



ENVIRONMENTAL
PROTECTION

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August 31, 1996

131.0200.001

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

**QUARTERLY GROUNDWATER MONITORING REPORT
JULY 1996 SAMPLING EVENT
EMERY BAY MARKETPLACE
EMERYVILLE, CALIFORNIA**

Dear Ms. Tolin:

This letter report presents data collected by PES Environmental, Inc. (PES) during the July 1996 quarterly groundwater monitoring and August 1996 free-phase product removal 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 and free-phase product removal 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 and product removal are 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.

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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.

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 thirteenth since PES began performing quarterly groundwater monitoring in July 1993.

GROUNDWATER ELEVATIONS

Water-level Measurement Procedures

Prior to sampling on July 26, 1996, 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 an 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 July 26, 1996. 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.

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Water levels in all measured wells have generally decreased relative to the April 1996 sampling event. Water levels decreased in ten of the onsite monitoring wells, increased in four wells, and remained the same as the April 1996 measurement in one well. Based on measured water levels on July 26, 1996, groundwater at the site flows in a southwesterly direction with an approximate gradient of 0.006 to 0.009. These measurements show no significant changes from historical groundwater flow direction and gradient.

Consistent with historical monitoring results, a free-phase product layer 0.80 feet thick was found in Well W-5. In addition, a free-phase product layer 0.05 feet thick was found in Well W-15 and a sheen was detected in Well W-19. No free-phase product or sheen were found in the remaining wells. The groundwater elevations in Wells W-5 and W-15 presented in Table 1 and Plate 3 have been corrected for the free-phase product layer observed.

FREE-PHASE PRODUCT REMOVAL

On August 8, 1996, free-phase product was removed from Well W-5 by Blaine Tech under PES supervision. Product was removed using a disposable teflon bailer and drained into a 5-gallon bucket. The liquid was then transferred into a labeled, 55-gallon metal drum, and stored in the onsite enclosure. Approximately 3 gallons of an oil-water mixture was removed from Well W-5 on August 8, 1996. Periodic product removal is ongoing at the site.

GROUNDWATER SAMPLING AND ANALYTICAL TESTING

Sampling Protocol

Groundwater samples were collected on July 26, 1996 by Blaine Tech Services, Inc. (Blaine Tech). Blaine Tech collected samples from Wells W-7, W-13, W-14, W-19, W-20, and W-24. Due to an error in the bottom-of-well measurement in Well W-20 collected on July 26, 1996 the water-level and the bottom-of-well were remeasured and the well resampled on August 8, 1996 using the proper purge volume. 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.

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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 of the six wells sampled, at concentrations ranging from 0.38 milligrams per liter (mg/l) in Well W-24 to 58 mg/l in Well W-7. TPH-oil was detected in five of the six wells sampled, at concentrations ranging from 0.23 mg/l in Well W-14 and 97 mg/l in Well W-7. Concentrations of TPH-diesel have increased in Wells W-7, W-13, W-14, W-19 and W-24, and decreased in Well W-20 since the last monitoring event. Concentrations of TPH-oil have increased in all of the five wells where TPH-oil was detected. TPH-oil was not detected in Well W-24.

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 July 26, 1996 is presented on Plate 4.

SUMMARY

Groundwater elevations have generally decreased since the April 1996 sampling event; however, the groundwater flow direction and gradient have remained approximately the same. Consistent with historical monitoring results, free-phase product was found on the groundwater in Well W-5, and a sheen was observed in Well W-19. A thin layer of free-phase product was found in Well W-15. Reported concentrations of TPH-diesel and TPH-oil have varied since the April 1996 monitoring activities, with increased concentrations TPH-diesel in five of the


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six wells sampled and increased concentrations of TPH-oil in all the wells where TPH-oil was previously detected. The detected TPH concentrations are generally within the range of concentrations detected in previous monitoring events.

Yours very truly,

PES ENVIRONMENTAL, INC.


Jenny F. Han
Senior Staff Geologist


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 July 26, 1996
Plate 4	Dissolved Hydrocarbons in Groundwater on July 26 and August 8, 1996
Appendix A	Water Level and Groundwater Sampling Report
Appendix B	Analytical Laboratory Report

cc: Ms. Susan Hugo - Alameda County Department of Environmental Health

**Table 1. Summary of Groundwater Elevations
Through July 1996**
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	
	13-Jul-95	PES		5.52	5.95	
	11-Oct-95	PES		6.25	5.22	
08-Jan-96	PES	5.47	6.00			
11-Apr-96	PES	5.30	6.17			
26-Jul-96	PES	6.10	5.37			
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	

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W-4	09-Apr-90	MH		3.17	6.79	
Cont	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	
	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	
	13-Jul-95	PES		NM	NM	
	11-Oct-95	PES		NM	NM	
	08-Jan-96	PES		NM	NM	
	11-Apr-06	PES		NM	NM	
	26-Jul-96	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

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W-5 Cont	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
	13-Jul-95	PES		5.01	6.53	0.15
	11-Oct-95	PES		4.97	8.06	1.90
	08-Jan-96	PES		4.59	7.82	1.18
	11-Apr-96	PES		4.07	7.99	0.77
	26-Jul-96	PES		4.25	7.84	0.80
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		

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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 Cont	04-Oct-94	PES		5.83	3.22	
	11-Jan-95	PES		5.44	3.61	
	06-Apr-95	PES		5.79	3.26	
	13-Jul-95	PES		3.75	5.3	
	11-Oct-95	PES		6.08	2.97	
	08-Jan-96	PES		5.95	3.10	
	11-Apr-96	PES		5.94	3.11	
	26-Jul-96	PES		5.82	3.23	
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	
	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	
	13-Jul-95	PES		3.20	7.23	
11-Oct-95	PES		3.78	6.65		
08-Jan-96	PES		2.57	7.86		
11-Apr-96	PES		2.51	7.92		
26-Jul-96	PES		3.43	7.00		

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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	
	13-Jul-95	PES		3.56	4.59	
11-Oct-95	PES	4.28	3.87			
08-Jan-96	PES	3.80	4.35			
11-Apr-96	PES	3.80	4.35			
26-Jul-96	PES	3.91	4.24			
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	

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W-14 Cont	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	
	13-Jul-95	PES		4.36	3.61	
	11-Oct-95	PES		5.33	2.64	
	08-Jan-96	PES		4.33	3.64	
	11-Apr-96	PES		5.19	2.78	
26-Jul-96	PES		5.17	2.80		
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		

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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-15 Cont	06-Apr-95	PES		2.62	8.91	
	13-Jul-95	PES		2.67	8.86	
	11-Oct-95	PES		3.13	8.40	
	08-Jan-96	PES		2.81	8.72	
	11-Apr-96	PES		2.57	8.96	
	26-Jul-96	PES		2.61	8.96	0.05
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
13-Jul-95	PES		NM	NM	NM	
11-Oct-95	PES		NM	NM	NM	
08-Jan-96	PES		NM	NM	NM	
11-Apr-96	PES		NM	NM	NM	
26-Jul-96	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	

**Table 1. Summary of Groundwater Elevations
Through July 1996**
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	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	
	08-Jul-94	PES		5.35	6.79	
	04-Oct-94	PES		6.77	5.37	
	11-Jan-95	PES		NM	NM	
	06-Apr-95	PES		2.64	9.50	
	13-Jul-95	PES		5.29	6.85	
	11-Oct-95	PES		5.82	6.32	
	08-Jan-96	PES		5.45	6.69	
11-Apr-96	PES		5.03	7.11		
26-Jul-96	PES		5.48	6.66		
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		

**Table 1. Summary of Groundwater Elevations
Through July 1996**
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-18 Cont	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	
	13-Jul-95	PES		4.95	6.39	
	11-Oct-95	PES		5.30	6.04	
	08-Jan-96	PES		5.18	6.16	
	11-Apr-96	PES		4.80	6.54	
	26-Jul-96	PES		5.22	6.12	
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
	06-Jan-94	PES		5.13	5.14	NP
	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
	13-Jul-95	PES		4.99	5.30	0.02
	11-Oct-95	PES		5.11	5.19	0.04
	08-Jan-96	PES		5.05	5.22	NP
	11-Apr-96	PES		4.95	5.32	NP
	26-Jul-96	PES		4.98	5.29	<0.01
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	

**Table 1. Summary of Groundwater Elevations
Through July 1996**
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-20 Cont	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	
	13-Jul-95	PES		3.09	3.73	
	11-Oct-95	PES		3.71	3.11	
	08-Jan-96	PES		3.70	3.12	
	11-Apr-96	PES		3.73	3.09	
26-Jul-96	PES		3.59	3.23		
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	
	05-Apr-94	PES		5.18	4.30	
08-Jul-94	PES		5.18	4.30		
04-Oct-94	PES		5.08	4.40		
11-Jan-95	PES		4.73	4.75		

**Table 1. Summary of Groundwater Elevations
Through July 1996
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 Cont	06-Apr-95	PES		4.92	4.56	
	13-Jul-95	PES		5.11	4.37	
	11-Oct-95	PES		5.31	4.17	
	08-Jan-96	PES		5.06	4.42	
	11-Apr-96	PES		5.15	4.33	
	26-Jul-96	PES		5.28	4.20	
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		
13-Jul-95	PES		6.29	5.38		
11-Oct-95	PES		6.59	5.08		
08-Jan-96	PES		6.47	5.20		
11-Apr-96	PES		6.23	5.44		
26-Jul-96	PES		6.43	5.24		
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	

**Table 1. Summary of Groundwater Elevations
Through July 1996**
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 Cont	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	
	05-Apr-94	PES		1.30	7.86	
	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	
	13-Jul-95	PES		1.38	7.78	
	11-Oct-95	PES		2.32	6.84	
	08-Jan-96	PES		1.54	7.62	
	11-Apr-96	PES		1.13	8.03	
26-Jul-96	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	
	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		
13-Jul-95	PES		4.04	4.68		

**Table 1. Summary of Groundwater Elevations
Through July 1996
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	11-Oct-95	PES		4.78	3.94	
Cont	08-Jan-96	PES		4.62	4.10	
	11-Apr-96	PES		4.49	4.23	
	26-Jul-96	PES		4.32	4.40	

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 July 1996**

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
	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	
13-Jul-95	PES	55	13	
11-Oct-95	PES	66	11	
08-Jan-96	PES	46	9	
11-Apr-96	PES	16	1.5	
26-Jul-96	PES	29	49	

**Table 2. Summary of Petroleum Hydrocarbon
Analytical Results for Groundwater Samples
Through July 1996**
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-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
	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	
13-Jul-95	PES (4)	0.3	<0.2	
11-Oct-95	PES	0.4	<0.2	
08-Jan-96	PES	<0.05	0.8	
11-Apr-96	PES	0.38	<0.2	
26-Jul-96	PES	0.44	0.44	
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

**Table 2. Summary of Petroleum Hydrocarbon
Analytical Results for Groundwater Samples
Through July 1996**

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-14	16-Jan-92	MH	<0.5	<0.5
Cont	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
	13-Jul-95	PES (4)	0.2	<0.2
	11-Oct-95	PES	0.4	<0.2
	08-Jan-96	PES	<0.05	0.8
	11-Apr-96	PES	0.31	<0.2
	26-Jul-96	PES	0.44	0.23
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

**Table 2. Summary of Petroleum Hydrocarbon
Analytical Results for Groundwater Samples
Through July 1996**
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-19 Cont	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)
	13-Jul-95	PES	5.1	1
	11-Oct-95	PES	6.5	1
	08-Jan-96	PES	11	6
	11-Apr-96	PES	3.6	0.5
	26-Jul-96	PES	11	1.4
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
	05-Apr-94	PES	<0.05	<0.10
	08-Jul-94	PES	<0.05	<0.20

**Table 2. Summary of Petroleum Hydrocarbon
Analytical Results for Groundwater Samples
Through July 1996**
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	06-Oct-94	PES	<0.05	<0.2
	11-Jan-95	PES	1.4	<0.2
	06-Apr-95	PES	2.0	<0.2
	13-Jul-95	PES	0.1	<0.2
	11-Oct-95	PES	0.1	<0.2
	08-Jan-96	PES	1.4	0.2
	11-Apr-96	PES	2.1	0.5
	08-Aug-96	PES	0.85	1.6
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
	08-Jul-94	PES	0.06	<0.20
04-Oct-94	PES	0.5	<0.2	
11-Jan-95	PES	0.5	<0.2	
06-Apr-95	PES	0.3	<0.2	
13-Jul-95	PES	0.2	<0.2	

**Table 2. Summary of Petroleum Hydrocarbon
Analytical Results for Groundwater Samples
Through July 1996
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	11-Oct-95	PES	0.4	<0.2
Cont	08-Jan-96	PES	0.2	<0.2
	11-Apr-96	PES	0.29	<0.2
	26-Jul-96	PES	0.38	<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.

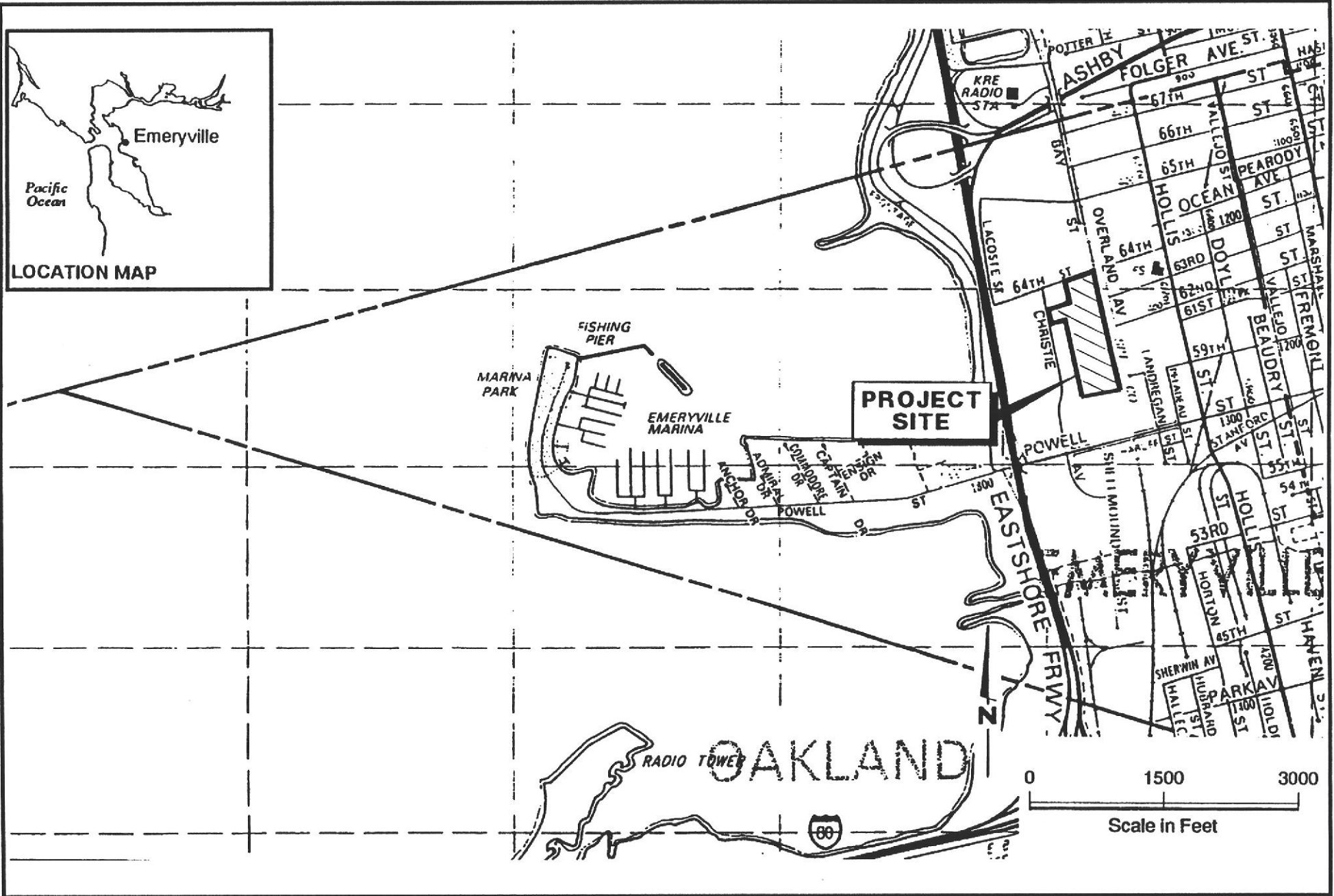
TPH = Total petroleum hydrocarbons

NA = Not Analyzed

WCC = Woodward Clyde Consultants

MH = McLaren Hart

PES = PES Environmental, Inc.

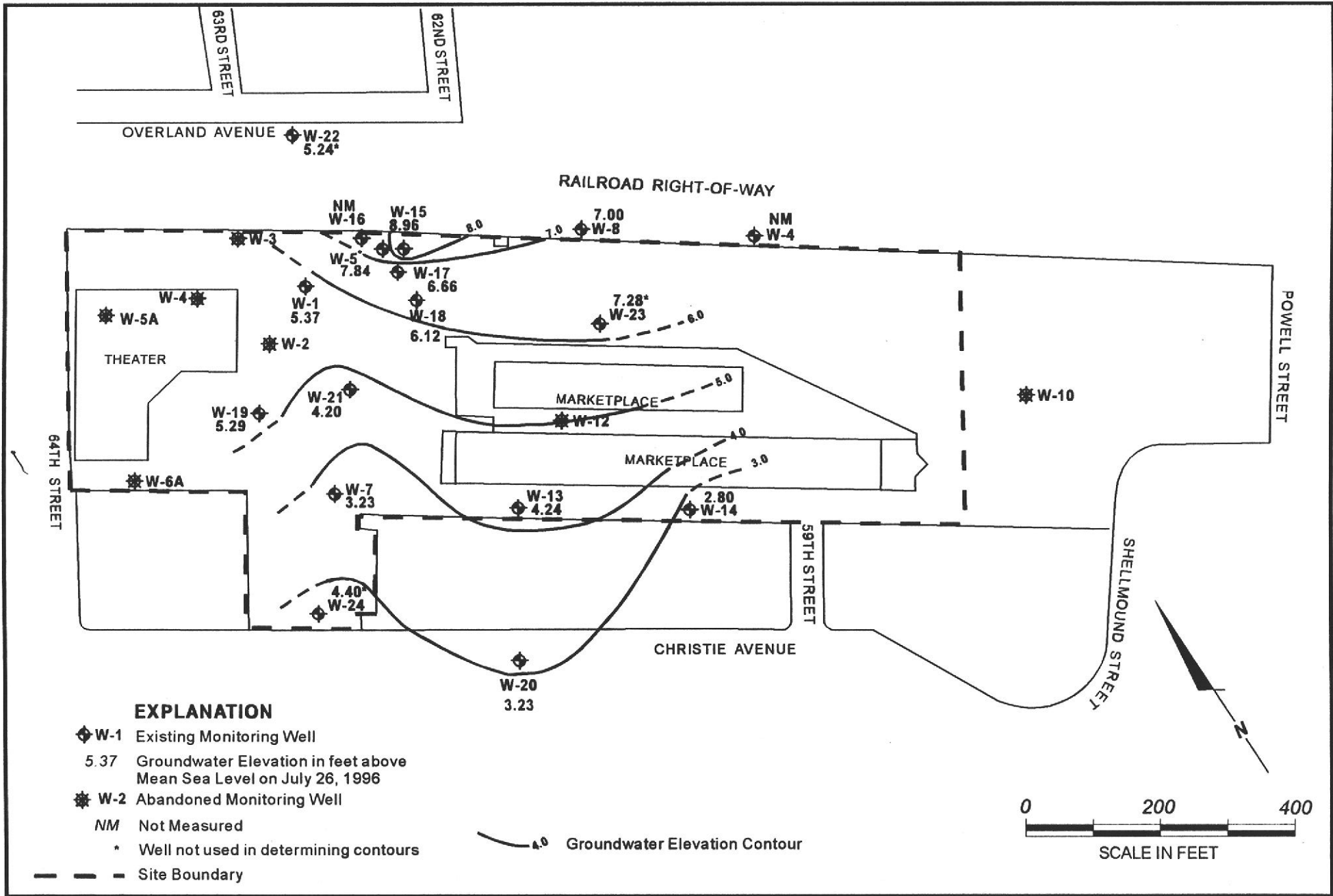


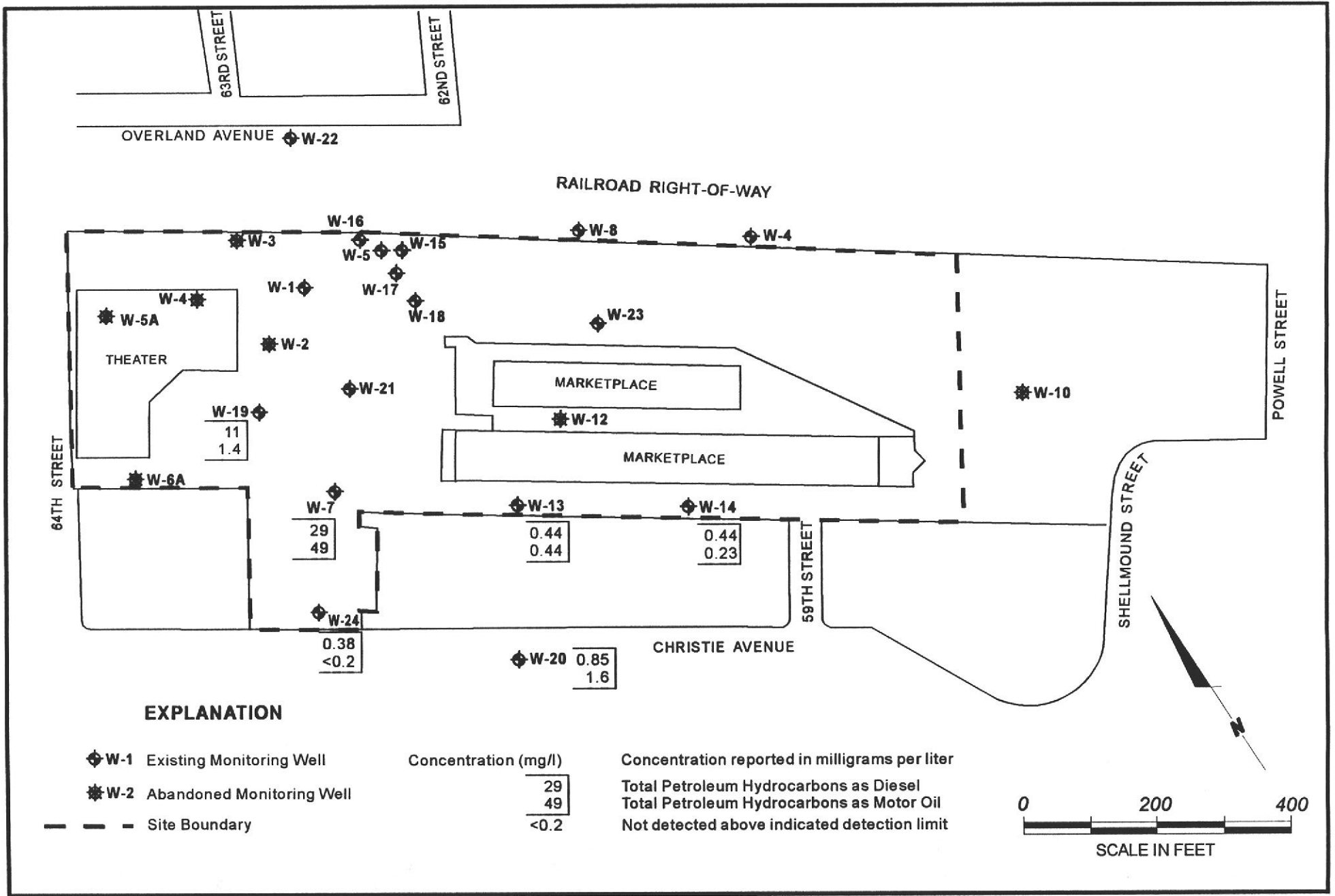
PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
Emery Bay Marketplace
Emeryville, California

PLATE

1





APPENDIX A
WATER LEVEL AND GROUNDWATER SAMPLING REPORT

BLAINE TECH SERVICES INC.

985 TIMOTHY DRIV
SAN JOSE, CA 9511
(408) 995-5511
FAX (408) 293-8711

August 13, 1996

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

Attention: Jenny Han

SITE:
Emery Bay Market Place
Christie Street
Emeryville, California

DATE:
July 26, 1996

Water Level Report 960726-H-1.WL

Personnel from our office were present at the site on Friday, July 26, 1996 to obtain water levels and conduct a sheen and odor check. Please note that we are reporting only the water levels, not elevations.

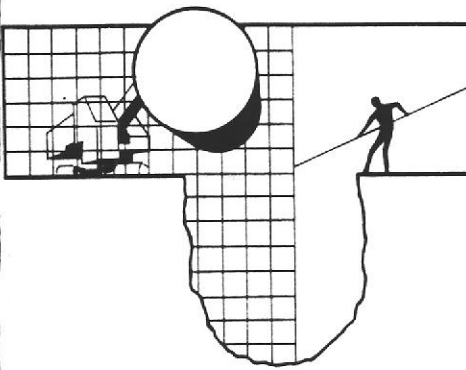
<u>Well designation</u>	<u>Well diameter (in.)</u>	<u>Depth to Immiscible Liquid (ft.)</u>	<u>Thickness of Immiscible Liquid (ft.)</u>	<u>Depth to water (ft.)</u>	<u>Well depth (ft.)</u>	<u>Sheen/ Odor</u>	<u>Survey to: Top of Casing or Top of Box</u>
W-1	2	--	--	6.10	10.60	--	TOC
W-4	COULD NOT LOCATE						
W-5	2	3.45	0.80	4.25	--	--	TOC
W-7	2	--	--	5.82	12.51	--	TOC
W-8	2	--	--	3.43	11.83	--	TOC
W-13	2	--	--	3.91	10.07	--	TOC
W-14	2	--	--	5.17	9.93	--	TOC
W-15	2	2.56	0.05	2.61	--	--	TOC
W-16	COULD NOT LOCATE						
W-17	2	--	--	5.48	24.86	--	TOC
W-18	2	--	--	5.22	20.02	--	TOC
W-19	2	--	--	4.98	13.57	--	TOC
W-20	2	--	--	3.51	16.81	--	TOC

<u>Well designation</u>	<u>Well diameter (in.)</u>	<u>Depth to Immiscible Liquid (ft.)</u>	<u>Thickness of Immiscible Liquid (ft.)</u>	<u>Depth to water (ft.)</u>	<u>Well depth (ft.)</u>	<u>Sheen/Odor</u>	<u>Survey to: Top of Casing or Top of Box</u>
W-21	2	--	--	5.28	12.37	--	TOC
W-22	2	--	--	6.43	15.05	--	TOC
W-23	2	--	--	1.88	9.02	--	TOC
W-24	2	--	--	4.32	10.98	--	TOC

Richard C. Blaine

Richard C. Blaine

RCB/dk



August 13, 1996

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

ATTN: Jenny Han

RECEIVED AUG 15 1996

Site:
Emery Bay Market Place
Christie Street
Emeryville, California

Date:
July 26 & August 8, 1996

GROUNDWATER SAMPLING REPORT 960726-H-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. Blaine Tech Services, Inc. resampled well W-20 due to underpurging at the first event. Data collected in the course of our work at the site are presented in the TABLE OF WELL MONITORING DATA. This information was collected during our inspection, well evacuation and sample collection. Measurements include the total depth of the well and the 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.

STANDARD PRACTICES

Evacuation and Sampling Equipment

As shown in the TABLE OF WELL MONITORING DATA, the wells at this site were evacuated according to a protocol requirement for the removal of three case volumes of water, before sampling. The wells were evacuated using bailers.

Samples were collected using bailers.

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 and 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.

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.

Effluent Materials

The evacuation process creates a volume of effluent water which must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new 55 gallon 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. If that sample does not establish whether or not the effluent water is contaminated, or if effluent from more than one source has been combined in the same container, it may be necessary to conduct additional analyses on the effluent material.

Sampling Methodology

Samples were obtained by standardized sampling procedures that follow an evacuation and sample collection protocol. The sampling methodology conforms to both 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 T.E.G.D. which is published separately.

Sample Containers

Sample containers are supplied by the laboratory performing the analyses.

Sample Handling Procedures

Following collection, samples are promptly placed in an ice chest containing deionized ice or 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 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.

Please call if we can be of any further assistance.



Richard C. Blaine

RCB/mc

attachments: table of well monitoring data
chain of custody

TABLE OF WELL MONITORING DATA

Well I.D.	W-7			W-13			W-14		W-19		
Date Sampled	07/26/96			07/26/96			07/26/96		07/26/96		
Well Diameter (in.)	2			2			2		2		
Total Well Depth (ft.)	12.51			10.07			9.93		13.57		
Depth To Water (ft.)	5.82			3.91			5.17		4.98		
Free Product (ft.)	NONE			NONE			NONE		NONE		
Reason If Not Sampled	--			--			--		--		
1 Case Volume (gal.)	1.1			0.99			0.8		1.4		
Did Well Dewater?	YES @ 2.5 GALS.			YES @ 2.0 GALS.			YES @ 1.2 GALS.		NO		
Gallons Actually Evacuated	2.5			2.0			1.2		4.5		
Purging Device	BAILER			BAILER			BAILER		BAILER		
Sampling Device	BAILER			BAILER			BAILER		BAILER		
Time	13:03	13:06	13:33	12:10	12:12	13:24	12:03	13:12	12:42	12:45	12:48
Temperature (Fahrenheit)	70.6	70.8	72.6	65.2	64.0	67.6	66.0	67.8	72.0	71.6	71.8
pH	6.3	6.4	6.7	7.2	7.3	7.8	7.3	7.4	6.6	6.7	6.6
Conductivity (micromhos/cm)	5200	6400	6700	900	760	680	1200	1400	3100	2600	2400
BTS Chain of Custody	960726-H1			960726-H1			960726-H1		960726-H1		
BTS Sample I.D.	W-7			W-13			W-14		W-19		
DOHS HMTL Laboratory Analysis	AEN			AEN			AEN		AEN		
	TPH (DIESEL) AND TPH (MOTOR OIL)			TPH (DIESEL) AND TPH (MOTOR OIL)			TPH (DIESEL) AND TPH (MOTOR OIL)		TPH (DIESEL) AND TPH (MOTOR OIL)		

TABLE OF WELL MONITORING DATA

Well I.D.	W-20	W-20*	W-24						
Date Sampled	07/26/96	08/08/96	07/26/96						
Well Diameter (in.)	2	2	2						
Total Well Depth (ft.)	7.91	16.81	10.98						
Depth To Water (ft.)	3.59	3.51	4.32						
Free Product (ft.)	NONE	NONE	NONE						
Reason If Not Sampled	--	--	--						
1 Case Volume (gal.)	0.7	2.1	1.1						
Did Well Dewater?	NO	NO	NO						
Gallons Actually Evacuated	2.25	6.50	3.50						
Purging Device	BAILER	BAILER	BAILER						
Sampling Device	BAILER	BAILER	BAILER						
Time	12:23	12:25	12:28	13:00	13:03	13:08	11:45	11:47	11:53
Temperature (Fahrenheit)	65.2	64.6	64.2	66.8	66.4	65.8	71.2	70.6	70.2
pH	6.6	6.8	6.8	7.1	7.1	7.1	6.6	6.8	6.8
Conductivity (micromhos/cm)	7400	7200	7300	5710	5690	5680	940	920	920
BTS Chain of Custody	960726-H1	960808-Z2	960726-H1						
BTS Sample I.D.	W-20	W-20	W-24						
DOHS HMTL Laboratory	AEN	AEN	AEN						
Analysis	TPH (DIESEL) AND TPH (MOTOR OIL)	TPH (DIESEL) AND TPH (MOTOR OIL)	TPH (DIESEL) AND TPH (MOTOR OIL)						

* Blaine Tech Services, Inc. resampled well W-20 due to underpurging at the first event.

BLAINE TECH SERVICES INC.

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

CONDUCT ANALYSIS TO DETECT

LAB AEN DHS # _____
ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS
SET BY CALIFORNIA DHS AND
 EPA RWQCB REGION _____
 LIA
 OTHER

CHAIN OF CUSTODY

960726-H1
CLIENT PES Environmental
SITE Emercy Bay Market Place
Christie Street
Emercyville

C = COMPOSITE ALL CONTAINERS

TPH-Diesel
TPH-Motor Oil

SPECIAL INSTRUCTIONS Invoke & Report
to PES Environmental Inc.
Attn: Jenny Han
Project #: 131.0200.001

SAMPLE I.D.		MATRIX S = SOIL W = H2O	CONTAINERS		C	TPH-Diesel	TPH-Motor Oil							ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
			TOTAL														
W-7	1340	7/26 W	2	LTR		X	X										
W-13	1330	7/26 W	2	LTR		X	X										
W-14	1315	7/26 W	2	LTR		X	X										
W-19	1255	7/26 W	2	LTR		X	X										
W-20	1235	7/26 W	2	LTR		X	X										
W-24	1200	7/26 W	2	LTR		X	X										

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN	
	7/26/96	17:15	TROY N. HORNER	Standard TAT	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
<i>[Signature]</i>	7/26/96	14:45	<i>[Signature]</i>	7/26/96	14:45
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #		

WELL MONITORING DATA SHEET

Project #: 960808-22		Client: PES	
Sampler: BB		Start Date: 2-8	
Well I.D.: W-5		Well Diameter: (circle one) <u>2</u> 3 4 6	
Total Well Depth:		Depth to Water:	
Before	After	Before 4.81	After
Depth to Free Product: 3.50		Thickness of Free Product (feet): 1.31	
Measurements referenced to: <u>PVC</u> Grade Other:			

Well Diameter
1"
2"
3"
4"
5"

Free Product
Bailing Data Sheet
for Emery Bay
Marketplace, Christie
Street.

VCF
1.47
2.61
4.08
5.87
10.43

1 Case Volume

Purging: Bailer
Disposable
Middleburg
Electric S
Extraction
Other

gallons

Bailer
Disposable Bailer
Extraction Port
Other

TIME	TEMP. (F)	OIL	SOLIDS	VOLUME REMOVED:	OBSERVATIONS:
		BAILED OFF FP	REMOVED	500 ML	
		THICK BLACK	MOTOR OIL		

Did Well Dewater? If yes, gals. Gallons Actually Evacuated:

Sampling Time: Sampling Date:

Sample I.D.: Laboratory:

Analyzed for: TPH-G BTEX TPH-D OTHER:
(Circle)

Duplicate I.D.: Cleaning Blank I.D.:

Analyzed for: TPH-G BTEX TPH-D OTHER:
(Circle)

APPENDIX B
ANALYTICAL LABORATORY REPORT

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

RECEIVED AUG 09 1996

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

ATTN: JENNY HAN
CLIENT PROJ. ID: 131.0200.001

C.O.C. NUMBER: 960726-H1

REPORT DATE: 08/07/96

DATE(S) SAMPLED: 07/26/96

DATE RECEIVED: 07/26/96

AEN WORK ORDER: 9607357

PROJECT SUMMARY:

On July 26, 1996, this laboratory received 6 water sample(s).

Client requested sample(s) be analyzed for chemical 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: 9607357-01
 AEN WORK ORDER: 9607357
 CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
 DATE RECEIVED: 07/26/96
 REPORT DATE: 08/28/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	29 *	1 mg/L		08/03/96
TPH as Oil	GC-FID	49 *	4 mg/L		08/03/96

Reporting limits elevated due to high levels of target compounds. Sample run at dilution.

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-13
AEN LAB NO: 9607357-02
AEN WORK ORDER: 9607357
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
DATE RECEIVED: 07/26/96
REPORT DATE: 08/07/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	0.44 *	0.05 mg/L		08/01/96
TPH as Oil	GC-FID	0.44 *	0.2 mg/L		08/01/96

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: 9607357-03
AEN WORK ORDER: 9607357
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
DATE RECEIVED: 07/26/96
REPORT DATE: 08/07/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	0.44 *	0.05 mg/L		08/01/96
TPH as Oil	GC-FID	0.23 *	0.2 mg/L		08/01/96

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: W-19
 AEN LAB NO: 9607357-04
 AEN WORK ORDER: 9607357
 CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
 DATE RECEIVED: 07/26/96
 REPORT DATE: 08/07/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	11 *	0.05	mg/L	08/01/96
TPH as Oil	GC-FID	1.4 *	0.2	mg/L	08/01/96

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: 9607357-05
AEN WORK ORDER: 9607357
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
DATE RECEIVED: 07/26/96
REPORT DATE: 08/07/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	1 *	0.05 mg/L		08/01/96
TPH as Oil	GC-FID	0.4 *	0.2 mg/L		08/01/96

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: 9607357-06
AEN WORK ORDER: 9607357
CLIENT PROJ. ID: 131.0200.001

DATE SAMPLED: 07/26/96
DATE RECEIVED: 07/26/96
REPORT DATE: 08/07/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	07/30/96
TPH as Diesel	GC-FID	0.38 *	0.05 mg/L		08/01/96
TPH as Oil	GC-FID	ND	0.2 mg/L		08/01/96

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9607357

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: 9607357
 DATE EXTRACTED: 07/30/96
 INSTRUMENT: C
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
08/03/96	W-7	01	D
08/01/96	W-13	02	83
08/01/96	W-14	03	88
08/01/96	W-19	04	82
08/01/96	W-20	05	88
08/01/96	W-24	06	91
QC Limits:			65-125

DATE EXTRACTED: 07/29/96
 DATE ANALYZED: 07/30/96
 SAMPLE SPIKED: 9607292-02
 INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	4.00	73	10	60-110	15

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

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RECEIVED AUG 27 1996

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

ATTN: JENNY HAN
CLIENT PROJ. ID: EMERY BAY MKT.

C.O.C. NUMBER: 960808-Z2

REPORT DATE: 08/24/96

DATE(S) SAMPLED: 08/08/96

DATE RECEIVED: 08/13/96

AEN WORK ORDER: 9608157

PROJECT SUMMARY:

On August 13, 1996, this laboratory received 1 water sample(s).

Client requested sample(s) be analyzed for chemical 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-20
AEN LAB NO: 9608157-01
AEN WORK ORDER: 9608157
CLIENT PROJ. ID: EMERY BAY MKT.

DATE SAMPLED: 08/08/96
DATE RECEIVED: 08/13/96
REPORT DATE: 08/24/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	08/19/96
TPH as Diesel	GC-FID	0.85 *	0.05 mg/L		08/20/96
TPH as Oil	GC-FID	1.6 *	0.2 mg/L		08/20/96

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9608157

CLIENT PROJECT ID: EMERY BAY MKT.

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: 9608157
 DATE EXTRACTED: 08/19/96
 INSTRUMENT: C
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
08/20/96	W-20	01	88
QC Limits:			65-125

DATE EXTRACTED: 08/19/96
 DATE ANALYZED: 08/20/96
 SAMPLE SPIKED: 9607347-08
 INSTRUMENT: C

Matrix Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	4.00	85	4	60-110	15

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

