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Engineering & Environmental Services

A Report Prepared for:

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QUARTERLY MONITORING REPORT
POWELL STREET PLAZA
AND SHELLMOUND VENTURES III
EMERYVILLE, CALIFORNIA

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1.0 INTRODUCTION

This report presents data collected by PES Environmental, Inc. (PES) during the June 2, 1994 groundwater monitoring at Powell Street Plaza and the adjacent Shellmound III properties in Emeryville, California. This monitoring was conducted on behalf of Eastshore Partners pursuant to a June 4, 1993 letter to Aetna Real Estate Associates, L.P. (the current Powell Street Plaza property owner) from the Alameda County Department of Environmental Health (ACDEH). The scope of monitoring activities was established in subsequent conversations with Ms. Susan Hugo of ACDEH and Mr. Rich Hiett of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The purpose of the monitoring was to evaluate the degree and extent of petroleum hydrocarbons in groundwater at the subject sites.

2.0 QUARTERLY STATUS REPORT

The passive free-phase product recovery skimmers have been operating in Wells MW-13 and MW-15 at the Powell Street site during the quarter. The product collection canisters are emptied weekly or bi-weekly, depending on the expected volume of product collected. From March 24, 1994 to July 12, 1994, the product recovery systems removed approximately 0.05 gallons of product. The total volume of product recovered since system operation began on November 10, 1993 is approximately 1.15 gallons. In addition to the weekly or bi-weekly inspection and maintenance of the product recovery skimmers, a full round of water-level elevation measurements was made once per month.

On May 25, 1994, PES sent a letter to Clayton Environmental Consultants (Clayton) who represent the current property owner. The letter discussed an anomalous groundwater mound present around the southernmost portion of the main parking area on the Powell Street Plaza property. In the letter, PES offered two possible explanations for a source of water infiltrating to groundwater and recommended a course of investigation. Clayton has hired a leak detection contractor to inspect the irrigation system and water main at Powell Street Plaza. Clayton has indicated that a leak in the irrigation system has been confirmed. PES is awaiting a written report of the leak investigation.

3.0 QUARTERLY GROUNDWATER SAMPLING

Quarterly groundwater sampling was conducted by Blaine Tech Services, Inc. (Blaine Tech) under PES' observation on June 2, 1994. Groundwater samples were not collected from monitoring wells containing evidence of free-phase product (MW-3, MW-7, MW-13, MW-14, MW-15, MG-1, and MG-3). Groundwater samples were collected from other onsite groundwater monitoring wells during the June monitoring. Monitoring well identification and corresponding sample numbers are presented on Table 1. Locations of the monitoring wells are shown on Plate 1.

Groundwater samples were collected from each well after removing three well volumes of water using a stainless steel bailer or a stainless steel bladder pump equipped with a Teflon bladder. During purging, the discharge water was monitored for pH, temperature, electrical conductivity, and turbidity. The samples were collected from the wells using a stainless steel bailer and poured into 40 milliliter volatile organic analysis (VOA) vials. The vials were labelled and immediately placed in a chilled, thermally insulated cooler for delivery under chain of custody protocol to Coast-to-Coast Analytical Services (Coast-to-Coast), a State-certified laboratory in San Jose, California, on June 3, 1994.

Coast-to-Coast analyzed all of the samples using a modified EPA Test Method 8260 for total petroleum hydrocarbons quantified as gasoline (TPHg) and as diesel (TPHd), and benzene, toluene, ethylbenzene and total xylenes (BTEX). Analytical results for dissolved hydrocarbon compounds in groundwater, including results from previous sampling rounds, are listed in Table 2.

The laboratory report and chain-of-custody records are included in Appendix A. Field methods and field parameter measurements are described in the Blaine Tech sampling report included in Appendix B.

4.0 WATER-LEVEL AND PRODUCT THICKNESS MEASUREMENTS

Water levels and product thickness (where present) in the monitoring wells were measured prior to sampling on June 2, 1994 by PES. Measurements were recorded to the nearest 0.01 foot using an electronic, dual-interface sounding probe. Depth-to-water measurements were converted to water-level elevations referenced to mean sea level (MSL) and corrected for displacement by free product, where present. To prevent cross-contamination between wells, the portion of the sounding probe that was submerged in the well was cleaned and rinsed between well measurements. Water-level elevations and product thicknesses are listed in Table 3 and illustrated on Plates 2 and 3, respectively.

5.0 SUMMARY OF RESULTS

This section presents a summary of groundwater chemistry and water-level elevation data collected during the June 2, 1994 sampling event.

5.1 Groundwater Chemistry

TPHd was detected in groundwater samples collected from Wells MW-4, MW-5 and MW-8 at concentrations of 13 parts per million (ppm), 8.1 ppm and 0.19 ppm, respectively. TPHg was detected in the sample collected from Well MG-2 at a concentration of 0.49 ppm. TPH as light petroleum distillate was detected in the sample collected from Piezometer PZ-1 at a concentration of 2.4 ppm.

Benzene was detected in groundwater samples collected from Monitoring Wells MW-4, MW-11, MG-2 and Piezometer PZ-1 at concentrations of 0.76 ppm, 0.0021 ppm, 0.016 ppm and 0.0016 ppm, respectively. Toluene was detected in the groundwater sample collected from Monitoring Well MG-2 at a concentration of 0.0009 ppm. Ethylbenzene and total xylenes were not detected in any groundwater samples.

THPd, TPHg, TPH as light petroleum distillate, and BTEX were not detected in groundwater samples collected from Monitoring Wells MW-1, MW-2, MW-6, MW-9, MW-10, MW-12, MW-16, MW-18, MG-4 and MG-7.

5.2 Water-Level and Product Thickness Measurements

Water-level elevations measured on June 2, 1994 ranged from 1.30 feet MSL (MW-8) to 6.74 feet MSL (MW-6). The June 2, 1994 water-level elevations at the Powell Street Plaza property are generally one foot higher than water-level elevations measured on February 23, 1994. The June 2, 1994 water-level elevations at the Shellmound III property are generally one foot lower than the February 1994 water-level elevations. The lower water-level elevations observed at the Shellmound III property in June 1994 correlate, as expected, with the end of the wet season and the beginning of the dry season. The water-level elevations measured in June 1994 at the Powell Street Plaza property reflect the same general pattern of water-levels observed in February 1994. The apparent groundwater mound in the vicinity of MW-13 and MW-14 is even more evident in the June 1994 data than in the February 1994 data. As mentioned in Section 2.0, the source of the groundwater mound is currently under investigation.

Wells MW-8 and MW-10 historically show a trend of uncharacteristicly low water-level elevations with respect to surrounding wells. This may be due to their proximity to utility corridors with permeable backfill located within Shellmound Street. This trend continues with the June 2, 1994 water-level measurements.

The direction of groundwater flow is southwest toward Temescal Creek at an approximate gradient range of 0.005 to 0.01 feet per foot. Free product, where present, ranged in thickness from less than 0.01 feet (MW-13, MW-14 and MW-15) to 0.09 feet (MG-1).

6.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Chemical data obtained from water sample analyses were validated according to accuracy, precision, and completeness criteria. Three types of control samples: spikes, duplicates, and blanks, were used in the QA/QC program to evaluate the chemical data.

Data accuracy was assessed by evaluating results of analyses of a laboratory spike sample and a laboratory spike duplicate. The results of spike and spike duplicate analyses are presented in the laboratory report in Appendix A. The recoveries (the percentage difference between the spike concentration and the measured concentration) and differences (from duplicate analyses) were within project goals.

The evaluation procedure for blanks includes a qualitative review of the chemical analysis data reported by the laboratory. TPHg, TPHd, and BTEX were not detected in the internal blanks prepared by the laboratory. One field blank (Sample Number 94220024) was submitted to Coast-to-Coast for analysis by EPA Test Method 8260. TPHg, TPHd, and BTEX were not detected in the field blank.

Internal laboratory blank, spike and duplicate data were within the Coast-to-Coast laboratory QA/QC limits. No petroleum hydrocarbons or hydrocarbon constituents were detected in the field blank or in the internal blanks. The data from Coast-to-Coast are considered to be representative and acceptable.

TABLES

TABLE 1

Summary of Wells Sampled - June 2, 1994

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well ID	Sample Number
MW-1	94220001
MW-2	94220002
MW-3	NS
MW-4	94220004
MW-5	94220005
MW-6	94220006
MW-7	NS
MW-8	94220008
MW-9	94220009
MW-10	94220010
MW-11	94220011
MW-12	94220012
MW-13	NS
MW-14	NS
MW-15	NS
MW-16	94220016
MW-18	94220017
MG-1	NS
MG-2	94220020
MG-3	NS
MG-4	94220022
MG-7	94220023
PZ-1	94220018
Field Blank	94220024

Note:

NS = Not sampled:
MW-3, MW-7, MW-13, MW-14, MW-15, MG-1 and MG-3 were not sampled due to the historical presence of free-phase product in the wells

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	Consultant	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-1	3/14/88	Alton	8015	NT	<1	NT	NT	NT	NT	
	3/25/91	PES	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0 0003	<0.0003	
	11/10/93	PES	8260	<0.050	<0.050	0.0013	0.0018	<0 0005	0 0020	
	2/23/94	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-2	3/14/88	Alton	8015	NT	0 05	NT	NT	NT	NT	
	3/25/91	PES	8015/8020	0.053	<0.050	0 0006	<0 0003	<0.0003	<0 0003	
	11/10/93	PES	8260	<0 050	<0.050	<0.0005	<0.0005	<0 0005	<0 0005	
	2/23/94	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0 0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-3	3/14/88	Alton	8015	NT	0.15	NT	NT	NT	NT	
	3/25/91	PES	NS	NS	NS	NS	NS	NS	NS	Free product
	11/10/93	PES	NS	NS	NS	NS	NS	NS	NS	Free product (0.23 ft)
	2/23/94	PES	8260	<0.050	[illegible]	0.0007	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well cover jammed**
MW-4	3/14/88	Alton	8015	NT	1.2	NT	NT	NT	NT	
	3/25/91	PES	8015/8020	1.300	2.500	0.7100	0 0030	0.0020	0.0060	
	11/10/93	PES	8260	0.800	34.000	0.4400	0.0030	<0.0020	<0.0020	Free product (0.02 ft)
	2/23/94	PES	8260	0 560	18.000	0.4500	0.0025	<0 0005	0.0020	
	6/2/94	**PES**	**8260**	**<0.500**	**43.000**	**0.760**	**<0.005**	**<0.005**	**<0.005**	
MW 5	3/14/88	Alton	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	PES	8260	<0.050	6.800	<0.0005	<0 0005	<0.0005	<0 0005	
	2/23/94	PES	8260	<0 050	7.100	<0.0005	<0.0005	<0 0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.500**	**[illegible]**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	Consultant	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-6	3/14/88	Alton	8015	NT	<0.05	NT	NT	NT	NT	
	11/10/93	PES	8260	<0 050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	<0 050	<0.0005	<0.0005	<0 0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-7	3/10/88	Alton	NS	NS	NS	NS	NS	NS	NS	Free product (1.32 ft)
	11/10/93	PES	NS	NS	NS	NS	NS	NS	NS	Free product (0.22 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (0.01 ft)**
MW-8	3/14/88	Alton	8015	NT	<0.05	NT	NT	NT	NT	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**0.190**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-9	3/14/88	Alton	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0 050	<0.050	<0 0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-10	3/14 88	Alton	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0 050	<0.050	<0 0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-11	3/14/88	Alton	8015	NS	NS	NS	NS	NS	NS	Well was dry
	11/10/93	PES	8260	<0.050	<0.050	0.0008	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	<0.050	0.0008	<0 0005	<0 0005	<0 0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**0.0021**	**<0.0005**	**<0.0005**	**<0.0005**	

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	Consultant	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-12	3/14/88	Alton	8015	NT	0 05	NT	NT	NT	NT	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	<0.050	<0 0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-13	3/14/88	Alton	8015/8020	NT	1.7	<0.0005	<0.0005	<0 0005	<0 0005	
	11/10/93	PES	8240	NS	NS	NS	NS	NS	NS	Free product (1.06 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (Trace: <0.01 ft)**
MW-14	3/14/88	Alton	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	PES	8260	NS	NS	NS	NS	NS	NS	Free product (0.27 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (Trace: <0.01 ft)**
MW 15	3/14/88	Alton	8015/8020	NT	1 8	<0.0005	<0.0005	<0 0005	<0.0005	
	11/10/93	PES	8260	NS	NS	NS	NS	NS	NS	Free product (0.15 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0 01 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (Trace: <0.01 ft)**
MW-16	3/14/88	Alton	8015	NT	<0.05	NT	NT	NT	NT	
	4/21/89	Tenera	8015	NT	<1.0	0.0009	0.0026	0 0004	0.0041	
	3/25/91	PES	8015/8020	<0.050	<0 050	<0.0003	<0.0003	<0.0003	0.0003	
	5/20/92	PES	8015/8020	<0.050	0.140	<0.0003	<0 0003	<0.0003	<0 0003	Non-standard diesel pattern
	11/10/93	PES	8260	<0.050	<0.050	<0 0005	<0 0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	<0 050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-17	3/14/88	Alton	8015	NT	<0 05	NT	NT	NT	NT	
	4/21/89	Tenera	8015	NT	<1.0	<0.3	<0.3	<0.3	<0.3	

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	Consultant	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-18	3/14/88	Alton	8015	NT	<0.05	NT	NT	NT	NT	
	5/20/92	PES	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Well under standing water
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MG-1	4/21/89	Tenera	NS	NS	NS	NS	NS	NS	NS	Free product
	3/25/91	PES	NS	NS	NS	NS	NS	NS	NS	Free product
	5/21/92	PES	NS	NS	NS	NS	NS	NS	NS	Free product (0.03 ft)
	11/10/93	PES	8260	NS	NS	NS	NS	NS	NS	Free product (0.36 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (0.09 ft)**
MG-2	4/21/89	Tenera	8015	NT	<1 0	0.09	0.0027	<0.0003	0.0017	
	3/25/91	PES	8015/8020	<0.050	<0.050	0.0010	<0.0003	<0 0003	<0.0003	
	5/21/92	PES	8015	0.210	1.400	0.0820	0.0018	0.0006	0.0014	
	11/10/93	PES	8260	0.050	0.540	0.0160	0.0009	<0.0005	<0.0005	
	2/23/94	PES	8260	<0.050	3.300	0.0033	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**0.490**	**<0.050**	**0.016**	**0.0009**	**<0.0005**	**<0.0005**	
MG-3	4/21/89	Tenera	8015	NT	<1.0	0.1	0.0023	<0.0003	0.0089	
	3/25/91	PES	8015/8020	0.610	2.600	0.0750	0.0008	0.0004	0.0020	
	5/21/92	PES	NS	NS	NS	NS	NS	NS	NS	Free product (0.85 ft)
	11/10/93	PES	NS	NS	NS	NS	NS	NS	NS	Free product (0.47 ft)
	2/23/94	PES	8260	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	**PES**	**8260**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (0.08 ft)**

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	Consultant	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MG-4	4/21/89	Tenera	8015	NT	<1.0	0.0003	<0.0003	<0.0003	0.0013	
	3/25/91	PES	8015/8020	<0 050	<0.050	0.0004	<0.0003	<0.0003	0.0005	
	5/20/92	PES	8015/8020	<0 050	<0.050	<0.0003	<0.0003	<0.0003	<0 0003	
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0 050	<0.050	<0 0005	<0.0005	<0 0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MG-7	3/25/91	PES	8015/8020	<0.050	<0.050	0 0005	<0.0003	<0 0003	<0.0003	
	5/20/92	PES	8015/8020	<0.050	0.060	<0.0003	<0.0003	<0 0003	<0.0003	Non-standard diesel pattern
	11/10/93	PES	8260	<0.050	<0.050	<0.0005	<0 0005	<0.0005	<0.0005	
	2/23/94	PES	8260	<0 050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
PZ-1	3/25/91	PES	8015/8020	0 320	0.340	0 0004	<0.0003	<0 0003	0.0010	
	5/21/92	PES	8015/8020	0.120	0.600	0.0018	0.0003	0.0003	0.0012	
	11/10/93	PES	8260	<0.050	<0.050	0.0015	<0.0005	<0.0005	<0 0005	0.450 - TPH as light petroleum distillate
	2/23/94	PES	8260	<0.050	<0.050	0.0009	<0.0005	<0.0005	<0.0005	0.200 - TPH as stoddard solvent
	6/2/94	**PES**	**8260**	**<0.050**	**<0.050**	**0.0016**	**<0.0005**	**<0.0005**	**<0.0005**	**2.400 - TPH as light petroleum distillate**

NOTES

NT = Not tested for indicated test parameter

NS = Not sampled for indicated test parameter

TPH = Total petroleum hydrocarbons

SOURCES

Alton = Alton Geoscience, Report on Additional Site Characterization Studies at PIE Nationwide Property, 5500 Eastshore Freeway, Emeryville, California, April 28, 1988.

Tenera = Tenera Environmental Services, Phase II Environmental Site Assessment of Certain Property in Emeryville, California, June 2, 1989.

PES = Results of chemical analyses for samples collected on March 25, 1991 were presented in PES' report entitled Preliminary Endangerment Assessment, Shellmound III Site, 4300 Eastshore Highway, Emeryville, California, September 27, 1991. Results of chemical analyses for samples collected on May 20, 1992 were presented in PES' report entitled Results of Groundwater Sampling and Analyses, Shellmound III Site, 4300 Eastshore Highway, Emeryville, California, July 7, 1992.

TABLE 3

Water-Level Elevations and Product Thickness Measurements

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Measurement Date	Casing Diameter (inches)	Top of Casing (feet MSL)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Water-Level Elevation (feet MSL)	Corrected W-L Elevation (feet MSL)
MW-1	6/2/94	4	8.53		5.17		3.36	
MW-2	6/2/94	4	9.64		6.31		3.33	
MW-3	6/2/94	4	10.68		NM		NM	
MW-4	6/2/94	4	11.44		8.20		3.24	
MW-5	6/2/94	2	10.96		7.68		3.28	
MW-6	6/2/94	2	11.22		4.48		6.74	
MW-7	6/2/94	4	11.65	8.27	8.28	0.01	3.37	3.38
MW-8	6/2/94	2	7.26		5.96		1.30	
MW-9	6/2/94	2	7.30		3.91		3.39	
MW-10	6/2/94	2	7.19		5.30		1.89	
MW-11	6/2/94	2	11.69		7.46		4.23	
MW-12	6/2/94	2	9.22		5.14		4.08	
MW-13	6/2/94	2	10.64		4.71	<0.01	5.93	
MW-14	6/2/94	2	11.54		5.31	<0.01	6.23	
MW-15	6/2/94	4	11.66		8.36	<0.01	3.30	
MW-16	6/2/94	2	10.64		8.76		1.88	
MW-18	6/2/94	2	6.02		3.75		2.27	
MG-1	6/2/94	2	11.62	8.48	8.57	0.09	3.05	3.13
MG-2	6/2/94	2	10.62		7.46		3.16	
MG-3	6/2/94	2	9.56	6.39	6.47	0.08	3.09	3.16
MG-4	6/2/94	2	7.19		4.75		2.44	
MG-7	6/2/94	2	9.86		8.23		1.63	
PZ-1	6/2/94	2	7.79		4.60		3.19	

Notes:

NM: Not Measured (Well cover jammed)

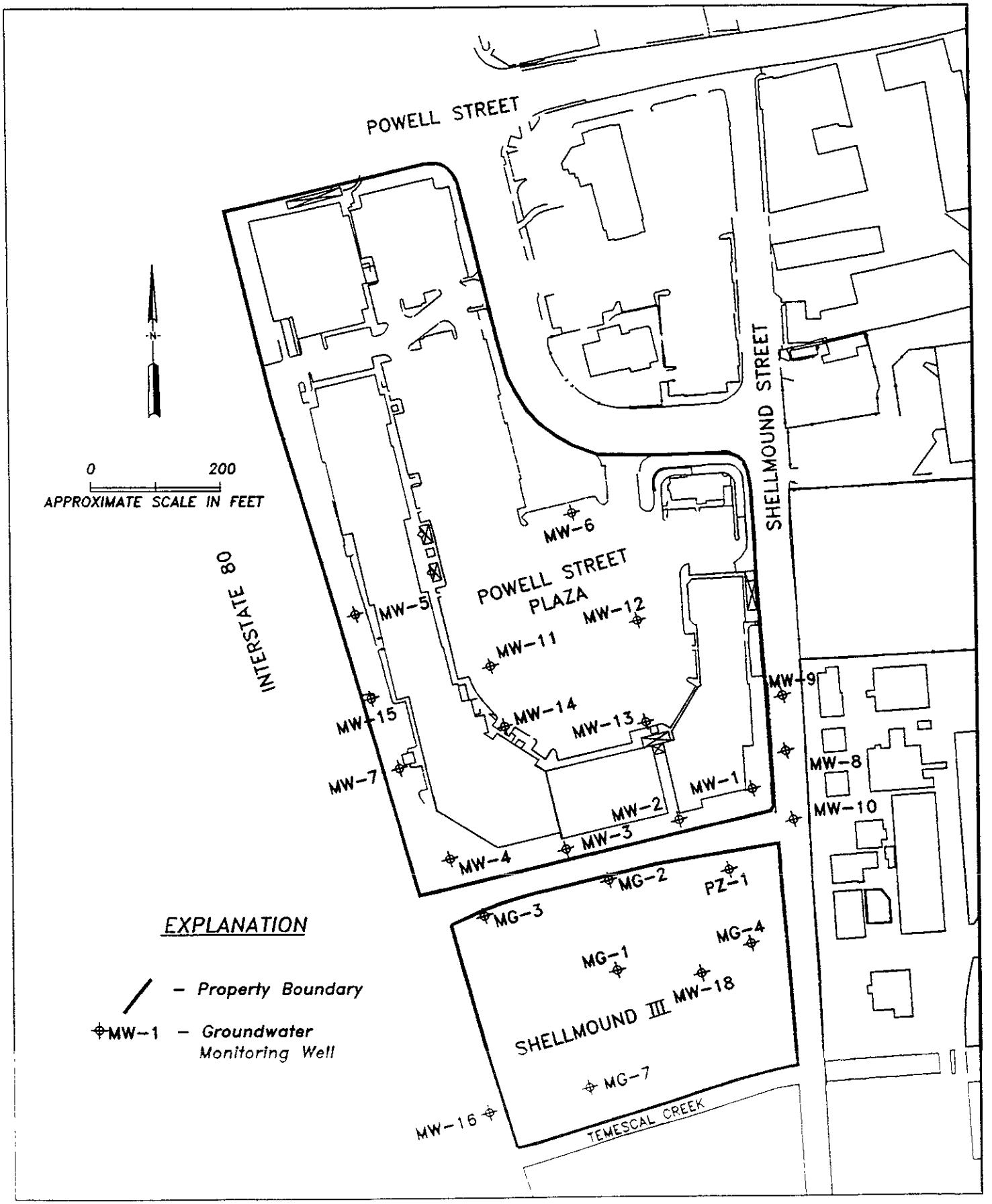
NP: No free product observed

W-L: Water-Level

Corrected Water-Level Elevations were calculated as follows:

Water-Level Elevation = Top of Casing - Depth to Water + 0.85 x Product Thickness

ILLUSTRATIONS

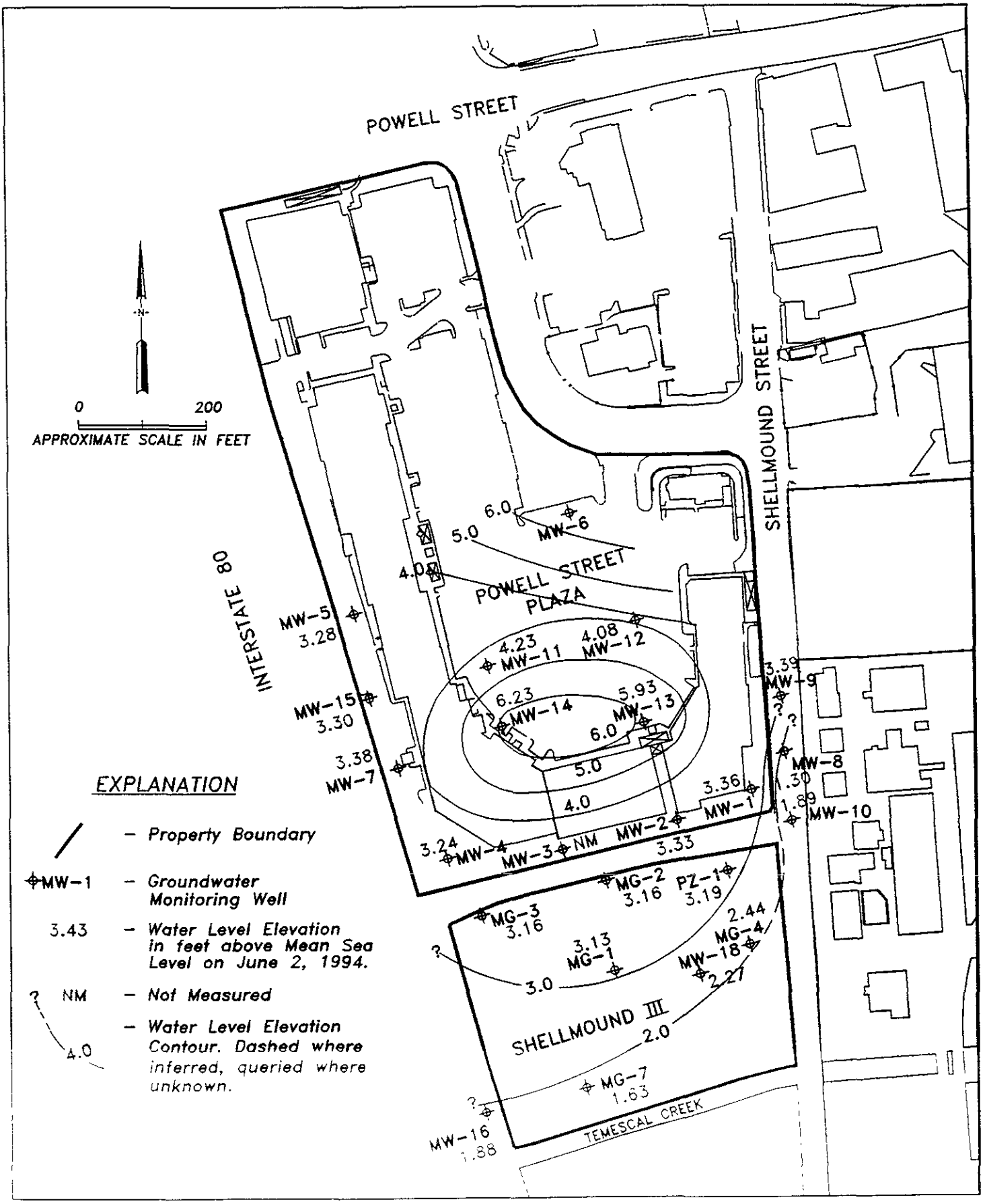


PES Environmental, Inc.
Engineering & Environmental Services

Site Plan
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE 1

241.0102.005	0200500_	JPS	8/94
JOB NUMBER	DWG NUMBER	REVIEWED BY	DATE

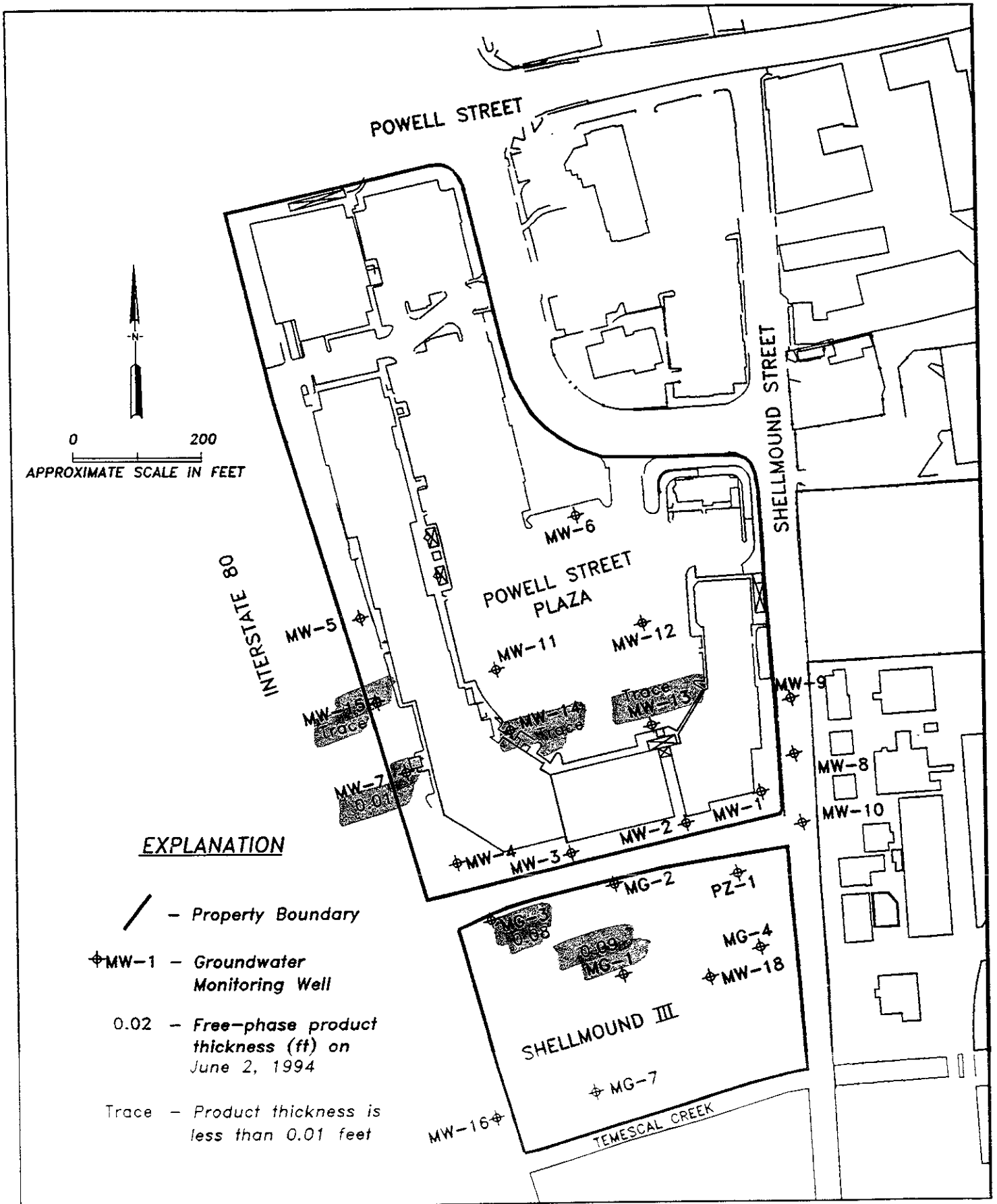


PES Environmental, Inc.
Engineering & Environmental Services

Water-Level Elevations – June 2, 1994
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE 2

241.0102.005	02005DD5	JDS	8/94
JOB NUMBER	DWG NUMBER	REVIEWED BY	DATE



PES Environmental, Inc.
Engineering & Environmental Services

Free-Phase Product Thickness on June 2, 1994
Powell Street Plaza and Shellmound III Sites
Emeryville, California

PLATE 3

241.0102.005	0200500$		8/94
JOB NUMBER	DWG NUMBER	REVIEWED BY	DATE

APPENDIX A

LABORATORY REPORT SHEETS
AND
CHAIN OF CUSTODY RECORDS - GROUNDWATER SAMPLES

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

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

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

Lab Number : JK-1779-1
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220001 MW-1	Aqueous	B.Smith & BlaineTech	06/02/94 1254	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			94.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS33A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

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

Lab Number : JK-1779-2
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220002 MW-2	Aqueous	B.Smith & BlaineTech	06/02/94 1135	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			92.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS34A
DT/eta3(dw)/on
MSD1-060994

Respectfully submitted,
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CLIENT: John Skalbeck
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Lab Number : JK-1779-3
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220004 MW-4	Aqueous	B.Smith & BlaineTech	06/02/94 1313	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene		5.	760.	
Toluene		5.	ND	
Ethylbenzene		5.	ND	
Xylenes		5.	ND	
1,2-Dichloroethane		5.	ND	
Ethylene dibromide		5.	ND	
Total Petroleum Hydrocarbons (Gasoline)		500.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		500.	13000.	
Percent Surrogate Recovery			93.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)
(3) Elevated PQLs due to sample dilution.

06/14/94
MSD1/2AS46A
DT/eta3(dw)/mcc/on
MSD1-060994

Respectfully submitted,
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CLIENT: John Skalbeck
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Novato, CA 94947

Lab Number : JK-1779-4
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220005 MW-5	Aqueous	B.Smith & BlaineTech	06/02/94 1334	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2,3
Benzene		5.	ND	
Toluene		5.	ND	
Ethylbenzene		5.	ND	
Xylenes		5.	ND	
1,2-Dichloroethane		5.	ND	
Ethylene dibromide		5.	ND	
Total Petroleum Hydrocarbons (Gasoline)		500.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		500.	8100.	
Percent Surrogate Recovery			93.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)
(3) Elevated PQLs due to sample dilution.

06/14/94
MSD1/2AS47A
DT/eta3(dw)/mcc/on
MSD1-060994

Respectfully submitted,
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Lab Number : JK-1779-5
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220006 MW-6	Aqueous	B.Smith & BlaineTech	06/02/94 1227	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			92.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS26A
DT/eta3(dw)/on
MSD1-060994

Respectfully submitted,
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Lab Number : JK-1779-6
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220008 MW-8	Aqueous	B.Smith & BlaineTech	06/02/94 1000	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	190.	
Percent Surrogate Recovery			95.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS27A
DT/eta3(dw)/on
MSD1-060994

Respectfully submitted,
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Lab Number : JK-1779-7
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220009 MW-9	Aqueous	B.Smith & BlaineTech	06/02/94 0940	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			91.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS35A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
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COAST-TO-COAST ANALYTICAL SERVICES, INC.

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CLIENT: John Skalbeck
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Lab Number : JK-1779-8
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220010 MW-10	Aqueous	B.Smith & BlaineTech	06/02/94 1202	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			89.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS36A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

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CLIENT: John Skalbeck
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1682 Novato Boulevard, Suite 100
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Lab Number : JK-1779-9
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220011 MW-11	Aqueous	B.Smith & BlaineTech	06/02/94 0900	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	2.1	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			88.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS37A
DT/eta3(dw)/on
MSD1-060994

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

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Lab Number : JK-1779-10
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220012 MW-12	Aqueous	B.Smith & BlaineTech	06/02/94 1240	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			90.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS38A
DT/eta3(dw)/on
MSD1-060994

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

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Novato, CA 94947

Lab Number : JK-1779-11
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220016 MW-16	Aqueous	B.Smith & BlaineTech	06/02/94 0845	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			91.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS39A
DT/eta3(dw)/on
MSD1-060994

Respectfully submitted,
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Lab Number : JK-1779-12
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220017 MW-18	Aqueous	B.Smith & BlaineTech	06/02/94 0955	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			91.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS40A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

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

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

Lab Number : JK-1779-14
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220020 MG-2	Aqueous	B.Smith & BlaineTech	06/02/94 1035	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	16.	
Toluene		0.5	0.9	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	490.	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			94.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS42A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

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

Lab Number : JK-1779-15
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220022 MG-4	Aqueous	B.Smith & BlaineTech	06/02/94 0932	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			96.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS43A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

COAST-TO-COAST ANALYTICAL SERVICES, INC.

EXCELLENCE IN ANALYSIS

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

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

Lab Number : JK-1779-16
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220023 MG-7	Aqueous	B.Smith & BlaineTech	06/02/94 0915	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			94.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS44A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

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

Lab Number : JK-1779-13
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220018 PZ-1	Aqueous	B.Smith & BlaineTech	06/02/94 1018	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	1.6	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Total Petroleum Hydrocarbons (Light Petroleum Distillate)		50.	2400.	
Percent Surrogate Recovery			79.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS41A
DT/eta3(dw)/mcc/on
MSD1-060994

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

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

Lab Number : JK-1779-17
Project : 241.0102.001, Powell St. Plaza
Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	RECEIVED
94220024 Field Blank	Aqueous	B.Smith & BlaineTech	06/02/94 1349	06/03/94

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			93.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS45A
DT/eta3(dw)/on
MSD1-060994

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-060994

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

Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Aqueous			

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (Diesel 2)		50.	ND	
Percent Surrogate Recovery			96.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS25A
DT/eta3(dw)/on
JK1779-5

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-060994

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

Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MATRIX SPIKE	Aqueous			

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/L	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2
Benzene	ND	10.	8.8	88.	
Toluene	ND	10.	8.4	84.	
Ethylbenzene	ND	10.	10.	100.	
Xylenes	ND	10.	9.5	95.	
1,2-Dichloroethane	ND	10.	8.2	82.	
Ethylene dibromide	ND	10.	9.4	94.	
Total Petroleum Hydrocarbons (Gasoline)	ND	250.	240.	96.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS28A/31A
DT/eta3(dw)/on
JK1779-5

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

Dudley Torres
Organics Manager

EXCELLENCE IN ANALYSIS

COAST-TO-COAST ANALYTICAL SERVICES, INC.

NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-060994

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

Analyzed : 06/09/94
Analyzed by: ON
Method : As Listed

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

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

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/L	%REC	%DIFF	NOTE
FUEL FINGERPRINT ANALYSIS						1,2
Benzene	ND	10.	8.5	85.	3.5	
Toluene	ND	10.	8.7	87.	3.5	
Ethylbenzene	ND	10.	10.	100.	0.	
Xylenes	ND	10.	10.	100.	5.1	
1,2-Dichloroethane	ND	10.	8.5	85.	3.6	
Ethylene dibromide	ND	10.	10.	100.	6.2	
Total Petroleum Hydrocarbons (Gasoline)	ND	250.	250.	100.	4.1	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH, EPA 8260 modified (GC/MS)

06/14/94
MSD1/2AS29A/32A
DT/eta3(dw)/on
JK1779-5

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

Dudley Torres
Organics Manager

PES Environmental, Inc.
Engineering & Environmental Services

CHAIN OF CUSTODY RECORD

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

JOB NUMBER 241.0102.001
NAME/LOCATION Rowell St. Plaza
PROJECT MANAGER JDS

SAMPLERS: Bryan Smith and BlaineTech
RECORDER: Bryan Smith (Signature Required)

DATE YR	DATE MO	DATE DY	TIME	SAMPLE NUMBER/ DESIGNATION	SOURCE CODE	MATRIX Water	MATRIX Sedim't	MATRIX Soil	MATRIX Oil	# CONTAINERS & PRESERV. Unpres	H_2SO_4	HNO_3	HCl	Filtered	DEPTH IN FEET	COL MTD CD	QA CODE
94	06	02	1254	942200001	23	X							2				
94	06	02	1135	942200002	23	X							2				
94	06	02	1313	942200004	23	X							2				
94	06	02	1334	942200005	23	X							2				
94	06	02	1227	942200006	23	X							2				
94	06	02	1000	942200008	23	X							2				
94	06	02	0940	942200009	23	X							2				
94	06	02	1202	942200010	23	X							2				
94	06	02	0900	942200011	23	X							2				
94	06	02	1240	942200012	23	X							2				
94	06	02	0845	942200016	23	X							2				
94	06	02	0955	942200017	23	X							2				

ANALYSIS REQUESTED

EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	TPHg by 5030/8015 (mod)	TPHd by 3550/8015 (mod)	Fuel Fingerprint by 8240/8260	JK1779	
						X		1
						X		2
						X		3
						X		4
						X		5
						Y		6
						Y		7
						X		8
						X		9
						Y		10
						Y		11
						Y		12

NOTES

Sheet 1 of 2

Fuel Fingerprint - ~~TPH/BTX~~ by 8240/8260

Temp of cooler = 34°F upon receipt @ lab
vials placed in guard bottles @ lab

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature) Jody Shaw	RECEIVED BY: (Signature) Brenda DBD	6/3/94	3:15
RELINQUISHED BY: (Signature) Brenda DBD	RECEIVED BY: (Signature) World Courier	06/03/94	
RELINQUISHED BY: (Signature) World Courier	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME

DISPATCHED BY: (Signature) | DATE | TIME

RECEIVED FOR LAB BY: (Signature) Allison A Abraham | DATE 06/03/94 | TIME 1805

Cool, intact

METHOD OF SHIPMENT: Courier to Coast-to-Coast

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

PES Environmental, Inc.
Engineering & Environmental Services

CHAIN OF CUSTODY RECORD

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

JOB NUMBER 241.0102.001
NAME/LOCATION Powell St. Plaza
PROJECT MANAGER JDS

SAMPLERS: Bryan Smith and Blaine Tech
RECORDER: (Signature Required)

DATE YR	MO	DY	TIME	SAMPLE NUMBER/ DESIGNATION	SOURCE CODE	MATRIX Water	Sedim't	Soil	Oil	# CONTAINERS & PRESERV. Unpres.	H_2SO_4	HNO_3	HCl	Filtered	DEPTH IN FEET	COL MTD CD	QA CODE	EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	TPHg by 5030/8015 (mod)	TPHd by 3550/8015 (mod)	Fuel fingerprint by 8240/8260	9415779
94	06	02	1018	942200	23	X							2											X	-13
94	06	02	1035	942002	23	X							2											X	-14
94	06	02	0932	942002	23	X							2											X	-15
94	06	02	0915	942003	23	X							2											X	-16
94	06	02	1349	942004	23	X							2											X	-17

NOTES

Sheet 2 of 2

Fuel Fingerprint by 8240/8260

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature) Jody Shaw	RECEIVED BY: (Signature) Brenda	6/3/94	5:15
RELINQUISHED BY: (Signature) Brenda	RECEIVED BY: (Signature) World Courier	06/03/94	
RELINQUISHED BY: (Signature) World Courier	RECEIVED BY: (Signature)		
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)		

DISPATCHED BY: (Signature) DATE TIME

RECEIVED FOR LAB BY: (Signature) Allison A Abraham DATE 06/03/94 TIME 1805

METHOD OF SHIPMENT: Courier to Coast-to-Coast

cool, intact

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

APPENDIX B

GROUNDWATER SAMPLING REPORT - BLAINE TECH SERVICES, INC.

BLAINE
TECH SERVICES INC.

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

June 13, 1994

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

Attn: Bryan Smith

SITE:
Shellmound 3
Powell Street Plaza
Shellmound & Christie
Emeryville, Califonia

DATE:
June 2, 1994

GROUNDWATER SAMPLING REPORT 940602-F-1

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

This report deals with the groundwater well sampling performed by our firm in response to your request. Data collected in the course of our work at the site 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 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.

TABLE OF WELL MONITORING DATA

Well I.D.	MG-2	MG-4	MG-7	MW-1
Date Sampled	06/02/94	06/02/94	06/02/94	06/02/94
Well Diameter (in.)	2	2	2	4
Total Well Depth (ft.)	14.76	11.61	14.86	13.61
Depth To Water (ft.)	7.46	4.75	8.23	5.17
Free Product (ft.)	NONE	NONE	NONE	NONE
Reason If Not Sampled	--	--	--	--
1 Case Volume (gal.)	1.1	1.0	1.0	5.5
Did Well Dewater?	NO	NO	NO	YES @ 6.0 gals.
Gallons Actually Evacuated	3.0	3.0	3.0	6.0
Purging Device	BAILER	BAILER	BAILER	BAILER
Sampling Device	BAILER	BAILER	BAILER	BAILER
Time	10:29 10:31 10:33	09:25 09:27 09:30	09:09 09:10 09:12	10:31 12:53
Temperature (Fahrenheit)	65.1 65.2 65.2	64.1 65.2 65.5	61.5 61.3 61.2	66.0 70.1
pH	7.6 7.5 7.5	7.4 6.9 6.9	7.6 7.6 7.8	6.6 7.0
Conductivity (micromhos/cm)	3260 3280 3300	3680 3760 3830	3100 3400 3600	5400 5400
Nephelometric Turbidity (NTU)	59.2 69.3 83.8	>200 >200 129	>200 >200 >200	>200 >200
BTS Chain of Custody	940602-F-1	940602-F-1	940602-F-1	940602-F-1
BTS Sample I.D.	94220020	94220022	94220023	94220001
DHS HMTL Laboratory	COAST TO COAST	COAST TO COAST	COAST TO COAST	COAST TO COAST
Analysis	EPA 8240/8260	EPA 8240/8260	EPA 8240/8260	EPA 8240/8260

TABLE OF WELL MONITORING DATA

Well I.D.	MW-2			MW-4			MW-5			MW-6	
Date Sampled	06/02/94			06/02/94			06/02/94			06/02/94	
Well Diameter (in.)	4			4			4			4	
Total Well Depth (ft.)	14.13			12.88			14.86			14.10	
Depth To Water (ft.)	6.31			8.20			7.68			4.48	
Free Product (ft.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	5.0			3.0			1.1			1.5	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	15.0			9.0			3.5			4.5	
Purging Device	BAILER			BAILER			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	11:21	11:25	11:31	13:02	13:07	13:12	13:30	13:31	13:33	12:21	12:23	12:25
Temperature (Fahrenheit)	67.9	68.4	68.2	68.4	68.6	67.9	70.8	70.3	69.8	70.1	69.8	70.1
pH	7.4	7.5	7.6	8.3	8.3	8.2	7.0	6.8	7.1	7.2	7.2	7.1
Conductivity (micromhos/cm)	>10000	>10000	>10000	2700	2730	2760	2920	2910	2950	4010	4040	4130
Nephelometric Turbidity	37.5	27.4	22.4	>200	>200	>200	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	940602-F-1			940602-F-1			940602-F-1			940602-F-1	
BTS Sample I.D.	94220002			94220004			MW-2			94220006	
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST			COAST TO COAST	
Analysis	EPA 8240/8260			EPA 8240/8260			EPA 8240/8260			EPA 8240/8260	

TABLE OF WELL MONITORING DATA

Well I.D.	MW-8			MW-9			MW-10			MW-11		
Date Sampled	06/02/94			06/02/94			06/02/94			06/02/94		
Well Diameter (in.)	2			2			2			2		
Total Well Depth (ft.)	12.02			12.16			11.08			12.74		
Depth To Water (ft.)	5.96			3.91			5.30			7.46		
Free Product (ft.)	NONE			NONE			NONE			NONE		
Reason If Not Sampled	--			--			--			--		
1 Case Volume (gal.)	0.9			1.3			0.92			0.8		
Did Well Dewater?	NO			NO			NO			NO		
Gallons Actually Evacuated	3.0			4.0			3.0			2.5		
Purging Device	BAILER			BAILER			BAILER			BAILER		
Sampling Device	BAILER			BAILER			BAILER			BAILER		
Time	09:53	09:55	09:59	09:31	09:34	09:38	11:54	11:56	12:00	08:51	08:54	08:57
Temperature (Fahrenheit)	64.5	64.4	65.2	64.1	63.7	63.6	71.8	68.9	68.2	66.9	67.1	66.7
pH	6.2	6.7	6.7	6.2	5.8	5.6	7.6	7.7	8.3	6.8	6.6	6.6
Conductivity (micromhos/cm)	3600	3900	3800	3000	3000	3000	2000	1810	1790	3000	2400	2200
Nephelometric Turbidity	>200	>200	>200	>200	>200	>200	>200	>200	>200	58.0	72.9	147.0
BIS Chain of Custody	940602-F-1			940602-F-1			940602-F-1			940602-F-1		
BTS Sample I.D.	94220008			94220009			94220010			94220011		
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST			COAST TO COAST		
Analysis	EPA 8240/8260			EPA 8240/8260			EPA 8240/8260			EPA 8240/8260		

TABLE OF WELL MONITORING DATA

Well I.D.	MW-12			MW-16			MW-18			PZ-1		
Date Sampled	06/02/94			06/02/94			06/02/94			06/02/94		
Well Diameter (in.)	2			2			2			2		
Total Well Depth (ft.)	11.49			12.66			9.64			14.10		
Depth To Water (ft.)	5.14			8.76			3.75			4.60		
Free Product (ft.)	NONE			NONE			NONE			NONE		
Reason If Not Sampled	--			--			--			--		
1 Case Volume (gal.)	1.0			0.62			1.0			1.5		
Did Well Dewater?	YES @ 2.5 gals.			NO			NO			NO		
Gallons Actually Evacuated	2.5			2.0			3.0			4.5		
Purging Device	BAILER			BAILER			BAILER			BAILER		
Sampling Device	BAILER			BAILER			BAILER			BAILER		
Time	09:11	09:13	12:39	08:40	08:42	08:43	09:48	09:49	09:51	10:10	10:13	10:15
Temperature (Fahrenheit)	65.9	66.2	66.3	62.0	61.9	61.6	64.4	64.8	65.2	63.8	64.6	65.2
pH	6.8	6.8	6.7	7.0	7.3	7.5	7.2	7.3	7.3	7.5	7.5	7.5
Conductivity (micromhos/cm)	1600	1500	1550	1966	1948	1933	3460	3500	3520	5670	5690	5720
Nephelometric Turbidity	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200
BTS Chain of Custody	940602-F-1			940602-F-1			940602-F-1			940602-F-1		
BTS Sample I.D.	94220012			94220016			94220017			94220018		
DHS HMTL Laboratory	COAST TO COAST			COAST TO COAST			COAST TO COAST			COAST TO COAST		
Analysis	EPA 8240/8260			EPA 8240/8260			EPA 8240/8260			EPA 8240/8260		

EQUIPMENT

Selection of Sampling Equipment

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

Stainless steel bailers were selected for the collection of samples at this site.

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

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

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

STANDARD PRACTICES

Evacuation

Groundwater well sampling protocols call for the evacuation of a sufficient volume of water from the well to insure that the sample is collected from water than has been newly drawn into the well from the surrounding geologic formation. The protocol used on these wells called for a volumetric removal of three case volumes with stabilization of standard water parameters. There are situations where up to ten case volumes of evacuation may be removed, especially when attempting to stabilize turbidity in undeveloped wells. Different

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

Effluent Materials

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

Observations and Measurements

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

Sampling Methodology

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

Sample Containers

Sample material is collected in specially prepared containers appropriate to the type of analyses intended. Our firm uses new sample containers of the type specified by either EPA or the RWQCB. Often times analytical laboratories wish to supply the sample con-

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

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

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

Sample Handling Procedures

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

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

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained

in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

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

Chain of Custody

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

Hazardous Materials Testing Laboratory

After completion of the field work, the sample containers were delivered to Coast to Coast Analytical Services in Benecia, California. Coast to Coast is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1204.

Personnel

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

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

Decontamination

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

Reportage

Submission to the Regional Water Quality Control Board and the local implementing agency should include copies of the sampling report, the chain of custody, and the certified analytical report issued by the Hazardous Materials Testing Laboratory. The property owner should attach a cover letter and submit all documents together in a package.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/dk

attachments: chain of custody

PES Environmental, Inc.
Engineering & Environmental Services

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

CHAIN OF CUSTODY RECORD

JOB NUMBER: 241.0102.201
NAME/LOCATION: Powell St. Plaza
PROJECT MANAGER: JDS

SAMPLERS: Bryan Smith and BlaineTech
RECORDER: Bryan Smith (Signature Required)

YR	MO	DY	TIME	SAMPLE NUMBER/DESIGNATION	SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	Filtered	DEPTH IN FEET	COL MTD CD	QA CODE	EPA 8010/8010	EPA 8020/8020 (BTEX)	EPA 624/8240	EPA 625/8270	TPHg by 5030/8015 (mod)	TPHd by 3550/8015 (mod)	Fuel Fingerprint by 8240/8270
94	06	02	1254	9412-0001	23	X							2											X
94	06	02	1135	9412-0002	25	X							2											X
94	06	02	1313	9412-0004	23	X							2											X
94	06	02	1334	9412-0005	23	X							2											X
94	06	02	1227	9412-0006	23	X							2											X
94	06	02	1000	9412-0008	23	X							2											X
94	06	02	0940	9412-0009	23	X							2											X
94	06	02	1202	9412-0010	23	X							2											X
94	06	02	0900	9412-0011	23	X							2											X
94	06	02	1240	9412-0012	23	X							2											X
94	06	02	0845	9412-0016	23	X							2											X
94	06	02	0955	9412-0017	23	X							2											X

NOTES

Sheet 1 of 2

Fuel Fingerprint by 8240/8270

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
Andy Shaw	Brenda R.	6/3/94	3:15
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME

DISPATCHED BY: (Signature)	DATE	TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME

METHOD OF SHIPMENT: Courier to Coast-to-Coast

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Engineering & Environmental Services

1682 NOVATO BOULEVARD, SUITE 100
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

CHAIN OF CUSTODY RECORD

JOB NUMBER: 241.0102.001
NAME/LOCATION: Powell St. Plaza
PROJECT MANAGER: JDS

SAMPLERS: Bryan Smith and Blaine Tech
RECORDER: [signature] (Signature Required)

DATE YR	MO	DY	TIME	SAMPLE NUMBER/ DESIGNATION	SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCl	Filtered	DEPTH IN FEET	COL MTD CD	QA CODE	EPA 601/8010	EPA 602/8020 (BTEX)	EPA 624/8240	EPA 625/8270	TPHg by 5030/8015 (mod)	TPHd by 3550/8015 (mod)	Fuel Fingerprint by 8240/8260
94	06	02	1018	94220018	23	X							2											X
94	06	02	1035	94220020	23	X							2											X
94	06	02	0932	94220022	23	X							2											X
94	06	02	0915	94220023	23	X							2											X
94	06	02	1349	94220024	23	X							2											X

NOTES

Sheet 2 of 2

Fuel Fingerprint by 8240/8260

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
Andy Strauss	[signature]	6/3/94	915
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME

DISPATCHED BY: (Signature)	DATE	TIME	RECEIVED FOR LAB BY: (Signature)	DATE	TIME

METHOD OF SHIPMENT: Courier to Coast-to-Coast

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Engineering & Environmental Services

PAGE 1 OF 1	
DATE 6-2-94	
PROJECT: [illegible]	
JOB NO.: 241.0102.001	
PROJECT MANAGER: [illegible]	
RECORDED BY: [illegible]	

DAILY FIELD REPORT

TIME	DESCRIPTION, COMMENTS, NOTES, ETC.
6AM	At PES - [illegible]
7:30	Arrive onsite - Placing cones at well locations
	Greasing well covers
8:10	Keith Brown & Tom Flory \ Blaine
	Mike Ledecki (Training) / Tech shows up
	Tailgate meeting
[illegible]	Notice leaking tire [illegible] on Shellmound St [illegible]
	opposite MG-4. Steady [illegible] ≈ 1 cup/minute
10Am	At MW-15 DTP=NP* DTW=9.25 No Product from 4" skimmer
10:15	At MW-13 DTP=NP* DTW=4.95 2 2/3 cup water & slight product from 2" ↑
10:20	MW-14 DTP=NP* DTW=5.31
10.30	MW-7 DTP=8.27 DTW=8.28 ≈0.01 ft PT
	MW-3 is VERY jammed. Will need to be repaired
10:55	MG-1 DTP=8.48 DTW=8.57 A bailer [illegible] in well
	Bailed out ≈ 1/8 cup product from MG-1
11:10	MG-3 DTP=6.39 DTW=6.47 Standing water ≈ 1/2" over
11:30	Keith Brown leaves top of well cap.
1:25	Back at MW-15 DTP=NP DTW=8.36
1:35	Back at MW-13 DTP=NP DTW=4.71
1:45	B. Tech finished sampling
1:49	Field blank secured Sample ID # 94220024
2:10	Blaine Tech leaves
2:25	Leave site
3:15	Back at PES - Unloading
	*Product sheen on probe
	1.00 [illegible]
	1.00 [illegible]

ATTACHMENTS ○ NO ⊗ YES

DESCRIPTION B. Tech Sheets

SIGNATURE [signature]

SAMPLING CREW #1

Sampling Order - **June 1994**

Powell Street Plaza

Emeryville, California

Sampler Name: Keith Brown

Well Name	Sample Time	Sample ID	Well Diameter	Total Depth	Depth tc Water	3 Volume Purge (gal)	Purge Device	Start Time	Stop Time	Notes
MW-11	9:00	94220011	2	12.04	7.16	2.5	Teflon Bailer	8:45	9:00	
MW-12	12:40	94220012	2	11.49	5.14	3	"	9:05	12:40	Dewatered at 2.5 gal - 9:15
MW-9	9:40	94220009	2	12.16	3.91	4	"	9:25	9:40	
MW-8	10:00	94220008	2	12.02	5.96	3	"	9:47	10:00	
MW-1	11:54	94220001	4	13.61	5.17	16.5	"	10:20	11:54	Dewatered at 6 - 10:42
MW-2	11:35	94220002	4	14.12	6.31	15	"	11:10	11:35	
MW-4	13:13	94220004	4	12.88	8.20	9	"	13:02	13:13	
MW-5	13:34	94220005	2	14.80	7.68	3.3	"	13:37	13:34	

SAMPLING CREW #2

Sampling Order - June 1994

Powell Street Plaza

Emeryville, California

Sampler Name: Tom / mike

Well Name	Sample Time	Sample ID	Well Diameter	Total Depth	Depth to Water	3 Volume Purge (gal)	Purge Device	Start Time	Stop Time	Notes
MW-6	12:27	94220006	2	14.10	4.48	4.5	Bailer	12:16	12:28	—
MW-10	12:07	94220010	2	1.08	5.30	2.7	Bailer	11:46	12:02	—
MW-16	8:45	94220016	2	12.66	8.76	1.86	Bailer	8:40	8:43	—
MG-7	9:15	94220023	2	14.86	8.23	3.0	Bailer	9:09	9:12	ODOR
MG-2	10:35	94220020	2	14.76	7.47	3.3	Bailer	10:29	10:33	—
PZ-1	[illegible]	94220018	2	14.10	4.60	4.5	Bailer	10:10	10:15	Sheen
MW-18	[illegible]	94220017	2	9.64	3.75	3.0	Bailer	9:48	9:51	—
MG-4	9:32	94220022	2	11.61	4.75	3.0	Bailer	9:25	9:30	fuel odor

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POWELL STREET PLAZA
AND SHELLMOUND VENTURES III
EMERYVILLE, CALIFORNIA

AUGUST 8, 1994

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Principal Engineer