



ENVIRONMENTAL  
PROTECTION  
96 NOV 32 AM 10:44

November 27, 1996

131.0200.001

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

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

Dear Ms. Tolin:

This letter report presents data collected by PES Environmental, Inc. (PES) during the October 1996 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 at the subject site. The current groundwater monitoring program consists of measuring product thickness, if any, and depth to groundwater in 13 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.

In addition to the standard scope of work performed during the quarterly groundwater monitoring and at the request of ACDEH, additional groundwater samples were collected during the October 1996 sampling event and analyzed for polynuclear aromatic hydrocarbons (PNAs). The purpose of the analyses was to support an evaluation of the decision for site closure.

Ms. Lynn Tolin  
November 27, 1996  
Page 2

## 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. McLaren Hart began quarterly groundwater monitoring activities at the subject site in July 1990. During that time, seven of these wells were abandoned. Due to the construction of the new roadway along the eastern portion of the property, four additional monitoring wells (W-5, W-8, W-15, and W-17) were abandoned on October 8, 1996. As a result, 13 onsite and off-site wells remain at the site. The present sampling is the fourteenth since PES began performing quarterly groundwater monitoring in July 1993.

## GROUNDWATER ELEVATIONS

### Water-level Measurement Procedures

Prior to sampling, groundwater levels in the monitoring wells were measured by Blaine Tech Services (Blaine Tech) 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

Water levels for the monitoring wells were measured on October 24, 1996. Two of the monitoring wells (Wells W-4 and W-16) were inaccessible due to grading related to construction activities along the adjacent railroad property. Two additional wells (Wells W-13 and W-14) could not be access on October 24 because they had been paved over. The wells were subsequently located and uncovered and groundwater levels were collected on October 30, 1996. Groundwater levels were 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.

Ms. Lynn Tolin  
November 27, 1996  
Page 3

Water levels in all measured wells have generally varied relative to the July 1996 sampling event. Water levels decreased in six of the onsite monitoring wells and increased in five wells. Based on measured water levels on October 24 and 30, 1996, groundwater at the site flows in a southwesterly direction with an approximate gradient of 0.004 to 0.007. These measurements show no significant changes from historical groundwater flow direction and gradient.

Consistent with historical monitoring results, a free-phase product layer of 0.08 feet thick was found in Well W-19. No free-phase product or sheen were found in the remaining wells. The groundwater elevation of Well W-19 presented in Table 1 and Plate 3 have been corrected for the free-phase product layer observed.

## GROUNDWATER SAMPLING AND ANALYTICAL TESTING

### Sampling Protocol

Groundwater samples were collected by Blaine Tech from Wells W-7, W-19, W-20, and W-24 on October 24, 1996, and from Wells W-13 and W-14 on October 30, 1996. 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). PNAs were analyzed using EPA Test Method 8270.

Ms. Lynn Tolin  
November 27, 1996  
Page 4

### Analytical Results

Sample analytical results from the recent groundwater monitoring event indicate that TPH-diesel was detected in five of the six wells sampled, at concentrations ranging from 0.12 milligrams per liter (mg/l) in Well W-24 to 15 mg/l in Well W-19. TPH-oil was detected in three of the six wells sampled, at concentrations ranging from 0.4 mg/l in Well W-20 and 2.3 mg/l in Well W-19. Concentrations of TPH-diesel have decreased in Wells W-7, W-13, W-14, and W-24, and increased in Well W-19 since the last monitoring event. Concentrations of TPH-oil have decreased in Wells W-7 and W-20, and increased in Well W-19. TPH-oil was not detected in Wells W-13, W-14, and W-24. No PNAs were detected in any of the six wells sampled.

Analytical results, including historical monitoring data for the previous sampling events, are presented in Table 2. The laboratory report and chain of custody records are provided in Appendix B. The distribution of hydrocarbons in groundwater at the site on October 24 and October 30, 1996 is presented on Plate 4.

### SUMMARY

Groundwater elevations have generally varied since the July 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-19. Reported concentrations of TPH-diesel and TPH-oil have generally decreased since the July 1996 monitoring activities, with increased concentrations TPH-diesel and TPH-oil in only one of the six wells sampled. The detected TPH concentrations are generally within the range of concentrations detected in previous monitoring events. No PNAs were present in the groundwater samples.



Ms. Lynn Tolin  
November 27, 1996  
Page 5

Yours very truly,

PES ENVIRONMENTAL, INC.

*Jenny F. Han*

Jenny F. Han  
Senior Staff Geologist

*A. A. Briefer*

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 October 24 and 30, 1996
Plate 4	Dissolved Hydrocarbons in Groundwater on October 24 and 30, 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 October 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			
24-Oct-96	PES	6.04	5.43			
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	

**Table 1. Summary of Groundwater Elevations  
Through October 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-4 Cont	09-Apr-90	MH		3.17	6.79	
	07-Jun-90	MH		2.73	7.23	
	25-Jul-90	MH		3.71	6.25	
	03-Oct-90	MH		4.18	5.78	
	03-Jan-91	MH		3.64	6.32	
	03-Apr-91	MH		1.45	8.51	
	25-Oct-91	MH		4.29	5.67	
	15-Jan-92	MH		2.56	7.40	
	23-Apr-92	MH		2.80	7.16	
	21-Jul-92	MH		4.03	5.93	
	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-96	PES		NM	NM	
	26-Jul-96	PES		NM	NM	
24-Oct-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

**Table 1. Summary of Groundwater Elevations  
Through October 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-5	23-Apr-92	MH		3.13	8.28	1.41
Cont	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
	24-Oct-96	PES		NM(3)	NM(3)	
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	

**Table 1. Summary of Groundwater Elevations  
Through October 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-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	
	24-Oct-96	PES		5.92	3.13	
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		
24-Oct-96	PES			NM(3)	NM(3)	



**Table 1. Summary of Groundwater Elevations  
Through October 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-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	
30-Oct-96	PES	3.70	4.45			
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	

**Table 1. Summary of Groundwater Elevations  
Through October 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-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	
	30-Oct-96	PES		5.11	2.86	
	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		

**Table 1. Summary of Groundwater Elevations  
Through October 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-15 Cont	11-Jan-95	PES		2.84	8.69	
	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
	24-Oct-96	PES		NM(3)	NM(3)	
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	
24-Oct-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	

**Table 1. Summary of Groundwater Elevations  
Through October 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	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	
	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		
24-Oct-96	PES		NM(3)	NM(3)		
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		

**Table 1. Summary of Groundwater Elevations  
Through October 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	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	
	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	
	24-Oct-96	PES		5.38	5.96	
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
24-Oct-96	PES		5.20	5.14	0.08	



**Table 1. Summary of Groundwater Elevations  
Through October 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	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	
	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			
24-Oct-96	PES	3.24	3.58			
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			

**Table 1. Summary of Groundwater Elevations  
Through October 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	06-Jan-94	PES		5.30	4.18	
Cont	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	
	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	
	24-Oct-96	PES		5.00	4.48	
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	
	24-Oct-96	PES		6.82	4.85	

**Table 1. Summary of Groundwater Elevations  
Through October 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	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	
	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			
24-Oct-96	PES	2.65	6.51			
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			

**Table 1. Summary of Groundwater Elevations  
Through October 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	05-Apr-94	PES		4.85	3.87	
Cont	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	
	11-Oct-95	PES		4.78	3.94	
	08-Jan-96	PES		4.62	4.10	
	11-Apr-96	PES		4.49	4.23	
	26-Jul-96	PES		4.32	4.40	
	24-Oct-96	PES		4.80	3.92	

**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.
- (3) Well abandoned on October 8, 1996, therefore, no water-level measurement was collected.
- 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 October 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	
24-Oct-96	PES	9.0	0.7	



**Table 2. Summary of Petroleum Hydrocarbon  
Analytical Results for Groundwater Samples  
Through October 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	
30-Oct-96	PES	0.37	<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	

**Table 2. Summary of Petroleum Hydrocarbon  
Analytical Results for Groundwater Samples  
Through October 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 Cont	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
	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
	30-Oct-96	PES	0.32	<0.2
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 October 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
24-Oct-96	PES	15	2.3	
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 October 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
	24-Oct-96	PES	<0.05	0.4
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 October 1996  
Emery Bay Marketplace  
Emeryville, California**

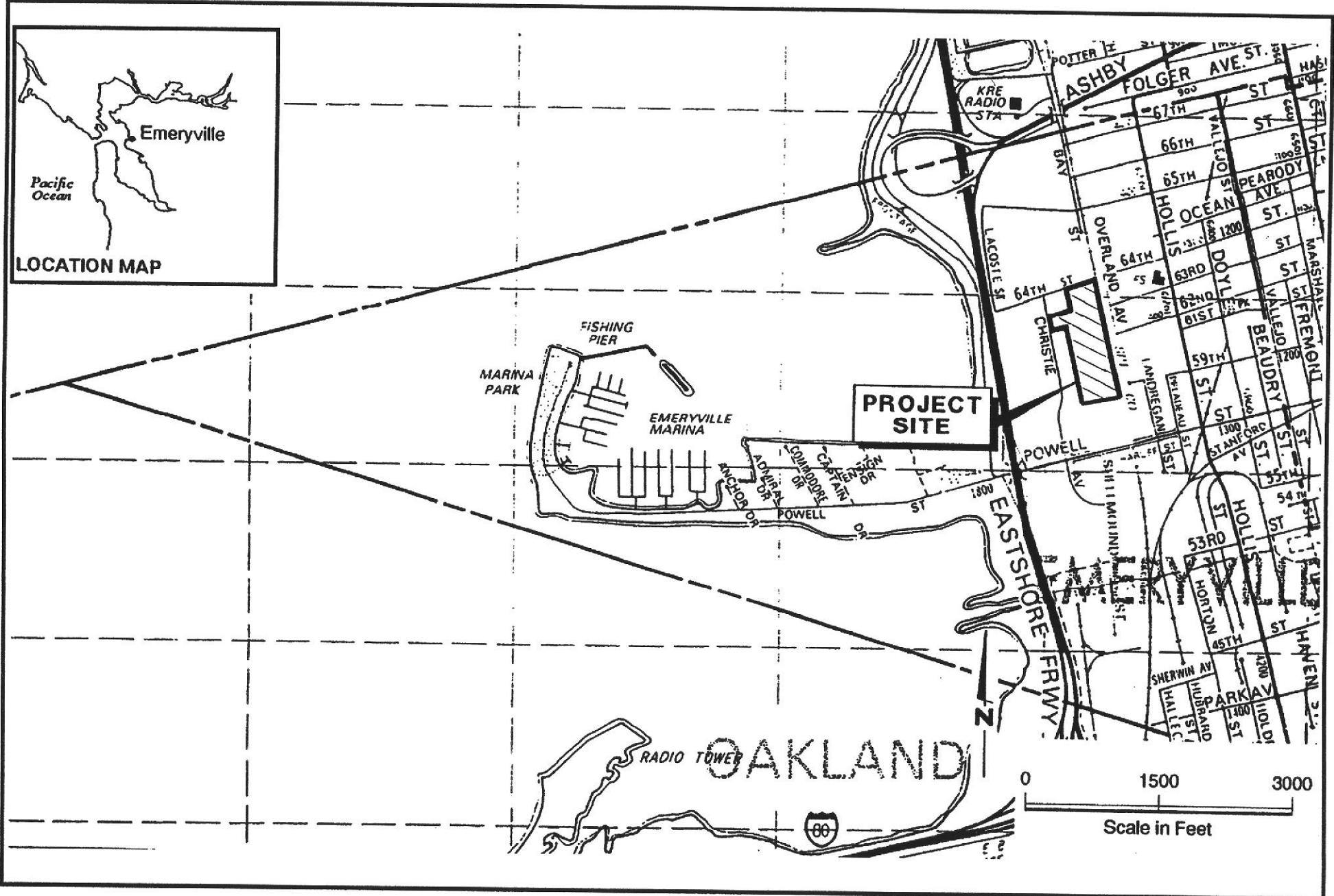
Concentrations expressed in milligrams per liter [mg/L] - equivalent to parts per million [ppm]

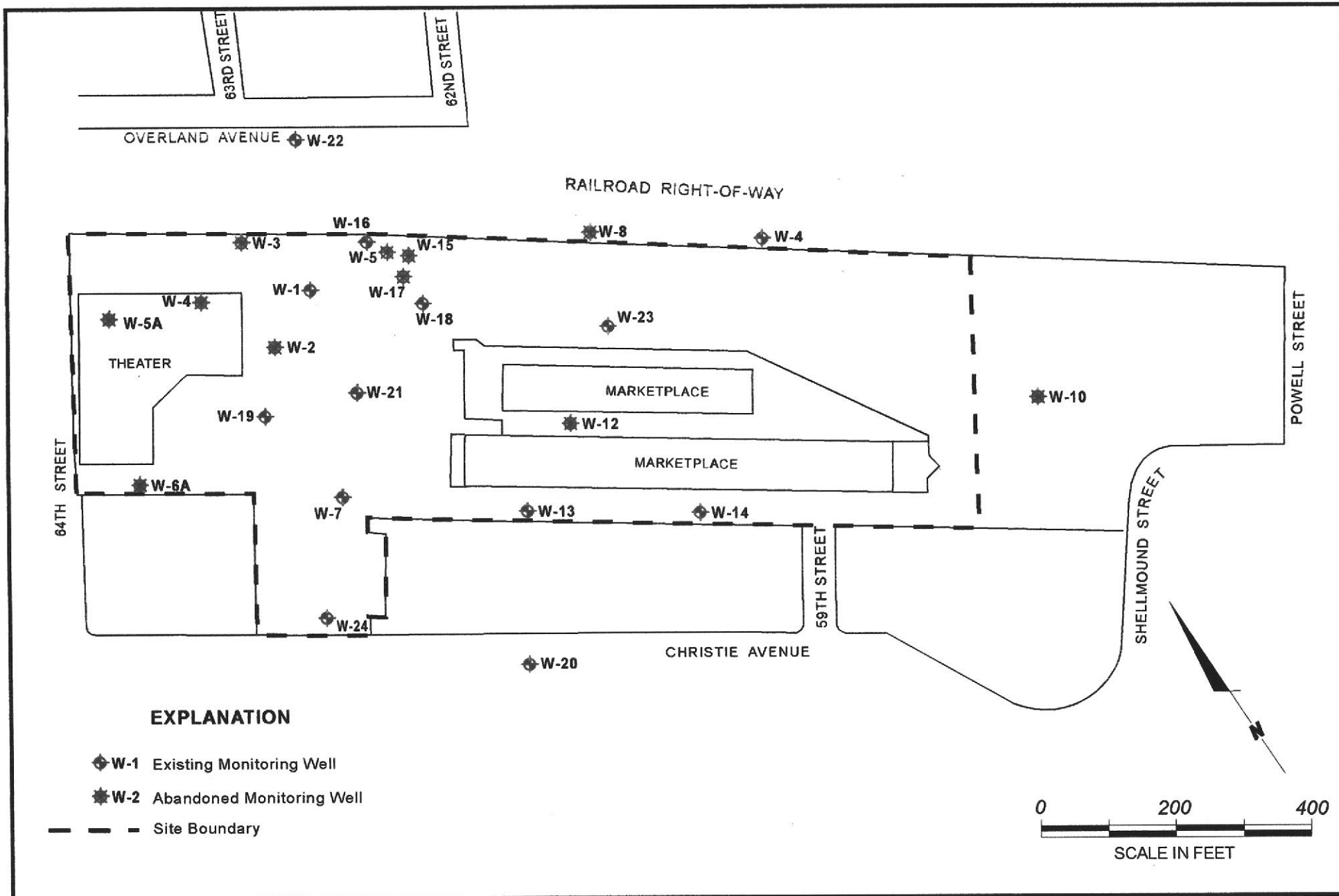
Well Number	Sample Date	Sampled by	TPH as Diesel	TPH as Motor Oil
W-24	11-Oct-95	PES	0.4	<0.2
Cont	08-Jan-96	PES	0.2	<0.2
	11-Apr-96	PES	0.29	<0.2
	26-Jul-96	PES	0.38	<0.2
	24-Oct-96	PES	0.12	<0.2

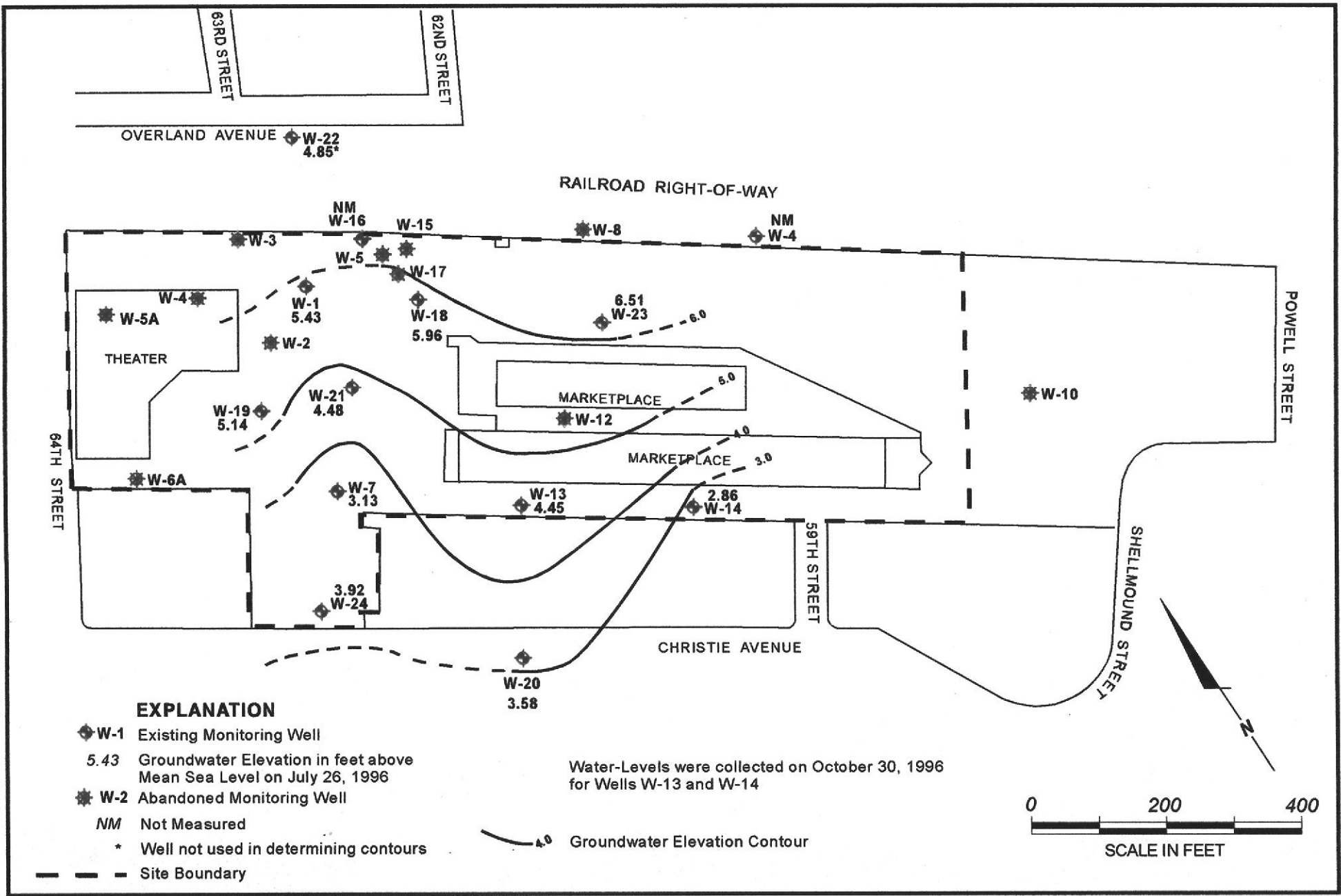
Notes:

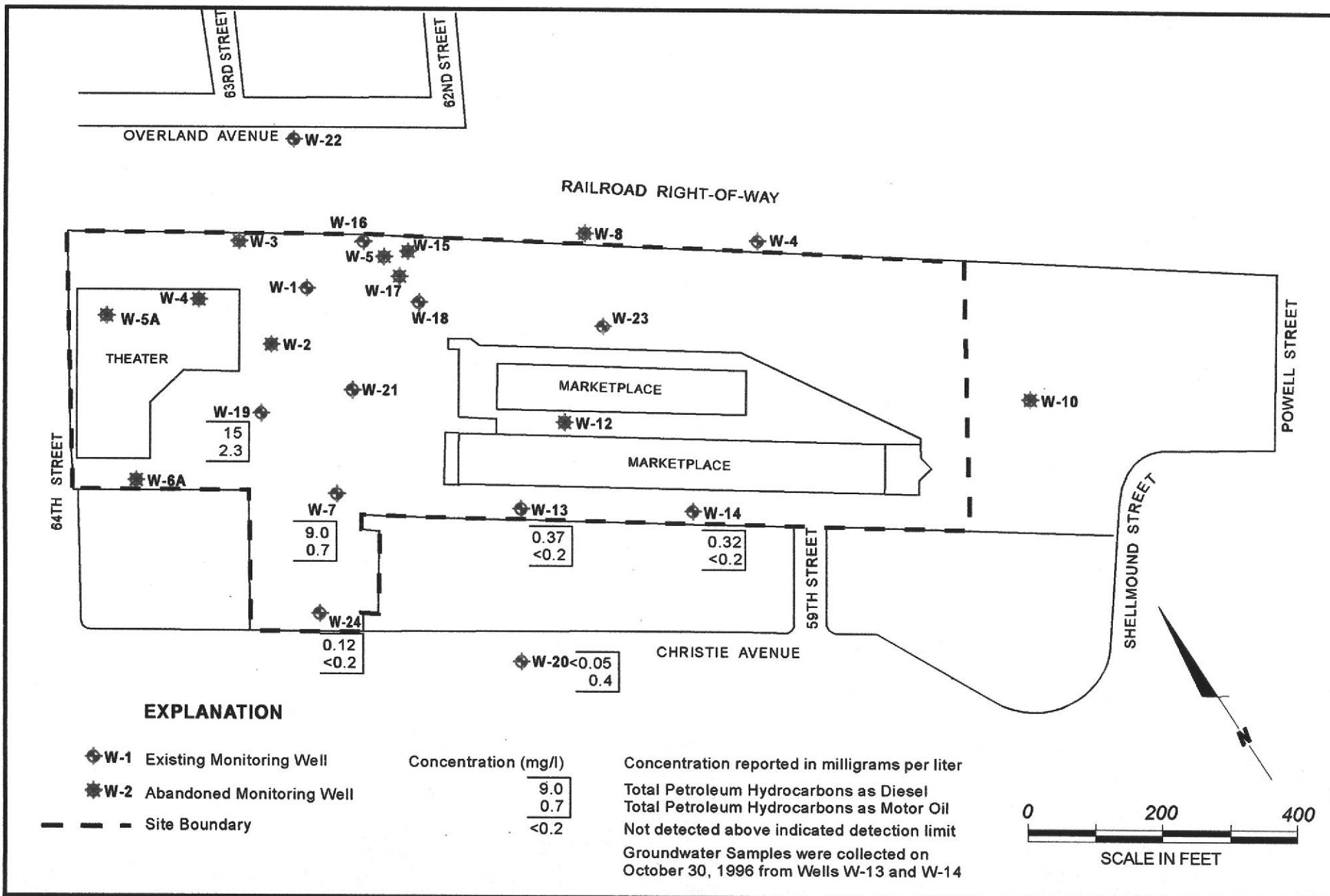
- (1) = TPH quantified as motor oil although chromatogram pattern not typical of motor oil.
- (2) = Semiquantified results include gasoline, diesel, and some oil and grease in Well W-8.
- (3) = TPH quantified as diesel although chromatograph pattern not typical of diesel.
- (4) = Wells W-13 and W-14 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.











**APPENDIX A**

**WATER LEVEL AND GROUNDWATER SAMPLING REPORT**



# BLAINE TECH SERVICES INC.

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

November 8, 1996

RECEIVED NOV 12 1996

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

ATTN: Jenny Han

Site:  
Emery Bay Market Place  
Christie Street  
Emeryville, California

Date:  
October 24 & 30, 1996

## GROUNDWATER SAMPLING REPORT 961030-F-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-19			W-20			W-24		
Date Sampled	10/24/96			10/24/96			10/24/96			10/24/96		
Well Diameter (in.)	2			2			2			2		
Total Well Depth (ft.)	12.50			13.55			16.8			10.96		
Depth To Water (ft.)	5.92			5.2			3.24			4.8		
Free Product (ft.)	NONE			NONE			NONE			NONE		
Reason If Not Sampled	--			--			--			--		
1 Case Volume (gal.)	1.0			1.3			2.2			0.9		
Did Well Dewater?	NO			NO			NO			NO		
Gallons Actually Evacuated	3.5			4.0			6.5			3.0		
Purging Device	BAILER			BAILER			BAILER			BAILER		
Sampling Device	BAILER			BAILER			BAILER			BAILER		
Time	08:26	08:28	08:30	09:16	09:18	09:20	08:00	08:04	08:06	09:35	09:37	09:39
Temperature (Fahrenheit)	70.2	69.8	69.8	71.2	70.8	70.8	67.4	68.2	68.0	67.8	67.2	67.0
pH	7.2	7.2	7.2	7.0	6.8	6.8	7.2	7.0	7.0	7.6	7.4	7.4
Conductivity (micromhos/cm)	>400	>200	>200	4000	3000	2800	8000	7500	7600	1900	1800	1800
BTS Chain of Custody	961024-D1			961024-D1			961024-D1			961024-D1		
BTS Sample I.D.	W-7			W-19			W-20			W-24		
DOHS HMTL Laboratory Analysis	AEN TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270			AEN TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270			AEN TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270			AEN TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270		

## TABLE OF WELL MONITORING DATA

Well I.D.	MW-13			MW-14		
Date Sampled	10/30/96			10/30/96		
Well Diameter (in.)	2			2		
Total Well Depth (ft.)	9.89			9.81		
Depth To Water (ft.)	3.70			5.11		
Free Product (ft.)	NONE			NONE		
Reason If Not Sampled	--			--		
1 Case Volume (gal.)	1.0			0.8		
Did Well Dewater?	NO			YES @ 2.8 GALS.		
Gallons Actually Evacuated	3.0			2.8		
Purging Device	BAILER			BAILER		
Sampling Device	BAILER			BAILER		
Time	07:59	08:00	08:02	07:41	07:42	07:44
Temperature (Fahrenheit)	58.8	60.0	60.2	59.2	60.2	60.4
pH	6.6	6.8	6.9	7.0	7.1	7.1
Conductivity (micromhos/cm)	2200	2200	2000	1200	1400	1400
BTS Chain of Custody	961030-F1			961030-F1		
BTS Sample I.D.	W-7			W-7		
DOHS HMTL Laboratory	AEN			AEN		
Analysis	TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270			TPH (DIESEL), TPH (MOTOR OIL) & PNA 8270		

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

- EPA
- LIA
- OTHER
- RWQCB REGION \_\_\_\_\_

CHAIN OF CUSTODY  
**961024-D1**  
 CLIENT **PES ENVIRONMENTAL**  
 SITE **EMERY BAY MARKET PLACE**  
**CHRISTIE STREET**  
**EMERYVILLE**

C = COMPOSITE ALL CONTAINERS

TPH-DIESEL 8015L  
 TPH MOBR OIL 8015L  
 \*PNA # 8270

SPECIAL INSTRUCTIONS **INVOICE & REPORT**  
**to PES ENVIRONMENTAL**  
**ATTN: JENNY HAHN**  
**\*Note: Place PNA's on HOLD**  
**CALL JENNY HAHN for INSTRUCTIONS**

SAMPLE I.D.	S = SOIL W = H2O	MATRIX	CONTAINERS		TOTAL	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
W-17	10-24	835	W	3	Liners	X	X	X	
W-19		925		3		X	X	X	
W-20		815		3		X	X	X	
W-21		945		3		X	X	X	

SAMPLING COMPLETED | DATE | TIME | SAMPLING PERFORMED BY **MIKE DILLOUGHERY** | RESULTS NEEDED NO LATER THAN **"A5 Contracted"**

RELEASED BY **[Signature]** | DATE **10-24-96** | TIME **11:40** | RECEIVED BY **[Signature]** | DATE **10/24/96** | TIME **11:50**

RELEASED BY | DATE | TIME | RECEIVED BY | DATE | TIME

RELEASED BY | DATE | TIME | RECEIVED BY | DATE | TIME

SHIPPED VIA | DATE SENT | TIME SENT | COOLER #

CONDUCT ANALYSIS TO DETECT

LAB *PLER*

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

- EPA
- LIA
- OTHER

RWQCB REGION \_\_\_\_\_

CHAIN OF CUSTODY  
*961030-F1*

CLIENT *PES ENVIRONMENTAL*

SITE *EMERY BAY MARKETPLACE  
CHELSEA ST.  
EMERYVILLE*

C = COMPOSITE ALL CONTAINERS

TPH Diesel  
TPH Motor Oil  
PXA

SPECIAL INSTRUCTIONS *INVOICE & REPORT  
do PES ENVIRONMENTAL  
ATTN: JENNY HAN*

SAMPLE I.D.		MATRIX S = SOIL W = H2O	CONTAINERS			C	TPH Diesel	TPH Motor Oil	PXA							ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
			TOTAL																
<i>MW-13</i>	<i>10/30</i>	<i>870</i>	<i>W</i>	<i>3</i>		<i>X</i>	<i>X</i>	<i>X</i>											
<i>MW-14</i>	<i>10/30</i>	<i>750</i>	<i>W</i>	<i>3</i>		<i>X</i>	<i>X</i>	<i>X</i>											

SAMPLING COMPLETED | DATE *10/30/96* | TIME *8:20* | SAMPLING PERFORMED BY *Tim Graf* | RESULTS NEEDED NO LATER THAN *"As Contracted"*

RELEASED BY *Tim Graf* | DATE *10/30/96* | TIME *11:25* | RECEIVED BY *[Signature]* | DATE *10-30-96* | TIME *11:26*

RELEASED BY \_\_\_\_\_ | DATE \_\_\_\_\_ | TIME \_\_\_\_\_ | RECEIVED BY \_\_\_\_\_ | DATE \_\_\_\_\_ | TIME \_\_\_\_\_

RELEASED BY \_\_\_\_\_ | DATE \_\_\_\_\_ | TIME \_\_\_\_\_ | RECEIVED BY \_\_\_\_\_ | DATE \_\_\_\_\_ | TIME \_\_\_\_\_

SHIPPED VIA \_\_\_\_\_ | DATE SENT \_\_\_\_\_ | TIME SENT \_\_\_\_\_ | COOLER # \_\_\_\_\_

**APPENDIX B**  
**ANALYTICAL LABORATORY REPORT**

# American Environmental Network

## Certificate of Analysis

AHA Accreditation: 11134

DOHS Certification: 1172

PAGE 1

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

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

C.O.C. NUMBER: 961030-F1

REPORT DATE: 11/25/96

DATE(S) SAMPLED: 10/30/96

DATE RECEIVED: 10/30/96

AEN WORK ORDER: 9610400

### PROJECT SUMMARY:

On October 30, 1996, this laboratory received 2 water sample(s).

Client requested sample(s) be analyzed for chemical parameters. On November 5, 1996, client requested additional 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

Revision of report dated 11/11/96 to include EPA 8270 results.



## PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-13  
 AEN LAB NO: 9610400-01  
 AEN WORK ORDER: 9610400  
 CLIENT PROJ. ID: EMERY BAY MRKT

DATE SAMPLED: 10/30/96  
 DATE RECEIVED: 10/30/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	11/04/96
TPH as Diesel	GC-FID	0.37 *	0.05 mg/L		11/06/96
TPH as Oil	GC-FID	ND	0.2 mg/L		11/06/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	10/31/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	10 ug/L		11/21/96
Acenaphthylene	208-96-8	ND	10 ug/L		11/21/96
Anthracene	120-12-7	ND	10 ug/L		11/21/96
Benzo(a)anthracene	56-55-3	ND	10 ug/L		11/21/96
Benzo(b)fluoranthene	205-99-2	ND	10 ug/L		11/21/96
Benzo(k)fluoranthene	207-08-9	ND	10 ug/L		11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	10 ug/L		11/21/96
Benzo(a)pyrene	50-32-8	ND	10 ug/L		11/21/96
Chrysene	218-01-9	ND	10 ug/L		11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	10 ug/L		11/21/96
Fluoranthene	206-44-0	ND	10 ug/L		11/21/96
Fluorene	86-73-7	ND	10 ug/L		11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10 ug/L		11/21/96
Naphthalene	91-20-3	ND	10 ug/L		11/21/96
Phenanthrene	85-01-8	ND	10 ug/L		11/21/96
Pyrene	129-00-0	ND	10 ug/L		11/21/96

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

## PES ENVIRONMENTAL, INC.

SAMPLE ID: MW-14  
 AEN LAB NO: 9610400-02  
 AEN WORK ORDER: 9610400  
 CLIENT PROJ. ID: EMERY BAY MRKT

DATE SAMPLED: 10/30/96  
 DATE RECEIVED: 10/30/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	11/04/96
TPH as Diesel	GC-FID	0.32 *	0.05	mg/L	11/06/96
TPH as Oil	GC-FID	ND	0.2	mg/L	11/06/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	11/05/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	10	ug/L	11/21/96
Acenaphthylene	208-96-8	ND	10	ug/L	11/21/96
Anthracene	120-12-7	ND	10	ug/L	11/21/96
Benzo(a)anthracene	56-55-3	ND	10	ug/L	11/21/96
Benzo(b)fluoranthene	205-99-2	ND	10	ug/L	11/21/96
Benzo(k)fluoranthene	207-08-9	ND	10	ug/L	11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	10	ug/L	11/21/96
Benzo(a)pyrene	50-32-8	ND	10	ug/L	11/21/96
Chrysene	218-01-9	ND	10	ug/L	11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	10	ug/L	11/21/96
Fluoranthene	206-44-0	ND	10	ug/L	11/21/96
Fluorene	86-73-7	ND	10	ug/L	11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10	ug/L	11/21/96
Naphthalene	91-20-3	ND	10	ug/L	11/21/96
Phenanthrene	85-01-8	ND	10	ug/L	11/21/96
Pyrene	129-00-0	ND	10	ug/L	11/21/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

AEN (CALIFORNIA)  
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9610400

CLIENT PROJECT ID: EMERY BAY MRKT

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: 9610400  
 DATE EXTRACTED: 11/04/96  
 INSTRUMENT: C  
 MATRIX: WATER

## Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
11/06/96	MW-13	01	82
11/06/96	MW-14	02	82
QC Limits:			65-125

DATE EXTRACTED: 11/03/96  
 DATE ANALYZED: 11/06/96  
 SAMPLE SPIKED: 9610018-06  
 INSTRUMENT: C

## Matrix Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	4.00	101	<1	60-110	15

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

## QUALITY CONTROL DATA

METHOD: EPA 8270

AEN JOB NO: 9610175  
 DATES EXTRACTED: 10/31/96  
 INSTRUMENT: 11  
 MATRIX: WATER

## Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery					
			2-Fluoro-phenol	Phenol-d <sub>5</sub>	Nitro-benzene-d <sub>5</sub>	2-Fluoro-biphenyl	2,4,6-Tri-bromophenol	Terphenyl-d <sub>14</sub>
11/21/96	MW-13	01	90	95	84	83	86	81
11/21/96	MW-14	02	87	93	90	86	92	86
QC Limits:			41-104	46-114	50-112	41-111	59-125	37-111

DATE EXTRACTED: 10/31/96  
 DATE ANALYZED: 11/01/96  
 SAMPLE SPIKED: LCS  
 INSTRUMENT: 11

## Laboratory Control Sample Recovery

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits
			Percent Recovery
Phenol	196	62	44-126
2-Chlorophenol	199	80	50-145
1,4-Dichlorobenzene	198	74	51-132
N-Nitrosodi-n-propylamine	183	59	52-151
1,2,4-Trichlorobenzene	220	79	51-128
4-Chloro-3-methylphenol	197	74	52-149
Acenaphthene	186	97	58-139
4-Nitrophenol	197	98	30-152
2,4-Dinitrotoluene	254	120	60-128
Pentachlorophenol	185	80	30-160
Pyrene	238	58	40-130

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

\*\*\* END OF REPORT \*\*\*

# BLAINE TECH SERVICES INC

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

CHAIN OF CUSTODY  
961030 - F1

CLIENT PES ENVIRONMENTAL

SITE EMERY BAY MARKETPLACE  
CHEVROLET ST.  
EMERYVILLE

SAMPLE I.D.	DATE	TIME	S = SOIL W = H2O	CONTAINERS	
				TOTAL	
1A-C MW-13	10/30	8:10	W	3	
2A-C MW-14	10/30	7:50	W	3	

CONDUCT ANALYSIS TO DETECT

C = COMPOSITE ALL CONTAINERS

TPH - Diesel	TPH - Motor Oil	PNA	11/5/96 Extract for PNA
X	X	X	EXTRACTION ONLY
X	X	X	

LAB AER 9610900 DHS #

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

EPA  RWQCB REGION

LIA

OTHER

SPECIAL INSTRUCTIONS 11/5/96 See CORC attached  
INVOICE & Report  
do PES ENVIRONMENTAL  
ATTN: JERRY HAN

10/30/96 15:20  
Put PNA's on hold per J. Han  
R. Byers

ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
			01A, B, C
			02A, B, C
(11/19/96) Run PNA extracts for both samples per J. Han Standard TAT R. Byers			

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN	
	10/30/96	8:20	Tom Graf	"As Contracted"	
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Tom Graf	10/30/96	11:25	[Signature]	10-30-96	11:26
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[Signature]	10-30-96	13:45	Laura Podkoniecz	10/30/96	13:00
SHIPPED VIA	DATE SENT	TIME SENT	COOLER #		

# American Environmental Network

## Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

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

ATTN: JENNY HAHN  
CLIENT PROJ. ID: EMERY BAY MARKT

C.O.C. NUMBER: 961024-D1

REPORT DATE: 11/25/96

DATE(S) SAMPLED: 10/24/96

DATE RECEIVED: 10/24/96

AEN WORK ORDER: 9610332

### PROJECT SUMMARY:

On October 24, 1996, this laboratory received 4 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

Revision of report dated 11/07/96 to include EPA 8270 results.



## PES ENVIRONMENTAL, INC.

SAMPLE ID: W-7  
 AEN LAB NO: 9610332-01  
 AEN WORK ORDER: 9610332  
 CLIENT PROJ. ID: EMERY BAY MARKT

DATE SAMPLED: 10/24/96  
 DATE RECEIVED: 10/24/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	10/30/96
TPH as Diesel	GC-FID	9.0 *	0.05	mg/L	11/04/96
TPH as Oil	GC-FID	0.7 *	0.2	mg/L	11/04/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	10/31/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	100	ug/L	11/21/96
Acenaphthylene	208-96-8	ND	100	ug/L	11/21/96
Anthracene	120-12-7	ND	100	ug/L	11/21/96
Benzo(a)anthracene	56-55-3	ND	100	ug/L	11/21/96
Benzo(b)fluoranthene	205-99-2	ND	100	ug/L	11/21/96
Benzo(k)fluoranthene	207-08-9	ND	100	ug/L	11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	100	ug/L	11/21/96
Benzo(a)pyrene	50-32-8	ND	100	ug/L	11/21/96
Chrysene	218-01-9	ND	100	ug/L	11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	100	ug/L	11/21/96
Fluoranthene	206-44-0	ND	100	ug/L	11/21/96
Fluorene	86-73-7	ND	100	ug/L	11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	100	ug/L	11/21/96
Naphthalene	91-20-3	ND	100	ug/L	11/21/96
Phenanthrene	85-01-8	ND	100	ug/L	11/21/96
Pyrene	129-00-0	ND	100	ug/L	11/21/96

Reporting limits elevated for EPA 8270 due to high levels of non-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-19  
 AEN LAB NO: 9610332-02  
 AEN WORK ORDER: 9610332  
 CLIENT PROJ. ID: EMERY BAY MARKET

DATE SAMPLED: 10/24/96  
 DATE RECEIVED: 10/24/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	10/30/96
TPH as Diesel	GC-FID	15 *	0.05 mg/L		11/01/96
TPH as Oil	GC-FID	2.3 *	0.2 mg/L		11/01/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	10/31/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	50 ug/L		11/21/96
Acenaphthylene	208-96-8	ND	50 ug/L		11/21/96
Anthracene	120-12-7	ND	50 ug/L		11/21/96
Benzo(a)anthracene	56-55-3	ND	50 ug/L		11/21/96
Benzo(b)fluoranthene	205-99-2	ND	50 ug/L		11/21/96
Benzo(k)fluoranthene	207-08-9	ND	50 ug/L		11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	50 ug/L		11/21/96
Benzo(a)pyrene	50-32-8	ND	50 ug/L		11/21/96
Chrysene	218-01-9	ND	50 ug/L		11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	50 ug/L		11/21/96
Fluoranthene	206-44-0	ND	50 ug/L		11/21/96
Fluorene	86-73-7	ND	50 ug/L		11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	50 ug/L		11/21/96
Naphthalene	91-20-3	ND	50 ug/L		11/21/96
Phenanthrene	85-01-8	ND	50 ug/L		11/21/96
Pyrene	129-00-0	ND	50 ug/L		11/21/96

Reporting limits elevated for EPA 8270 due to high levels of non-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-20  
 AEN LAB NO: 9610332-03  
 AEN WORK ORDER: 9610332  
 CLIENT PROJ. ID: EMERY BAY MARKET

DATE SAMPLED: 10/24/96  
 DATE RECEIVED: 10/24/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	10/30/96
TPH as Diesel	GC-FID	ND	0.05	mg/L	11/04/96
TPH as Oil	GC-FID	0.4 *	0.2	mg/L	11/04/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	10/31/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	10	ug/L	11/21/96
Acenaphthylene	208-96-8	ND	10	ug/L	11/21/96
Anthracene	120-12-7	ND	10	ug/L	11/21/96
Benzo(a)anthracene	56-55-3	ND	10	ug/L	11/21/96
Benzo(b)fluoranthene	205-99-2	ND	10	ug/L	11/21/96
Benzo(k)fluoranthene	207-08-9	ND	10	ug/L	11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	10	ug/L	11/21/96
Benzo(a)pyrene	50-32-8	ND	10	ug/L	11/21/96
Chrysene	218-01-9	ND	10	ug/L	11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	10	ug/L	11/21/96
Fluoranthene	206-44-0	ND	10	ug/L	11/21/96
Fluorene	86-73-7	ND	10	ug/L	11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10	ug/L	11/21/96
Naphthalene	91-20-3	ND	10	ug/L	11/21/96
Phenanthrene	85-01-8	ND	10	ug/L	11/21/96
Pyrene	129-00-0	ND	10	ug/L	11/21/96

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: 9610332-04  
 AEN WORK ORDER: 9610332  
 CLIENT PROJ. ID: EMERY BAY MARKT

DATE SAMPLED: 10/24/96  
 DATE RECEIVED: 10/24/96  
 REPORT DATE: 11/25/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Extraction for TPH	EPA 3510	-		Extrn Date	10/30/96
TPH as Diesel	GC-FID	0.12 *	0.05	mg/L	11/04/96
TPH as Oil	GC-FID	ND	0.2	mg/L	11/04/96
#Extraction for PNAs	EPA 3520	-		Extrn Date	10/31/96
PNAs by EPA 8270	EPA 8270				
Acenaphthene	83-32-9	ND	10	ug/L	11/21/96
Acenaphthylene	208-96-8	ND	10	ug/L	11/21/96
Anthracene	120-12-7	ND	10	ug/L	11/21/96
Benzo(a)anthracene	56-55-3	ND	10	ug/L	11/21/96
Benzo(b)fluoranthene	205-99-2	ND	10	ug/L	11/21/96
Benzo(k)fluoranthene	207-08-9	ND	10	ug/L	11/21/96
Benzo(g,h,i)perylene	191-24-2	ND	10	ug/L	11/21/96
Benzo(a)pyrene	50-32-8	ND	10	ug/L	11/21/96
Chrysene	218-01-9	ND	10	ug/L	11/21/96
Dibenzo(a,h)anthracene	53-70-3	ND	10	ug/L	11/21/96
Fluoranthene	206-44-0	ND	10	ug/L	11/21/96
Fluorene	86-73-7	ND	10	ug/L	11/21/96
Indeno(1,2,3-cd)pyrene	193-39-5	ND	10	ug/L	11/21/96
Naphthalene	91-20-3	ND	10	ug/L	11/21/96
Phenanthrene	85-01-8	ND	10	ug/L	11/21/96
Pyrene	129-00-0	ND	10	ug/L	11/21/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

AEN (CALIFORNIA)  
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9610332

CLIENT PROJECT ID: EMERY BAY MARKT

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: 9610332  
 DATE EXTRACTED: 10/30/96  
 INSTRUMENT: A. C  
 MATRIX: WATER

## Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			n-Pentacosane	
11/04/96	W-7	01	93	
11/01/96	W-19	02	104	
11/04/96	W-20	03	88	
11/04/96	W-24	04	87	
QC Limits:			65-125	

DATE EXTRACTED: 10/30/96  
 DATE ANALYZED: 11/02/96  
 SAMPLE SPIKED: 9610031-07  
 INSTRUMENT: C

## Matrix Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	4.00	85	1	60-110	15

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

QUALITY CONTROL DATA

METHOD: EPA 8270

AEN JOB NO: 9610175  
 DATES EXTRACTED: 10/31/96  
 INSTRUMENT: 11  
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery					2,4,6-Tri-bromophenol	Terphenyl-d <sub>14</sub>
			2-Fluoro-phenol	Phenol-d <sub>5</sub>	Nitro-benzene-d <sub>5</sub>	2-Fluoro-biphenyl			
11/21/96	W-7	01	91	87	83	92	88	82	
11/21/96	W-19	02	86	87	81	88	83	79	
11/21/96	W-20	03	90	96	92	91	90	84	
11/21/96	W-24	04	94	94	91	91	92	88	
QC Limits:			41-104	46-114	50-112	41-111	59-125	37-111	

DATE EXTRACTED: 10/31/96  
 DATE ANALYZED: 11/01/96  
 SAMPLE SPIKED: LCS  
 INSTRUMENT: 11

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/L)	Percent Recovery	QC Limits
			Percent Recovery
Phenol	196	62	44-126
2-Chlorophenol	199	80	50-145
1,4-Dichlorobenzene	198	74	51-132
N-Nitrosodi-n-propylamine	183	59	52-151
1,2,4-Trichlorobenzene	220	79	51-128
4-Chloro-3-methylphenol	197	74	52-149
Acenaphthene	186	97	58-139
4-Nitrophenol	197	98	30-152
2,4-Dinitrotoluene	254	120	60-128
Pentachlorophenol	185	80	30-160
Pyrene	238	58	40-130

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

\*\*\* END OF REPORT \*\*\*