PES		2.65	9.53	0.90
	06-Apr-95	**PES**		**3.12**	**9.07**	**0.92**

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Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
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	
	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	
	05-Apr-94	PES		5.94	3.11	
	08-Jul-94	PES		5.74	3.31	
	04-Oct-94	PES		5.83	3.22	
	11-Jan-95	PES		5.44	3.61	
	06-Apr-95	**PES**		**5.79**	**3.26**	
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	

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W-8	22-Jul-93	PES		3.17	7.26	
Cont	07-Oct-93	PES		NM	NM	
	06-Jan-94	PES		2.69	7.74	
	05-Apr-94	PES		2.78	7.65	
	08-Jul-94	PES		3.26	7.17	
	04-Oct-94	PES		3.62	6.81	
	11-Jan-95	PES		2.69	7.74	
	06-Apr-95	**PES**		**2.42**	**8.01**	
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	
	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	
	05-Apr-94	PES		4.20	3.95	
	08-Jul-94	PES		3.94	4.21	
	04-Oct-94	PES		4.37	3.78	
	11-Jan-95	PES		2.73	5.42	
	06-Apr-95	**PES**		**3.60**	**4.55**	
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	

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W-14 Cont	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	
	05-Apr-94	PES		5.39	2.58	
	08-Jul-94	PES		5.37	2.60	
	04-Oct-94	PES		4.97	3.00	
	11-Jan-95	PES		4.66	3.31	
	06-Apr-95	**PES**		**4.13**	**3.84**	
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	
	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	
	05-Apr-94	PES		3.03	8.50	
	08-Jul-94	PES		2.89	8.64	
	04-Oct-94	PES		2.90	8.63	
	11-Jan-95	PES		2.84	8.69	
	06-Apr-95	**PES**		**2.62**	**8.91**	

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Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
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
	05-Apr-94	PES		NM	NM	NM
	08-Jul-94	PES		NM	NM	NM
	04-Oct-94	PES		NM	NM	NM
	11-Jan-95	PES		NM	NM	NM
	06-Apr-95	**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	
	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	
	05-Apr-94	PES		5.28	6.86	

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Well Number	Date	Measured by	Top of Casing (feet MSL)	Depth to Water (feet)	Potentiometric Surface Elevations (feet MSL)	Product Thickness (feet)
W-17	08-Jul-94	PES		5.35	6.79	
Cont	04-Oct-94	PES		6.77	5.37	
	11-Jan-95	PES		NM	NM	
	06-Apr-95	**PES**		**2.64**	**9.50**	
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	
	05-Apr-94	PES		5.25	6.09	
	08-Jul-94	PES		4.98	6.36	
	04-Oct-94	PES		5.28	6.06	
	11-Jan-95	PES		4.55	6.79	
	06-Apr-95	**PES**		**4.02**	**7.32**	
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	
	22-Jul-93	PES		5.04	5.24	0.01
	07-Oct-93	PES		5.09	5.18	NP

Table 1. Summary of Groundwater Elevations Through April 1995

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	06-Jan-94	PES		5.13	5.14	NP
Cont	05-Apr-94	PES		4.92	5.35	NP
	08-Jul-94	PES		5.01	5.26	
	04-Oct-94	PES		5.03	5.27	0.03
	11-Jan-95	PES		4.79	5.48	NP
	06-Apr-95	**PES**		**4.92**	**5.38**	**0.03**
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	
	05-Apr-94	PES		3.90	2.92	
	08-Jul-94	PES		3.63	3.19	
	06-Oct-94	PES		3.76	3.06	
	11-Jan-95	PES		2.76	4.06	
	06-Apr-95	**PES**		**3.56**	**3.26**	
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	

Table 1. Summary of Groundwater Elevations Through April 1995

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-21	05-Apr-94	PES		5.18	4.30	
Cont	08-Jul-94	PES		5.18	4.30	
	04-Oct-94	PES		5.08	4.40	
	11-Jan-95	PES		4.73	4.75	
	06-Apr-95	**PES**		**4.92**	**4.56**	
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	
	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	
	05-Apr-94	PES		NM	NM	
	08-Jul-94	PES		6.43	5.24	
	04-Oct-94	PES		6.66	5.01	
	11-Jan-95	PES		4.67	7.00	
	06-Apr-95	**PES**		**6.16**	**5.51**	
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	

Table 1. Summary of Groundwater Elevations Through April 1995

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-23	05-Apr-94	PES		1.30	7.86	
Cont	08-Jul-94	PES		1.77	7.39	
	04-Oct-94	PES		2.39	6.77	
	11-Jan-95	PES		0.49	8.67	
	06-Apr-95	**PES**		**0.86**	**8.30**	
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	
	22-Jul-93	PES		5.02	3.70	
	07-Oct-93	PES		4.46	4.26	
	06-Jan-94	PES		4.83	3.89	
	05-Apr-94	PES		4.85	3.87	
	08-Jul-94	PES		4.54	4.18	
	04-Oct-94	PES		4.69	4.03	
	11-Jan-95	PES		2.63	6.09	
	06-Apr-95	**PES**		**4.44**	**4.28**	

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 April 1995

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	3.2
	07-Oct-93	PES	2.90	2.90
	06-Jan-94	PES	<0.05	0.11
	05-Apr-94	PES	2.90	1.70
	08-Jul-94	PES	8.4	38
	04-Oct-94	PES	20	76
	11-Jan-95	PES	17	<0.2
	06-Apr-95	**PES**	**25**	**4**
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

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through April 1995

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	03-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	0.11(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
	05-Apr-94	PES	<0.05	<0.10
	08-Jul-94	PES	<0.05	0.5
	04-Oct-94	PES (4)	0.3	<0.2
	11-Jan-95	PES (4)	0.5	<0.2
	06-Apr-95	**PES (4)**	**0.3**	**<0.2**
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
	05-Apr-94	PES	<0.05	<0.10
	08-Jul-94	PES	<0.05	0.3
	04-Oct-94	PES (4)	0.4	<0.2
	11-Jan-95	PES (4)	0.3	<0.2
	06-Apr-95	**PES (4)**	**0.3**	**<0.2**

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through April 1995

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-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
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
	05-Apr-94	PES	<0.20	2.70
	08-Jul-94	PES	3.4	2.5
	04-Oct-94	PES	13	11
	11-Jan-95	PES	7.2	<0.2
	06-Apr-95	**PES**	**NS (5)**	**NS (5)**
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

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through April 1995

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-20 Cont	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
	05-Apr-94	PES	<0.05	<0.10
	08-Jul-94	PES	<0.05	<0.20
	06-Oct-94	PES	<0.05	<0.2
	11-Jan-95	PES	1.4	<0.2
	06-Apr-95	**PES**	**2.0**	**<0.2**
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
	05-Apr-94	PES	<0.05	<0.10

Table 2. Summary of Petroleum Hydrocarbon Analytical Results for Groundwater Samples Through April 1995

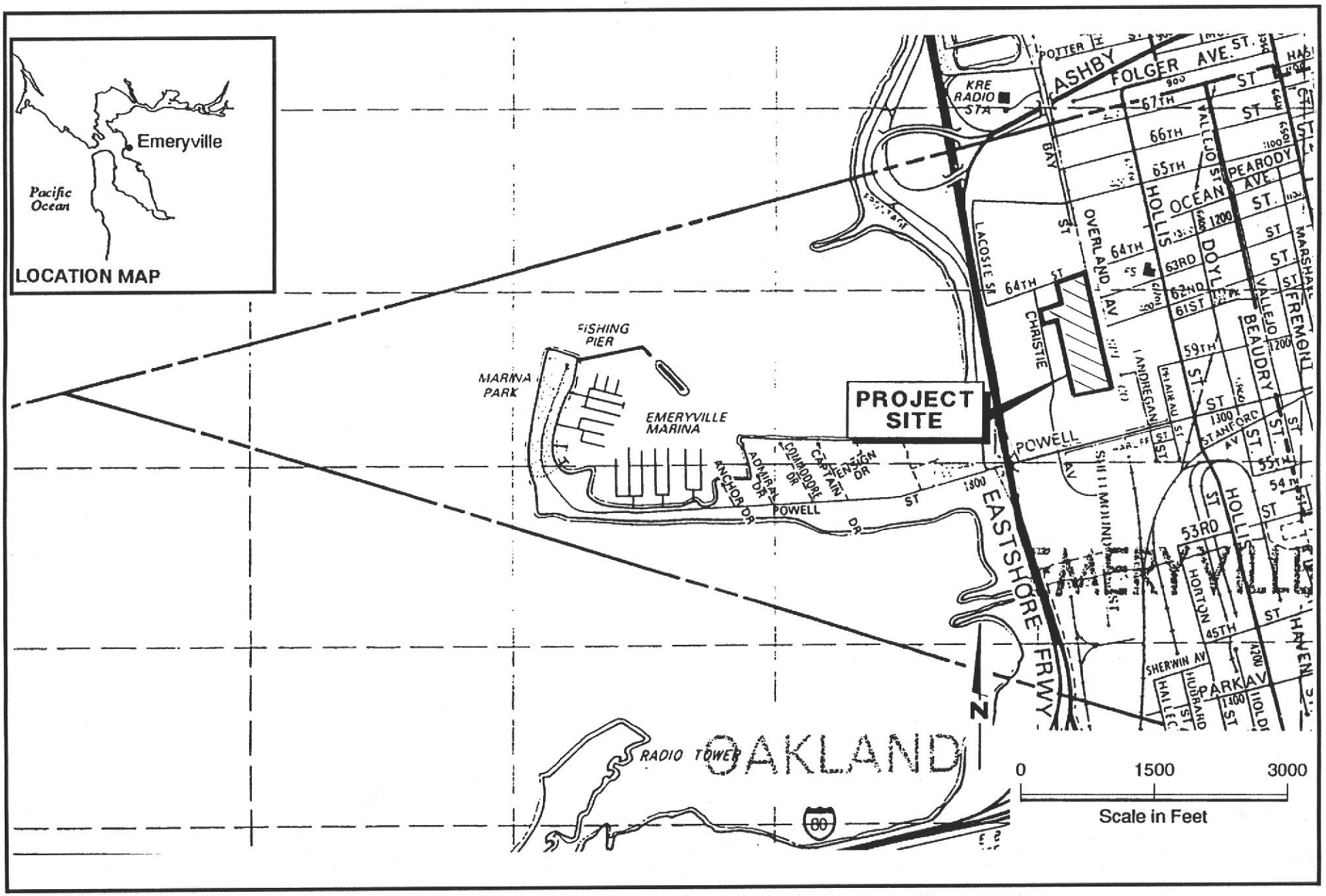
Emery Bay Marketplace
Emeryville, California

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-24	08-Jul-94	PES	0.06	<0.20
Cont	04-Oct-94	PES	0.5	<0.2
	11-Jan-95	PES	0.5	<0.2
	06-Apr-95	**PES**	**0.3**	**<0.2**

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.
(4) = Wells W-13 and W-14 were sampled by personnel from Lowney Associates.
(5) = Well not sampled due to the presence of free-phase product on the surface of the water column.
< 0.5 = Not detected above indicated detection limit.
TPH = Total petroleum hydrocarbons
NA = Not Analyzed
NS = Not Sampled
WCC = Woodward Clyde Consultants
MH = McLaren Hart
PES = PES Environmental, Inc.



PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
Emery Bay Marketplace
Emeryville, California

PLATE
1

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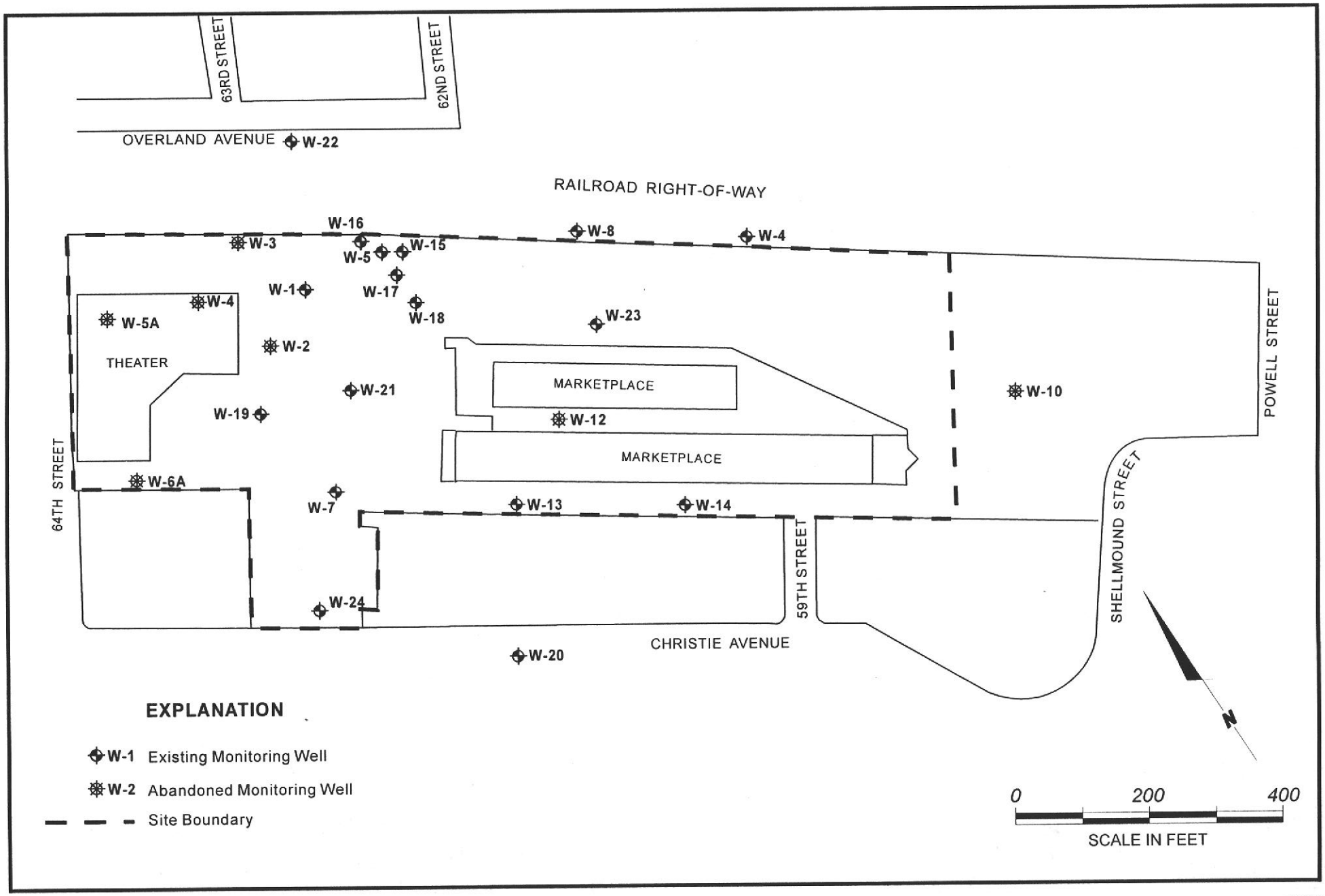
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

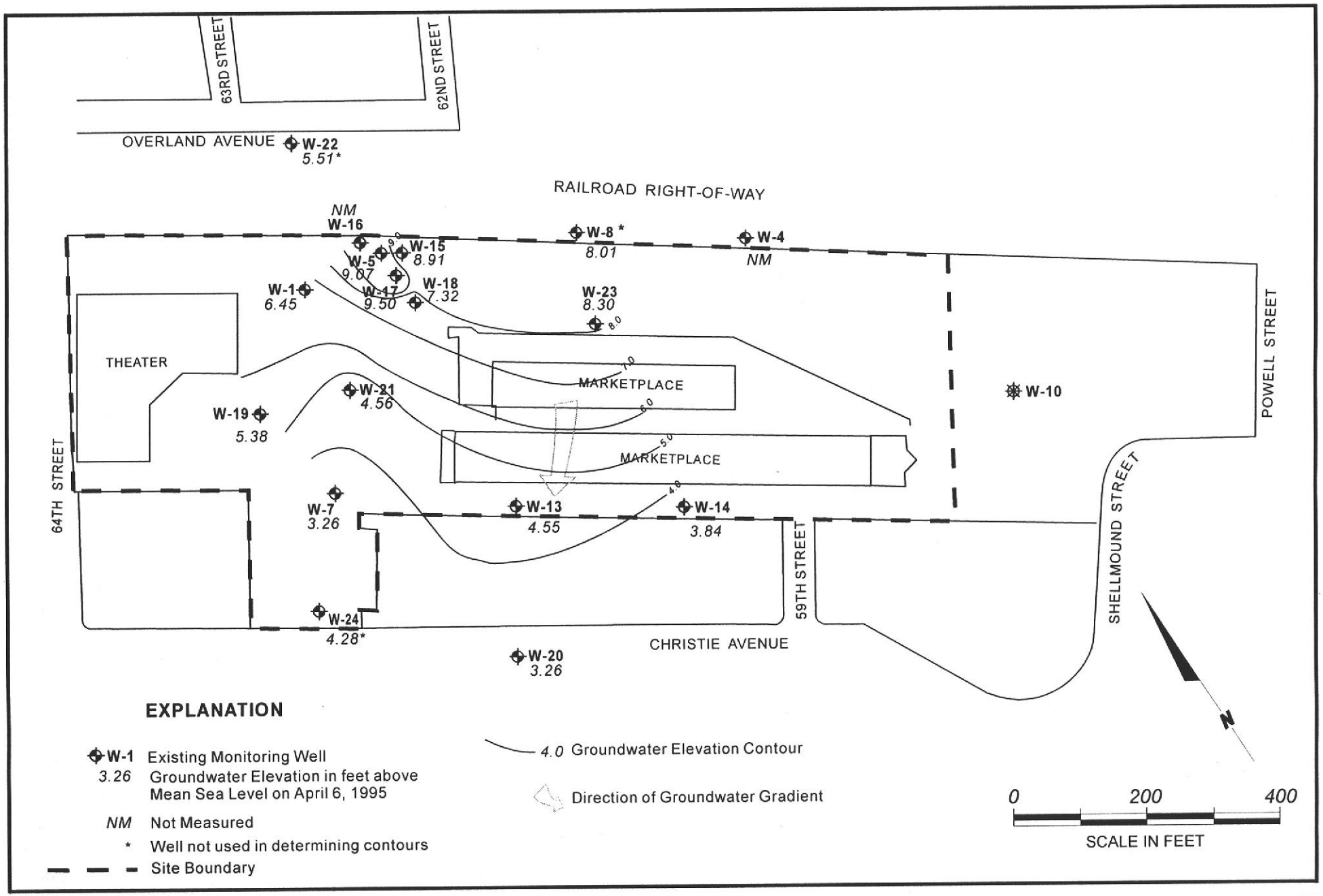


PES Environmental, Inc.
Engineering & Environmental Services

Well Location Map
Emery Bay Marketplace
Emeryville, California

PLATE
2

131.0200.001	131020S1.CDR	MCV	5/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

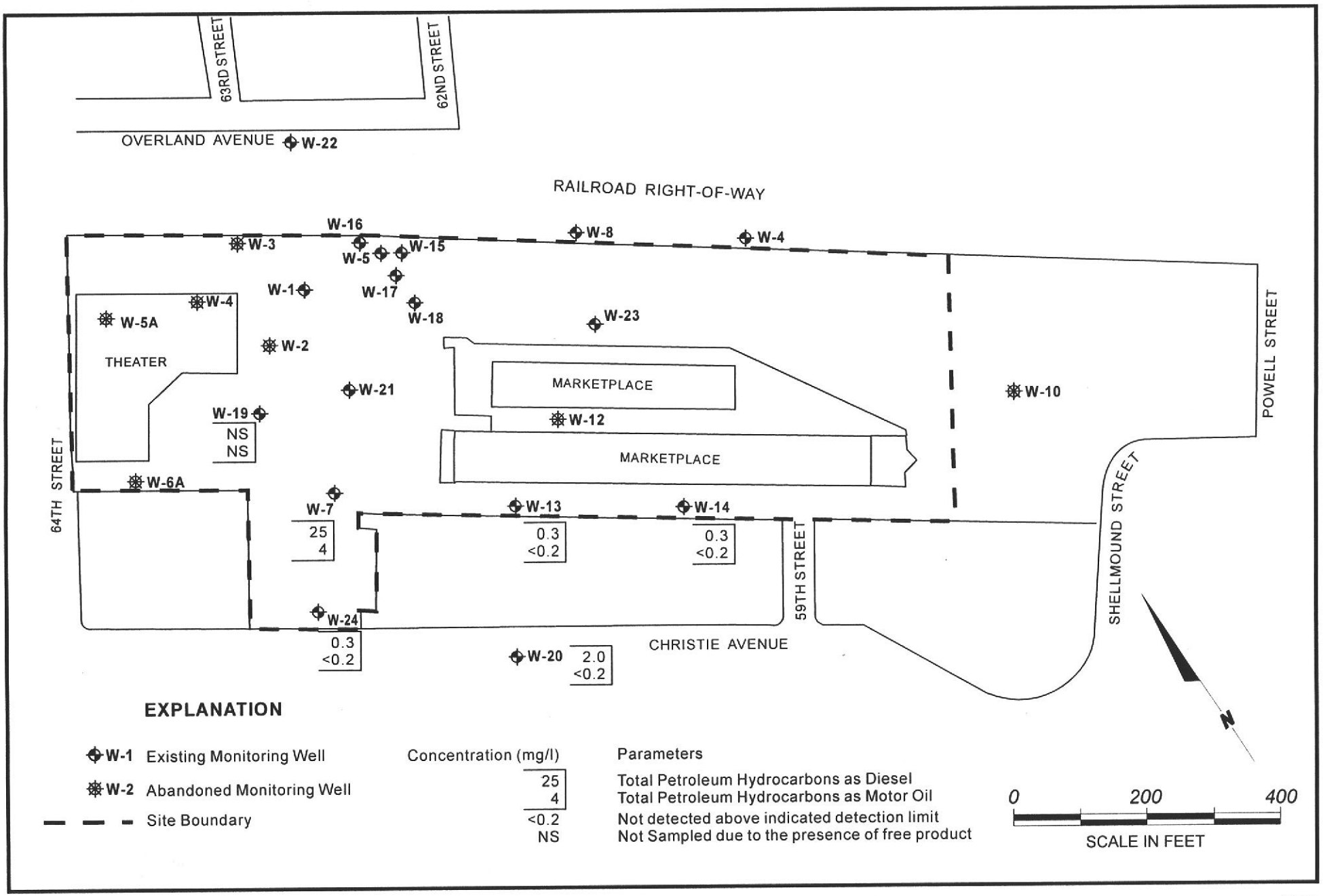


PES Environmental, Inc.
Engineering & Environmental Services

Groundwater Elevation Contours on April 6, 1995
Emery Bay Marketplace
Emeryville, California

PLATE
3

131.0200.001	131020GX.CDR	MW	5/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



PES Environmental, Inc.
Engineering & Environmental Services

Dissolved Hydrocarbons in Groundwater on April 6, 1995
Emery Bay Marketplace
Emeryville, California

PLATE
4

131.0200.001	131020A1.CDR	MW	5/95
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

WATER LEVEL AND GROUNDWATER SAMPLING REPORT

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

April 21, 1995

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

Attention: Mary Williams

SITE:
Emery Bay Market Place
Christie Street
Emeryville, California

DATE:
April 6, 1995

Water Level Report 950406-D-1

Personnel from our office were present at the site on Thursday, April 6, 1995, 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	Date	Well Size	Depth to Immiscible Liquid	Thickness of Immiscible Liquid	Volume of Immiscibles Removed (ml)	Depth to Water	Depth to Well Bottom	Survey Point: TOB or TOC
W-1	4/6/95	2"	--	NONE	--	5.02'	10.55'	TOC
W-4	4/6/95	COULD NOT LOCATE						
W-5	4/6/95	2"	2.20'	0.92'	--	3.12'	--	TOC
W-7	4/6/95	2"	--	NONE	--	5.79'	12.45'	TOC
W-8	4/6/95	2"	--	NONE	--	2.42'	11.76'	TOC
W-13	4/6/95	2"	--	NONE	--	3.60'	10.04'	TOC
W-14	4/6/95	2"	--	NONE	--	4.13'	9.92'	TOC
W-15	4/6/95	2"	--	NONE	--	2.62'	20.32'	TOC

Well Designation	Date	Well Size	Depth to Immiscible Liquid	Thickness of Immiscible Liquid	Volume of Immiscibles Removed (ml)	Depth to Water	Depth to Well Bottom	Survey Point: TOB or TOC
W-16	4/6/95	COULD NOT LOCATE						
W-17	4/6/95	2"	--	NONE	--	2.64'	24.72'	TOC
W-18	4/6/95	2"	--	NONE	--	4.02'	20.05'	TOC
W-19	4/6/95	2"	4.89'	0.03'	--	4.92'	--	TOC
W-20	4/6/95	2"	--	NONE	--	3.56'	16.85'	TOC
W-21	4/6/95	2"	--	NONE	--	4.92'	12.35'	TOC
W-22	4/6/95	2"	--	NONE	--	6.16'	15.02'	TOC
W-23	4/6/95	2"	--	NONE	--	0.86'	8.98'	TOC
W-24	4/6/95	2"	--	NONE	--	4.44'	11.57'	TOC

Richard C. Blaine

RCB/lp

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 9513
(408) 995-553
FAX (408) 293-877

April 21, 1995

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

Attn: Mary Williams

SITE:
Emery Bay Market Place
Christie Street
Emeryville, California

SAMPLING EVENT:
Evacuate and sample four wells

DATE:
April 6, 1995

GROUNDWATER SAMPLING REPORT 950406-D-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-19	W-20	W-24
Date Sampled	04/06/95	04/06/95	04/06/95	04/06/95
Well Diameter (in.)	2	2	2	2
Total Well Depth (ft.)	12.45	--	16.85	11.57
Depth To Water (ft.)	5.79	4.92	3.56	4.44
Free Product (ft.)	NONE	0.03	NONE	NONE
Reason If Not Sampled	--	FREE PRODUCT	--	--
1 Case Volume (gal.)	1.06		2.1	1.14
Did Well Dewater?	NO		NO	NO
Gallons Actually Evacuated	3.5		6.5	3.5
Purging Device	BAILER		BAILER	BAILER
Sampling Device	BAILER		BAILER	BAILER
Time	12:55 12:57 12:59		13:20 13:25 13:30	12:30 12:32 12:34
Temperature (Fahrenheit)	67.2 66.8 66.4		63.2 63.0 63.2	62.2 61.8 61.6
pH	6.6 6.6 6.6		7.4 7.2 7.2	7.4 7.0 7.0
Conductivity (micromhos/cm)	5000 6500 6200		9000 9000 9000	1200 1200 1200
BTS Chain of Custody	950406-D-1		950406-D-1	950406-D-1
BTS Sample I.D.	W-7		W-20	W-24
DHS HMTL Laboratory	AEN		AEN	AEN
Analysis	TPH (DIESEL), TPH (MOTOR OIL)		TPH (DIESEL), TPH (MOTOR OIL)	TPH (DIESEL), TPH (MOTOR OIL)

NOTE: Sample W-13 and W-14 were collected by Todd McNear from Lowney Associates.

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 expen-

sive 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 American Environmental Network in Pleasant Hill, California. AEN is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1172.

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 950406-D1

CLIENT PES

SITE EMERY BAY MKT PLACE
CHRISTIE ST
EMERYVILLE, CA

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT

LAB AMERICAN ENV. NETWORK DHS #

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

☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS
Invoice & Report to PES
Attn: Mary Williams

cc report to Blaine Tech

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C	8015 - MODIFIED FOR TPH - DIESEL + TPH - MOTOR OIL								ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
W-7	4-6-95	1305	W	2	LITERS		X											
W-20	4-6-95	1335		2			X											
W-24	4-6-95	1240		2			X											

SAMPLING COMPLETED | DATE | TIME

SAMPLING PERFORMED BY MIKE DILLOUGHERY

RESULTS NEEDED NO LATER THAN Standard.

		DATE	TIME		DATE	TIME
RELEASED BY		4/7/95	1310	RECEIVED BY		
RELEASED BY				RECEIVED BY	4/7/95	13:10
RELEASED BY				RECEIVED BY		

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

LOWNEY ASSOCIATES

CHAIN OF CUSTODY RECORD

SEND RESULTS TO:

☐ Mountain View Office
405 Clyde Ave
Mountain View, Ca 94043
415-967-2365
FAX COPY: ☐ 415-967-2785 (FAX)

☐ Walnut Creek Office
1600 S. Main St, Suite 125
Walnut Creek, Ca 94596
510-938-9356
FAX COPY: ☐ 510-938-9359 (FAX)

Project Name: Emeryville P.O.

Job No.: 864-173

Report To:

Sampler (print): Brock Foster

Sampler (signature): T Brock Foster

QC Requirements:
☒ Level A (standard) ☐ Level B ☐ Level C ☐ Level D

Turnaround Requirements:
☐ 10 Working days
☐ 7 Working days
☐ 5 Working days
☐ 3 Working days
☐ 24 Hours
☐ 2-3 Hours

ANALYSIS REQUESTED

Sample I.D.	Date	Time	Lab I.D.	Sample Matrix	No. of Cont.	TPHgas/BTEX (8015/8020)	TPH as diesel (8015M)	TRPH (5520) EF/BF	Halogenated VOCs (8010)	Purgeable Organics (8240)	Extractable Organics (8270)	PCB's (8080)	Remarks
W-13	4.6.95	10:00		H_2O	6	✓	✓	✓				✓	
W-14	4.6.95	11:00		H_2O	6	✓	✓	✓				✓	

Relinquished By: T Brock Foster Date: 4.6.95 Time: 12:30
Received By: [signature] Date: 4/6/95 Time: 1600

Relinquished By: [signature] Date: 4-7-95 Time: 1310
Received By: Rachael E Rudisill Date: 4/7/95 Time: 13:10

Relinquished By: Date: Time:
Lab Of Record:

Received By Lab: Date: Time:

Temperature:

LOWNEY ASSOCIATES — RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 864-173

Project Name Emeryville PD.

Field Geologist/Engineer BAF

Well Number W-13

Boring Diameter _____ (inches)

Well Total Depth (completed) 10.03 (feet)

Casing Diameter 2 (inches)

Development Date _____ Method _____ Volume Produced _____ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date 4-6-95 Time 10:00 Method Bottom Bailer

Static Water Level Prior to Purging 3.60 (ft)
(Measured from top of casing) 4.80 - 0.93

Water Level After Recovery 4.1 (ft)
4.80

80 Percent Recharged Yes ☒ No ☐

Well Volume 3.97 (liter/gal)

Three Well Volumes 11.9L (liter/gal)

Total Produced 8 (liter/gal)

Number of Well Volumes 2.02

Production Time 15 (min)

Production Rate 0.53 (L/min)

Well Volumes	ph	Conductivity µSx100	Temp °F
1	7.7	11	60
2	7.8	9	60
3	—	—	—
4			
5			
6			
7			
8			
9			
10			

Sample Description W-13

Laboratory SEQUOIA

Deliver ☒ Pick-Up ☐ Date 4/6/95

Comments Well Bailed Dry

LOVNEY ASSOCIATES — RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 864-173

Project Name Emeryville P.O.

Field Geologist/Engineer BAF

Well Number W-14

Well Total Depth (completed) 9.89 (feet)

Boring Diameter _____ (inches)

Casing Diameter 2 (inches)

Development Date _____ Method _____ Volume Produced _____ (liter/gal)

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.17
VOL (LITERS) = FEET OF WATER x 0.62

4-INCH CASING DIAMETER

VOL (GALLONS) = FEET OF WATER x 0.66
VOL (LITERS) = FEET OF WATER x 2.5

Sampling Date 4-6-95 Time 11:00 Method Teflon Bailer

Static Water Level Prior to Purging 4.13 (ft)
(Measured from top of casing)
$H_T - H_2O = 5.76$

Water Level After Recovery 5.3 (ft)
5.3
80 Percent Recharged Yes ☒ No ☐

Well Volume 3.57 (liter/gal)

Three Well Volumes 10.71 (liter/gal)

Total Produced 4.5 (liter/gal)

Number of Well Volumes x 1 1/3

Production Time 10 (min)

Production Rate 0.45 (ℓ/min)

Well Volumes	ph	Conductivity µSx10⁶	Temp F
1	7.8	16	61
2	–	–	–
3	–	–	–
4			
5			
6			
7			
8			
9			
10			

Sample Description W-14

Laboratory Sequoia

Deliver ☒ Pick-Up ☐ Date 4/6/95

Comments Well bailed dry after 4.5 liters.

APPENDIX B

ANALYTICAL LABORATORY REPORT

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

PES ENVIRONMENTAL, INC.
1682 NOVATO BLVD.
SUITE 100
NOVATO, CA 94947

ATTN: MARY WILLIAMS
CLIENT PROJ. ID: 131.0200.001
CLIENT PROJ. NAME: EMERY BAY MKT

REPORT DATE: 04/25/95

DATE(S) SAMPLED: 04/06/95

DATE RECEIVED: 04/07/95

AEN WORK ORDER: 9504096

PROJECT SUMMARY:

On April 7, 1995, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-13
AEN LAB NO: 9504096-01
AEN WORK ORDER: 9504096
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 04/06/95
DATE RECEIVED: 04/07/95
REPORT DATE: 04/25/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	04/17/95
TPH as Diesel	GC-FID	0.3 *	0.05	mg/L	04/19/95
TPH as Oil	GC-FID	ND	0.2	mg/L	04/19/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-14
AEN LAB NO: 9504096-02
AEN WORK ORDER: 9504096
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 04/06/95
DATE RECEIVED: 04/07/95
REPORT DATE: 04/25/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	04/17/95
TPH as Diesel	GC-FID	0.3 *	0.05	mg/L	04/19/95
TPH as Oil	GC-FID	ND	0.2	mg/L	04/19/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9504096

CLIENT PROJECT ID: 131.0200.001

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9504096
DATE EXTRACTED: 04/17/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
04/19/95	W-13	01	83
04/19/95	W-14	02	80
QC Limits:			73-129

DATE EXTRACTED: 04/16/95
DATE ANALYZED: 04/18/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	1.94	91	<1	65-103	12

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

LOVNEY ASSOCIATES

CHAIN OF CUSTODY RECORD

R-3, S-3
R-1, S-F

PES

131.0200.001

NEW # 1504096

SEND RESULTS TO:

☐ Mountain View Office
405 Clyde Ave
Mountain View, Ca 94043
415-967-2365
FAX COPY: ☐ 415-967-2785 (FAX)

☐ Walnut Creek Office
1600 S. Main St, Suite 125
Walnut Creek, Ca 94596
510-938-9356
FAX COPY: ☐ 510-938-9359 (FAX)

Project Name: Emeryville P.O.

Job No.: 804-173

Report To:

Sampler (print): Brock Foster

Sampler (signature): Brock Foster

QC Requirements:
☒ Level A (standard) ☐ Level B ☐ Level C ☐ Level D

Turnaround Requirements:
☐ 10 Working days
☐ 7 Working days
☐ 5 Working days
☐ 3 Working days
☐ 24 Hours
☐ 2-3 Hours

ANALYSIS REQUESTED

Sample I.D.	Date	Time	Lab I.D.	Sample Matrix	No. of Cont.	TPH gas/BTEX (8015/8020) Cancel *	TPH as diesel (8015M) / motor oil	TRPH (5520) E/FBF Cancel *	Halogenated VOCs (8010)	Purgeable Organics (8240)	Extractable Organics (8270)	PCB's (8080) Cancel	Remarks
W-13	4.6.95	10:00	01A-F	H_2O	6	✓	✓	✓			✓		
W-14	4.6.95	11:00	02A-F	H_2O	6	✓	✓	✓			✓		

* Per Mary Williams @ PES - analyze for TPH Diesel and TPH motor oil only - cancel other analyses. Proj. #131.0200.001 - Emery Bay Mkt Place — DSH 4/7/95

Relinquished By: Brock Foster Date: 4.6.95 Time: 12:30
Relinquished By: [signature] Date: 4-7-95 Time: 1310
Relinquished By: Nicholas E Nicholls Date: 4/7/95 Time: 15:00

Received By: [signature] Date: 4/6/95 Time: 1600
Received By: Nicholas E Nicholls Date: 4/7/95 Time: 13:10

Lab Of Record: AEN
Received By Lab: Denise Harrington Date: 4/7/95 Time: 1500

Temperature: 3.2°C

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

RECEIVED MAY 0 5 1995

PES ENVIRONMENTAL, INC.
1682 NOVATO BLVD.
SUITE 100
NOVATO, CA 94947

ATTN: MARY WILLIAMS
CLIENT PROJ. ID: 131.0200.001
CLIENT PROJ. NAME: EMERY BAY MKT

REPORT DATE: 05/02/95

DATE(S) SAMPLED: 04/06/95

DATE RECEIVED: 04/07/95

AEN WORK ORDER: 9504095

PROJECT SUMMARY:

On April 7, 1995, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-7
AEN LAB NO: 9504095-01
AEN WORK ORDER: 9504095
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 04/06/95
DATE RECEIVED: 04/07/95
REPORT DATE: 05/02/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	04/17/95
TPH as Diesel	GC-FID	25 *	0.05	mg/L	04/19/95
TPH as Oil	GC-FID	4 *	0.2	mg/L	04/26/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-20
AEN LAB NO: 9504095-02
AEN WORK ORDER: 9504095
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 04/06/95
DATE RECEIVED: 04/07/95
REPORT DATE: 05/02/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	04/17/95
TPH as Diesel	GC-FID	2.0 *	0.05	mg/L	04/19/95
TPH as Oil	GC-FID	ND	0.2	mg/L	04/19/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-24
AEN LAB NO: 9504095-03
AEN WORK ORDER: 9504095
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 04/06/95
DATE RECEIVED: 04/07/95
REPORT DATE: 05/02/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	04/17/95
TPH as Diesel	GC-FID	0.3 *	0.05	mg/L	04/19/95
TPH as Oil	GC-FID	ND	0.2	mg/L	04/19/95

ND = Not detected at or above the reporting limit
* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9504095

CLIENT PROJECT ID: 131.0200.001

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9504095
DATE(S) EXTRACTED: 04/17/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
04/19/95	W-7	01	124
04/19/95	W-20	02	82
04/19/95	W-24	03	75
QC Limits:			73-129

DATE EXTRACTED: 04/16/95
DATE ANALYZED: 04/18/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	1.94	91	<1	65-103	12

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

9504095

BLAINE TECH SERVICES INC

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

R-1, S-A

CHAIN OF CUSTODY 950406-D1

CLIENT PES

SITE EMERY BAY MKT PLACE
CHRISTIE ST
EMERYVILLE, CA

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: 8015 - MODIFIED FOR TPH - DIESEL + TPH - MOTOR OIL	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
W-7	4-6-95	1305	W	2	LINERS		X			cold	01AB
W-20	4-6-95	1335		2			X				02AB
W-24	4-6-95	1240		2			X				03AB

LAB AMERICAN ENV. NETWORK DHS #

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

☐ EPA ☐ RWQCB REGION _____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS
Invoice + Report to PES
Attn: Mary Williams

131.0200.001

cc report to Blaine Tech

SAMPLING COMPLETED DATE TIME

SAMPLING PERFORMED BY MIKE DILLOUGHERY

RESULTS NEEDED NO LATER THAN Standard.

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	4/7/95	1310	[signature]	4/7/95	13:10
[signature]	4/7/95	16:00	Denise Harrington	4/7/95	1500
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	