PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared for:

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

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1.0 INTRODUCTION

This report presents data collected by PES Environmental, Inc. (PES) during the August 30 and September 6, 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, MW-15 and MG-1 at the Powell Street site during the quarter. The product collection canisters are emptied monthly. From July 12, 1994 to September 29, 1994, the product recovery systems removed approximately 0.07 gallons of product. The total volume of product recovered since system operation began on November 10, 1993 is approximately 1.18 gallons. In addition to the monthly inspection and maintenance of the product recovery skimmers, a full round of water-level elevation measurements was made once per month.

On September 22, 1994, PES installed one monitoring well (MW-19) just west of Interstate 80 (I-80) and approximately 900 feet south of the Powell Street overpass (Plate 1). Monitoring Well MW-19 is intended to provide additional groundwater information to be used to define the western extent of petroleum hydrocarbons in groundwater. Groundwater sampling and laboratory chemical analyses results will be presented in the next quarterly monitoring report.

On June 29, 1994, PES sent a letter to Ms. Susan Hugo of the Alameda County Department of Environmental Health (ACDEH) with a proposal for modifications to the groundwater monitoring program. On September 2, 1994, the modified groundwater monitoring program was agreed to by PES and the ACDEH.

Preliminary grading activities for the redevelopment of the Shellmound III property has begun. PES has installed temporary barriers around the monitoring wells on the property to prevent damage to the wells during the redevelopment activities.

3.0 QUARTERLY GROUNDWATER SAMPLING

Quarterly groundwater sampling was conducted by Blaine Tech Services, Inc. (Blaine Tech) under PES' observation on August 30 and September 6, 1994. Groundwater samples were collected from Monitoring Wells MW-2, MW-3, MW-4, MW-5, MW-8, MW-11, MW-12, MG-2, MG-4 and MG-7. Groundwater samples were not collected from monitoring wells containing evidence of free-phase product (MW-7, MW-13, MW-14, MW-15, MG-1, and MG-3). 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 approximately three well volumes of water using a stainless steel bailer or an electric submersible pump. 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 labeled and immediately placed in a chilled, thermally insulated cooler for delivery under chain-of-custody protocol to Pace, Inc. (Pace), a State-certified laboratory in Novato, California, on August 31 and September 6, 1994.

Pace transferred the samples to Zymax, a State-certified laboratory in San Luis Obispo, California. Zymax 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). Laboratory chemical results for dissolved hydrocarbon compounds in groundwater, including results from previous sampling rounds, are listed in Table 2.

The laboratory reports 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 August 30, 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 with an alconox/deionized water solution and rinsed with deionized water 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 August 30 and September 6, 1994 sampling events.

5.1 Groundwater Chemistry

TPHd was detected in groundwater samples collected from Wells MW-2, MW-3, MW-5 and MG-2 at concentrations of 0.2 parts per million (ppm), 1.3 ppm, 1.4 ppm and 0.875 ppm, respectively. TPHg was detected in the sample collected from Well MW-4 at a concentration of 1.4 ppm.

Benzene was detected in groundwater samples collected from Monitoring Wells MW-2, MW-3, MW-4, MW-11 and MG-2 at concentrations of 0.0006 ppm, 0.0013 ppm, 0.470 ppm, 0.0028 ppm and 0.0078 ppm, respectively. Toluene was detected in the groundwater sample collected from Monitoring Well MG-2 at a concentration of 0.0006 ppm. Total xylenes were detected in groundwater samples collected from Monitoring Wells MW-3 and MG-2 at concentrations of 0.0006 ppm and 0.00055 ppm, respectively. Ethylbenzene was not detected in any groundwater samples.

THPd, TPHg, and BTEX were not detected in groundwater samples collected from Monitoring Wells MW-8, MW-12, MG-4 and MG-7.

5.2 Water-Level and Product Thickness Measurements

Water-level elevations measured on August 30, 1994 ranged from 1.53 feet MSL (MG-7) to 5.83 feet MSL (MW-13). The August 30, 1994 water-level elevations at the Powell Street Plaza property are generally one foot lower than water-level elevations measured on June 2, 1994. The August 30, 1994 water-level elevations at the Shellmound III property are generally one-half foot lower than the June 1994 water-level elevations. The lower water-level elevations observed at the Powell Street Plaza and Shellmound III properties in August 1994 correlate, as expected, with the late summer dry season. The groundwater mound in the vicinity of MW-13 and MW-14 is slightly less pronounced in the August 1994 data than in the June 1994 data. As mentioned in Section 2.0, the source of the groundwater mound is currently under investigation. Wells MW-8 and MW-10 continue to show a trend of uncharacteristically 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.

The direction of groundwater flow is southwest toward Temescal Creek at an approximate gradient range of 0.004 to 0.017 feet per foot. Free product, where present, ranged in thickness from trace (less than 0.01 feet) in Wells MW-14 and MW-15 to 0.07 feet in Well MG-3

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 94350000) was submitted to Pace 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 laboratory QA/QC limits. No petroleum hydrocarbons or hydrocarbon constituents were detected in the field blank or in the internal blanks. The data from Pace are considered to be representative and acceptable.

TABLES

TABLE 1

Summary of Wells Sampled
August 30 and September 6, 1994

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well ID	Sample Number
MW-1	NS
MW-2	94350002
MW-3	94350003
MW-4	94350004
MW-5	94350005
MW-6	NS
MW-7	NS
MW-8	94360008
MW-9	NS
MW-10	NS
MW-11	94350011
MW-12	94360012
MW-13	NS
MW-14	NS
MW-15	NS
MW-16	NS
MW-18	NS
MW-19	NS
MG-1	NS
MG-2	94350102
MG-3	NS
MG-4	94360104
MG-7	94350107
PZ-1	NS
Field Blank	94350000

Note:

NS: Not sampled

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	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	8015	NT	<1	NT	NT	NT	NT	
	3/25/91	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	0.0013	0.0018	<0.0005	0.0020	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MW-2	3/14/88	8015	NT	0.05	NT	NT	NT	NT	
	3/25/91	8015/8020	0.053	<0.050	0.0006	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	8/30/94	**8260**	**<0.050**	**0.200**	**0.0006**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-3	3/14/88	8015	NT	0.15	NT	NT	NT	NT	
	3/25/91	NS	NS	NS	NS	NS	NS	NS	Free product
	11/10/93	NS	NS	NS	NS	NS	NS	NS	Free product (0.23 ft)
	2/23/94	8260	<0.050	11.000	0.0007	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Well cover jammed
	8/30/94	**8260**	**<0.050**	**1.300**	**0.0013**	**<0.0005**	**<0.0005**	**0.0006**	
MW-4	3/14/88	8015	NT	1.2	NT	NT	NT	NT	
	3/25/91	8015/8020	1.300	2.500	0.7100	0.0030	0.0020	0.0060	
	11/10/93	8260	0.800	34.000	0.4400	0.0030	<0.0020	<0.0020	Free product (0.02 ft)
	2/23/94	8260	0.560	18.000	0.4500	0.0025	<0.0005	0.0020	
	6/2/94	8260	<0.500	13.000	0.760	<0.005	<0.005	<0.005	
	8/30/94	**8260**	**1.400**	**<0.050**	**0.470**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-5	3/14/88	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	8260	<0.050	6.800	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	7.100	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.500	8.100	<0.005	<0.005	<0.005	<0.005	
	8/30/94	**8260**	**<0.050**	**1.400**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0005 - 1,2-DCA**

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	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	8015	NT	<0.05	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MW-7	3/10/88	NS	NS	NS	NS	NS	NS	NS	Free product (1.32 ft)
	11/10/93	NS	NS	NS	NS	NS	NS	NS	Free product (0.22 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (0.01 ft)
MW-8	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	0.190	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-9	3/14/88	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MW-10	3/14/88	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MW-11	3/14/88	8015	NS	NS	NS	NS	NS	NS	Well was dry
	11/10/93	8260	<0.050	<0.050	0.0008	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	0.0008	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	0.0021	<0.0005	<0.0005	<0.0005	
	8/30/94	**8260**	**<0.050**	**<0.050**	**0.0028**	**<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	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	8015	NT	0.05	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	
MW-13	3/14/88	8015/8020	NT	1.7	<0.0005	<0.0005	<0.0005	<0.0005	
	11/10/93	8240	NS	NS	NS	NS	NS	NS	Free product (1.06 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
MW-14	3/14/88	8015	NT	<1	NT	NT	NT	NT	
	11/10/93	8260	NS	NS	NS	NS	NS	NS	Free product (0.27 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
MW-15	3/14/88	8015/8020	NT	1.8	<0.0005	<0.0005	<0.0005	<0.0005	
	11/10/93	8260	NS	NS	NS	NS	NS	NS	Free product (0.15 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
MW-16	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	
	4/21/89	8015	NT	<1.0	0.0009	0.0026	0.0004	0.0041	
	3/25/91	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0.0003	0.0003	
	5/20/92	8015/8020	<0.050	0.140	<0.0003	<0.0003	<0.0003	<0.0003	Non-standard diesel pattern
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MW-17	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	
	4/21/89	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	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	8015	NT	<0.05	NT	NT	NT	NT	
	5/20/92	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Well under standing water
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
MG-1	4/21/89	NS	NS	NS	NS	NS	NS	NS	Free product
	3/25/91	NS	NS	NS	NS	NS	NS	NS	Free product
	5/21/92	NS	NS	NS	NS	NS	NS	NS	Free product (0.03 ft)
	11/10/93	8260	NS	NS	NS	NS	NS	NS	Free product (0.36 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (0.09 ft)
MG-2	4/21/89	8015	NT	<1.0	0.09	0.0027	<0.0003	0.0017	
	3/25/91	8015/8020	<0.050	<0.050	0.0010	<0.0003	<0.0003	<0.0003	
	5/21/92	8015	0.210	1.400	0.0820	0.0018	0.0006	0.0014	
	11/10/93	8260	0.050	0.540	0.0160	0.0009	<0.0005	<0.0005	
	2/23/94	8260	<0.050	3.300	0.0033	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	0.490	<0.050	0.016	0.0009	<0.0005	<0.0005	
	8/30/94	**8260**	**<0.050**	**0.875**	**0.0078**	**0.0006**	**<0.0005**	**0.0006**	
MG-3	4/21/89	8015	NT	<1.0	0.1	0.0023	<0.0003	0.0089	
	3/25/91	8015/8020	0.610	2.600	0.0750	0.0008	0.0004	0.0020	
	5/21/92	NS	NS	NS	NS	NS	NS	NS	Free product (0.85 ft)
	11/10/93	NS	NS	NS	NS	NS	NS	NS	Free product (0.47 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	Free product (0.08 ft)
MG-4	4/21/89	8015	NT	<1.0	0.0003	<0.0003	<0.0003	0.0013	
	3/25/91	8015/8020	<0.050	<0.050	0.0004	<0.0003	<0.0003	0.0005	
	5/20/92	8015/8020	<0.050	<0.050	<0.0003	<0.0003	<0.0003	<0.0003	

TABLE 2

Results of Chemical Analyses of Groundwater Samples

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Date Sampled	EPA Test Method	(concentrations expressed in parts per million) TPH as Gasoline	TPH as Diesel	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MG-4	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0007 - 1,2-DCA**
MG-7	3/25/91	8015/8020	<0.050	<0.050	0.0005	<0.0003	<0.0003	<0.0003	
	5/20/92	8015/8020	<0.050	0.060	<0.0003	<0.0003	<0.0003	<0.0003	Non-standard diesel pattern
	11/10/93	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	<0.0005	<0.0005	<0.0005	<0.0005	
	8/30/94	**8260**	**<0.050**	**<0.050**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0007 - 1,2-DCA**
PZ-1	3/25/91	8015/8020	0.320	0.340	0.0004	<0.0003	<0.0003	0.0010	
	5/21/92	8015/8020	0.120	0.600	0.0018	0.0003	0.0003	0.0012	
	11/10/93	8260	<0.050	<0.050	0.0015	<0.0005	<0.0005	<0.0005	0.450 - TPH as light petroleum distillate
	2/23/94	8260	<0.050	<0.050	0.0009	<0.0005	<0.0005	<0.0005	0.200 - TPH as stoddard solvent
	6/2/94	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
1,2-DCA = 1,2-Dichloroethane

TABLE 3

Water-Level Elevations and Product Thickness Measurements

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well Number	Measurement Date	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	8/30/94	8.53	NP	5.16	NP	3.37	
MW-2	8/30/94	9.64	NP	6.41	NP	3.23	
MW-3	8/30/94	10.68	NP	7.82	NP	2.86	
MW-4	8/30/94	11.44	NP	8.65	NP	2.79	
MW-5	8/30/94	10.96	NP	8.30	NP	2.66	
MW-6	8/30/94	11.22	NP	7.54	NP	3.68	
MW-7	8/30/94	11.65	8.70	8.73	0.03	2.92	2.95
MW-8	8/30/94	7.26	NP	5.67	NP	1.59	
MW-9	8/30/94	7.30	NP	3.45	NP	3.85	
MW-10	8/30/94	7.19	NP	5.20	NP	1.99	
MW-11	8/30/94	11.69	NP	7.67	NP	4.02	
MW-12	8/30/94	9.22	NP	5.17	NP	4.05	
MW-13	8/30/94	10.64	4.80	4.84	0.04	5.80	5.83
MW-14	8/30/94	11.54	Trace	5.82	<0.01	5.72	
MW-15*	8/30/94	11.66	Trace	9.61	<0.01	2.05	
MW-16	8/30/94	10.64	NP	8.99	NP	1.65	
MW-18	8/30/94	6.02	NP	4.29	NP	1.73	
MG-1*	8/30/94	11.62	8.89	8.92	0.03	2.70	2.73
MG-2	8/30/94	10.62	NP	7.79	NP	2.83	
MG-3	8/30/94	9.56	6.70	6.77	0.07	2.79	2.85
MG-4	8/30/94	7.19	NP	5.21	NP	1.98	
MG-7	8/30/94	9.86	NP	8.33	NP	1.53	
PZ-1	8/30/94	7.79	NP	4.84	NP	2.95	

Notes:

* Not static water-level due to recent removal of product skimmer

NP = No free product observed

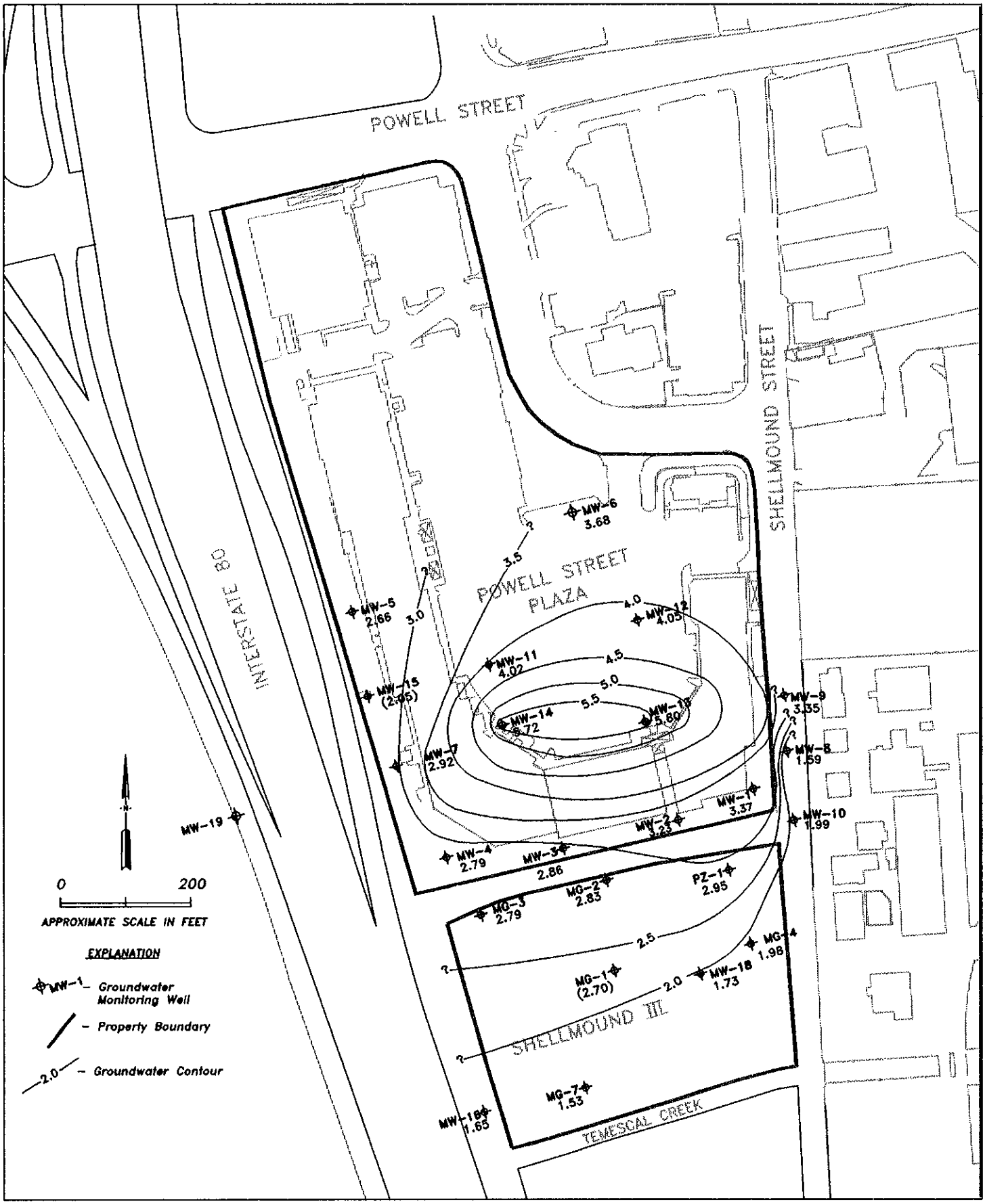
Trace = Interface probe indicated presence of free product, but product thickness is less than 0.01 feet

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

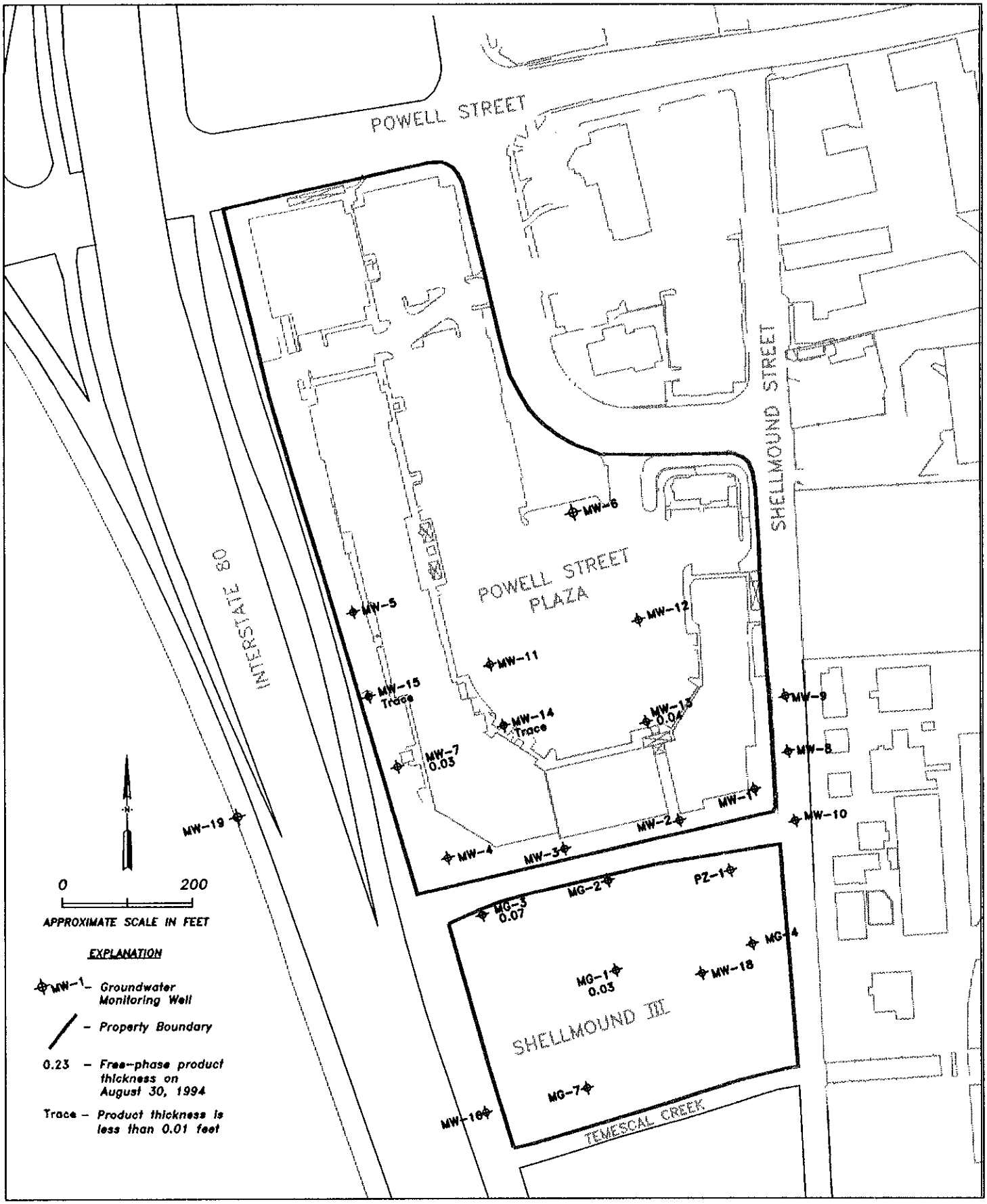


PES Environmental, Inc.
Engineering & Environmental Services

Water-Level Elevations on August 30, 1994
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE
2

241.0102.005	020050KD	BJS	10/94
JOB NUMBER	DWG NUMBER		DATE



PES Environmental, Inc.
Engineering & Environmental Services

Free-Phase Product Thickness on August 30,1994
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE
3

241.0102.005	020050KD	BJS	10/94
JOB NUMBER	DWG NUMBER		DATE

APPENDIX A

LABORATORY REPORT SHEETS
AND
CHAIN OF CUSTODY RECORDS
GROUNDWATER SAMPLES

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

September 21, 1994

Mr. John Skalbeck
PES Environmental
1682 Novato Boulevard, Suite 100
Novato, California 94947

RE: PACE Project No. 440831.519
Client Reference: Powell Street Plaza Quarterly, 241.0102.001

Dear Mr. Skalbeck:

Enclosed is the report of laboratory analyses for samples received August 31, 1994.

We sent these samples to Zymax Envirotechnology, in San Luis Obispo on September 2, 1994 for the Fuel Fingerprint analysis, which we are not yet certified to do.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shellie L. Hoyt-Weeks

Shellie L. Hoyt-Weeks
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-1 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38584.9 Field Blank Analyzed: 09/10/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		97

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #2
4250-1.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: Collected: Received: Matrix:	4250-2 08/30/94 09/03/94 Aqueous
Project: Project Number: Collected by:	440831.519	Sample Description: Analyzed: Method:	38585.7 MG-2 09/09/94 See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	7.7
Toluene	0.5	0.6
Ethylbenzene	0.5	ND
Xylenes	0.5	0.6
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	890.
BTX as a Percent of Fuel		1
Percent Surrogate Recovery		94

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

MSD #2
4250-2.xls
JMM/jam/bpl/bf

John MacMurphey
Laboratory Director

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Lab Services: 71 Zaca Lane, Suite 1
San Luis Obispo, California 934
fax 805.544.8226 tel 805.544.46

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	Shellie Hoyt-Weeks	Lab Number:	4250-3
	Pace Inc.	Collected:	08/30/94
	11 Digital Drive	Received:	09/03/94
	Novato, CA 94949	Matrix:	Aqueous
Project:	440831.519	Sample Description:	38586.5 MW-3
Project Number:		Analyzed:	09/12/94
Collected by:		Method:	See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	1.3
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	0.6
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	1300.
BTX as a Percent of Fuel		< 1
Percent Surrogate Recovery		87

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #1
4250-3.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite I
San Luis Obispo, California 934
fax 805.544.8226 tel 805.544.46

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-4 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38587.3 MG-7 Analyzed: 09/11/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	0.7
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		96

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #2
4250-4.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-5 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38588.1 MW-4 Analyzed: 09/12/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	5.0	470.
Toluene	5.0	ND
Ethylbenzene	5.0	ND
Xylenes	5.0	ND
1,2-Dichloroethane (EDC)	5.0	ND
Ethylene Dibromide (EDB)	5.0	ND
Total Petroleum Hydrocarbons (Gasoline)	500.	1400.
Total Petroleum Hydrocarbons (Diesel #2)	500.	ND
BTX as a Percent of Fuel		34
Percent Surrogate Recovery		90

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #1
4250-5.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite I
San Luis Obispo, California 934
fax 805.544.8226 tel 805.544.46

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-6 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38589.0 MW-11 Analyzed: 09/10/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	2.8
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		93

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #2
4250-6.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-7 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38590.3 MW-2 Analyzed: 09/12/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	0.6
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	200.
BTX as a Percent of Fuel		<1
Percent Surrogate Recovery		95

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #2
4250-7.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 934(
fax 805.544.8226 tel 805.544.469

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: Shellie Hoyt-Weeks Pace Inc. 11 Digital Drive Novato, CA 94949	Lab Number: 4250-8 Collected: 08/30/94 Received: 09/03/94 Matrix: Aqueous
Project: 440831.519 Project Number: Collected by:	Sample Description: 38591.1 MW-5 Analyzed: 09/12/94 Method: See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	0.5
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	1400.
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		84

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #2
4250-8.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

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 Street Plaza Quarterly
PROJECT MANAGER: John Skalbeck

SAMPLERS: Grant Mohr of Blaine Tech
RECORDER: (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
94	08	30	1350	9435000000	10	X				Field Blank			2		385849	19	01
94	08	30	1302	9435001102	23	X				MG-2			2		385851	19	10
94	08	30	1359	9435000003	23	X				MW-3			2		385865	19	10
94	08	30	1235	9435001107	23	X				MG-7			2		385871.3	19	10
94	08	30	1045	9435000004	23	X				MW-4			2		385888.1	19	10
94	08	30	0908	9435000011	23	X				MW-11			2		385889.0	19	10
94	08	30	0945	9435000002	23	X				MW-2			2		385890.3	19	10
94	08	30	1020	9435000005	23	X				MW-5			2		385891.1	19	10

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 (TPHg, TPHd, BTEX)
						X
						X
						X
						X
						X
						X
						X

NOTES

Analysis is a Fuel Fingerprint!
TPHg, TPHd, BTEX

Standard Turn Around

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature) Brenda	8/31/94	4:00
RELINQUISHED BY: (Signature) Brenda	RECEIVED BY: (Signature)	8/31/94	4:30
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

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

193797

pace INCORPORATED THE ASSURANCE OF QUALITY

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: Pace Inc
Address: 11 Digital Drive
Novato CA 94949
Phone: (415) 883-6100

Report To: Shellie Hoyt-Weeks
Bill To: Novato
P.O. # / Billing Reference: 70-4364
Project Name / No.: 940831.519

Pace Client No.
Pace Project Manager: SHW
Pace Project No.
*Requested Due Date: 9/13/94

Sampled By (PRINT):

Sampler Signature
Date Sampled: 8/30/94

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	UNPRESERVED	H_2SO_4	HNO_3	VOA w/HCl			ANALYSES REQUEST: EF by 8260 look for both gas & diesel	REMARKS
1	38584.9		GW						2			X	4250-1
2	38585.*7*		GW						2			X	-2* *correction per Shellie 9-1
3	38586.5		GW						2			X	-3
4	38587.3		GW						2			X	-4
5	38588.1		GW						2			X	-5
6	38589.0		GW						2			X	-6
7	38590.3		GW						2			X	-7
8	38591.1		GW						2			X	-8

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	RETURNED / DATE

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
	Jen McIntosh	Fed Ex	9/2/94	10:00
		JESPER NIELSEN SYMAX [signature]	9.3.94	13:00

Additional Comments
per John MacMurphey #92 per

SEE REVERSE SIDE FOR INSTRUCTIONS

pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

September 21, 1994

Mr. John Skalbeck
PES Environmental
1682 Novato Boulevard, Suite 100
Novato, California 94947

RE: PACE Project No. 440906.517
Client Reference: Powell Street Plaza Quarterly, 241.0102.001

Dear Mr. Skalbeck:

Enclosed is the report of laboratory analyses for samples received September 6, 1994.

We sent these samples to Zymax Envirotechnology, in San Luis Obispo on September 8, 1994 for the Fuel Fingerprint analysis, which we are not yet certified to do.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shellie L. Hoyt-Weeks

Shellie L. Hoyt-Weeks
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	Shellie Hoyt-Weeks Pace Inc. 11 Digital Dr. Novato, CA 94949	Lab Number: Collected: Received: Matrix:	4285-1 09/06/94 09/09/94 Aqueous
Project:	440906.517	Sample Description:	38983.6 MW-8
Project Number:		Analyzed:	09/12/94
Collected by:		Method:	See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		91

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #1
4285-1.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	Shellie Hoyt-Weeks Pace Inc. 11 Digital Dr. Novato, CA 94949	Lab Number: Collected: Received: Matrix:	4285-2 09/06/94 09/09/94 Aqueous
Project:	440906.517 Project Number: Collected by:	Sample Description: Analyzed: Method:	38984.4 MG-4 09/12/94 See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	0.7
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		91

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #1
4285-2.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite I
San Luis Obispo, California 934
fax 805.544.8226 tel 805.544.46

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	Shellie Hoyt-Weeks Pace Inc. 11 Digital Dr. Novato, CA 94949	Lab Number: Collected: Received: Matrix:	4285-3 09/06/94 09/09/94 Aqueous
Project: Project Number: Collected by:	440906.517	Sample Description: Analyzed: Method:	38985.2 MW-12 09/12/94 See Below

CONSTITUENT	PQL* ug/L	RESULT** ug/L
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Xylenes	0.5	ND
1,2-Dichloroethane (EDC)	0.5	ND
Ethylene Dibromide (EDB)	0.5	ND
Total Petroleum Hydrocarbons (Gasoline)	50.	ND
Total Petroleum Hydrocarbons (Diesel #2)	50.	ND
BTX as a Percent of Fuel		N/A
Percent Surrogate Recovery		90

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717
*PQL - Practical Quantitation Limit
**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyzed by EPA 8260 and GC/MS Combination.
Note: Extracted by EPA 5030.
Note: Analytical range is C4-C13.

Submitted by,
ZymaX envirotechnology, inc.

John MacMurphey
Laboratory Director

MSD #1
4285-3.xls
JMM/jam/bpl/bf

LA Office: 1682 Langley Avenue
Irvine, California 92714
tel 714.660.9129

Lab Services: 71 Zaca Lane, Suite 11
San Luis Obispo, California 9340
fax 805.544.8226 tel 805.544.469

PES Environmental, Inc.
Engineering & Environmental Services

440906 STN 182053

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: Keith Brown of 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)	See Notes						
94	09	06	0845	943600008	23	X							3		MW-8		27	10						X			8	8	36
94	09	06	0911	943601104	23	X							3		MG-4		27	10						X		3	8	8	4	4
94	09	06	0945	943600012	23	X							3		MW-12		27	10						X		3	8	8	5	2

ANALYSIS REQUESTED

NOTES

*Analysis is TPHg, TPHd, BTEX per conversation with Shelly of PACE.

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	9-6-94	1000
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature) M.C. McPeters/PACE	9/6/94	1600
RELINQUISHED BY: (Signature) M.C. McPeters/PACE	RECEIVED BY: (Signature)	9/6/94	1625
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 PACE

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

193555

pace INCORPORATED
THE ASSURANCE OF QUALITY

CHAIN-OF-CUSTODY RECORD
Analytical Request

Client: PACE - NOVATO
Address: 11 DIGITAL DR.
NOVATO CA 94949
Phone: (415) 883-6100

Report To: SHELLIE HOYT-WILKS
Bill To: PACE
P.O. # / Billing Reference: SLH WILL SEND PO #
Project Name / No.: 440906.517

Pace Client No.
Pace Project Manager
Pace Project No.
*Requested Due Date: 9/16/94

Sampled By (PRINT):
Sampler Signature
Date Sampled: 9/6/94

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	HCl	ANALYSES REQUEST: 8260 (TPHd, TEH, BTXE)	REMARKS
1	38983.6		H_2O		3					X	X	
2	38984.4		↓		↓					↓	X	
3	38985.2		↓		↓					↓	X	
4												
5												
6												
7					21-MW							
8					4-SW							
					8'-MW							

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT DATE	SHIPMENT METHOD RETURNED / DATE	ITEM NUMBER	RELINQUISHED BY AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
					PACE VIA UPS		9/8/94	3:30

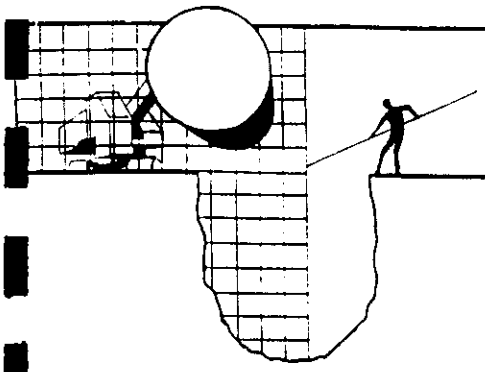
Additional Comments

SEE REVERSE SIDE FOR INSTRUCTIONS

APPENDIX B

GROUNDWATER SAMPLING REPORT

BLAINE TECH SERVICES, INC.



BLAINE TECH SERVICES INC.

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

September 8, 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:
August 30 & September 6, 1994

GROUNDWATER SAMPLING REPORT 940830-G-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-2	
Date Sampled	08/30/94			09/06/94			08/30/94			08/30/94	
Well Diameter (in.)	2			2			2			4	
Total Well Depth (ft.)	14.70			11.74			14.80			14.10	
Depth To Water (ft.)	7.79			5.36			8.33			6.41	
Free Product (ft.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	1.1			1.0			1.0			5.0	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	3.3			3.0			3.0			15.0	
Purging Device	BAILER			BAILER			BAILER			ELECTRIC SUBMERSIBLE	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	12:49	12:52	12:56	09:02	09:04	09:06	12:21	12:24	12:28	09:29	09:34	09:37
Temperature (Fahrenheit)	70.4	69.2	69.4	72.6	72.6	71.9	70.8	70.2	70.0	68.0	68.2	69.6
pH	7.6	7.4	7.4	7.2	7.0	7.2	7.6	7.9	8.0	6.8	6.9	7.0
Conductivity (micromhos/cm)	3600	3400	3800	3400	3600	3600	2200	2200	2200	>10000	>10000	>10000
Nephelometric Turbidity (NTU)	40.2	56.0	64.4	143	104	>200	53.1	44.9	32.9	15.6	9.9	3.0
BTS Chain of Custody	940830-G-1			940830-G-1			940830-G-1			940830-G-1	
BTS Sample I.D.	94350102			94360104			94350107			94350002	
DHS HMTL Laboratory	PACE			PACE			PACE			PACE	
Analysis	TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)	

TABLE OF WELL MONITORING DATA

Well I.D.	MW-3			MW-4			MW-5			MW-8	
Date Sampled	08/30/94			08/30/94			08/30/94			09/06/94	
Well Diameter (in.)	4			4			4			2	
Total Well Depth (ft.)	12.74			12.88			14.78			12.13	
Depth To Water (ft.)	7.86			8.65			8.03			5.94	
Free Product (ft.)	NONE			NONE			NONE			NONE	
Reason If Not Sampled	--			--			--			--	
1 Case Volume (gal.)	3.2			2.75			1.1			1.0	
Did Well Dewater?	NO			NO			NO			NO	
Gallons Actually Evacuated	10.0			9.0			3.5			3.0	
Purging Device	ELECTRIC SUBMERSIBLE			ELECTRIC SUBMERSIBLE			BAILER			BAILER	
Sampling Device	BAILER			BAILER			BAILER			BAILER	
Time	11:17	11:25	11:31	10:31	10:34	10:38	10:04	10:08	10:12	08:38	08:40	08:41
Temperature (Fahrenheit)	70.6	70.4	70.0	68.4	69.8	68.6	71.0	71.0	71.2	69.1	68.5	68.1
pH	7.0	6.9	6.8	7.1	7.0	7.0	7.0	7.0	7.0	7.4	7.0	7.0
Conductivity (micromhos/cm)	2400	2600	2400	8200	4200	3400	4200	3000	2800	2500	2500	2400
Nephelometric Turbidity	75.4	178.5	128.2	>200	94.2	39.4	116.1	166.7	>200	>200	>200	>200
BTS Chain of Custody	940830-G-1			940830-G-1			940830-G-1			940830-G-1	
BTS Sample I.D.	94350003			94350004			94350005			94360008	
DHS HMTL Laboratory	PACE			PACE			PACE			PACE	
Analysis	TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)	

TABLE OF WELL MONITORING DATA

Well I.D.	MW-11			MW-12			
Date Sampled	08/30/94			09/06/94			
Well Diameter (in.)	2			2			
Total Well Depth (ft.)	12.72			11.61			
Depth To Water (ft.)	7.69			5.45			
Free Product (ft.)	NONE			NONE			
Reason If Not Sampled	--			--			
1 Case Volume (gal.)	0.8			0.98			
Did Well Dewater?	NO			NO			
Gallons Actually Evacuated	2.5			3.0			
Purging Device	BAILER			BAILER			
Sampling Device	BAILER			BAILER			
Time	08:53	08:56	08:59	09:26	09:28	09:36	
Temperature (Fahrenheit)	71.0	69.8	69.6	72.9	72.3	70.5	
pH	6.7	6.7	6.7	7.7	7.8	7.8	
Conductivity (micromhos/cm)	2300	2200	2200	3200	2700	2100	
Nephelometric Turbidity	28.0	71.8	143.5	>200	>200	>200	
BTS Chain of Custody	940830-G-1			940830-G-1			
BTS Sample I.D.	94350011			94360012			
DHS HMTL Laboratory	PACE			PACE			
Analysis	TPH (GAS), BTEX & TPH (DIESEL)			TPH (GAS), BTEX & TPH (DIESEL)			

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 Pace Laboratories, Inc. in Novato, California. Pace Laboratories, Inc. is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #148.

Personnel

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

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

Decontamination

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

Please call if we can be of any further assistance.

Richard C. Blaine

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

SAMPLERS: Keith Brown of Blaine Tech
RECORDER: (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
94	09	06	0845	943600008	23	X							3			27	10
94	09	06	0911	943601004	23	X							3			27	10
94	09	06	0945	943600012	23	X							3			27	10

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)	See Notes
						X
						X
						X

NOTES

*Analysis is TPHg, TPHd, BTEX per conversation with Shelly of PACE.

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)	DATE 9-6-94 TIME 1000
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 PACE

Laboratory Copy Project Office Copy Field or Office Copy
Pink

DISTRIBUTION

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

OCTOBER 28, 1994

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1 Copy	Mr. Kevin Graves San Francisco Bay Regional Water Quality Control Board 2101 Webster Street, Suite 500 Oakland, California 94612	4
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continued

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

OCTOBER 28, 1994

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QUALITY CONTROL REVIEWER

William F Fingell for
Robert S. Creps, P. E.
Principal Engineer