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Engineering & Environmental Services

A Report Prepared for:

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QUARTERLY MONITORING REPORT
THIRD QUARTER 1995
POWELL STREET PLAZA
AND SHELLMOUND III SITES
EMERYVILLE, CALIFORNIA

JANUARY 22, 1996

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1.0 INTRODUCTION

This report presents data collected by PES Environmental, Inc. (PES) during groundwater monitoring at Powell Street Plaza and the adjacent Shellmound III properties in Emeryville, California during the third quarter of 1995. Monitoring during this quarter was performed on August 23, 1995. This monitoring was conducted on behalf of the former partners 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 California Regional Water Quality Control Board - San Francisco Bay Region (RWQCB). The purpose of the monitoring is to evaluate the degree and extent of petroleum hydrocarbons in groundwater at the subject sites.

2.0 QUARTERLY STATUS REPORT

Soils from the excavation and relocation of an East Bay Municipal Utility District (EBMUD) sanitary sewer (referred to as the North Interceptor), as well as heavy equipment and construction materials, were stored on the Powell Street Plaza and Shellmound III sites during the quarter. Monitoring wells MW-18, MG-2, MG-3, and MG-4 were covered by soil stockpiles or were inaccessible during sampling due to heavy equipment or materials blocking access to the wells. Monitoring wells MW-4, MW-5, MW-7, MW-15, and MW-16 were abandoned during the North Interceptor relocation activities in accordance with Alameda County Flood Control District - Zone 7 well destruction permit conditions. Locations of the monitoring wells are shown on Plate 1.

3.0 QUARTERLY GROUNDWATER SAMPLING

Quarterly groundwater sampling was conducted by Blaine Tech Services, Inc. (Blaine Tech) under PES' observation on August 23, 1995. Groundwater samples were collected from monitoring wells MW-1, MW-2, MW-11, MW-12, MW-19, MG-7, and PZ-1 in accordance with the monitoring well sampling schedule approved by ACDEH. Monitoring wells MW-4, MW-5, MG-2, and MG-4 were scheduled to be sampled, but were inaccessible or abandoned as described above. Monitoring well identification and corresponding sample numbers are presented on Table 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 new disposable plastic (high-density polyethylene) bailer at each well and poured into the appropriate laboratory containers. The sample containers were then labeled and immediately placed in a chilled, thermally-

insulated cooler for delivery under chain-of-custody protocol to American Environmental Network (AEN), a State-certified laboratory in Pleasant Hill, California. AEN received the samples on August 23, 1995.

AEN analyzed the samples using EPA Test Method 8015 (modified) for total petroleum hydrocarbons quantified as gasoline (TPHg), diesel (TPHd) and motor oil (TPHmo) and using EPA Test Method 8020 for benzene, toluene, ethylbenzene and total xylenes (BTEX). Laboratory chemical analyses 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 attached as Appendix A. Sampling methods and field parameter measurements are described in the Blaine Tech sampling report in Appendix B.

4.0 WATER-LEVEL AND PRODUCT THICKNESS MEASUREMENTS

Water levels and product thickness (where present) in the monitoring wells were measured on August 23, 1995 by PES prior to well purging and sampling. 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. To prevent cross-contamination between wells, the portion of the sounding probe submerged in the well was cleaned with an alconox/deionized water solution and double-rinsed with deionized water between well measurements. Water-level elevations and product thickness measurements 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 23, 1995 sampling event.

5.1 Groundwater Chemistry

TPHd was detected in groundwater samples collected from wells MW-1, MW-2, MW-11, MW-12, MG-7, and PZ-1. Concentrations of TPHd ranged from 0.5 parts per million (ppm) to 5.4 ppm. TPHg was detected in samples collected from wells MW-2, MG-7, and PZ-1 at concentrations ranging from 0.06 ppm to 0.2 ppm. TPHmo was detected in groundwater samples from wells MW-1, MW-2, MW-11, MW-12, MW-19, and PZ-1 Concentrations of TPHmo ranged from 0.2 ppm to 1.5 ppm.

Benzene was detected in groundwater samples collected from Wells MW-2, MW-11, MG-7 and PZ-1 at concentrations ranging from 0.0007 ppm to 0.001 ppm. Toluene, ethylbenzene,

and total xylenes were not detected in any of the groundwater samples at or above their laboratory reporting limits.

5.2 Water-Level and Product Thickness Measurements

The August 23, 1995 water-level elevations at the Powell Street Plaza and Shellmound III properties ranged from -0.18 to 5.69 feet mean sea level (MSL). The August 23, 1995 water-level elevations at the Powell Street Plaza property ranged from 0.59 feet lower (MW-19) to 2.70 feet lower (MW-11) than water-level elevations measured on May 25, 1995. The August 23, 1995 water-level elevations on the Shellmound III property ranged from 1.22 feet lower (PZ-1) to 2.89 feet lower (MG-7) than the May 25, 1995 water-level elevations. The relatively low water-level elevations observed at the Powell Street Plaza and Shellmound III properties on August 23, 1995 correlate with the late summer season.

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 groundwater mound in the vicinity of Wells MW-13 and MW-14 is slightly less pronounced in the August 23, 1995 water-level elevations than in the May 25, 1995 water-level elevations.

The primary direction of groundwater flow is southwest toward Temescal Creek at an approximate gradient range of 0.005 to 0.02 feet per foot. The presence of free product was more evident in August 1995 than in May 1995 which corresponds with the generally lower water-level elevations measured on the sites.

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, TPHmo and BTEX were not detected in the internal blanks prepared by the laboratory. One field blank (Sample Number 95340000) was submitted to the laboratory for analysis. Benzene was detected in the field blank at a concentration of 0.001 ppm, which is slightly greater than the reporting limit of 0.0005 ppm. TPHg, TPHd, TPHmo, toluene, ethylbenzene, and total xylenes were not detected in the field blank. The low concentration of benzene detected in the field blank could be attributed to

several possible sources: residual contamination on sample handling equipment; contaminated sample containers; contaminated field blank source water; or elevated ambient concentrations of benzene in the air at the site.

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

TABLES

TABLE 1

Summary of Wells Sampled
August 23, 1995

Powell Street Plaza and Shellmound III Sites
Emeryville, California

Well ID	Sample Number
MW-1	95340001
MW-2	95340002
MW-3	NS
MW-4	NS
MW-5	NS
MW-6	NS
MW-7	NS
MW-8	NS
MW-9	NS
MW-10	NS
MW-11	95340011
MW-12	95340012
MW-13	NS
MW-14	NS
MW-15	NS
MW-16	NS
MW-18	NS
MW-19	95340019
MG-1	NS
MG-2	NS
MG-3	NS
MG-4	NS
MG-7	95340107
PZ-1	95340201
Field Blank	95340000

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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-1	3/14/88	8015	NT	<1	NT	NT	NT	NT	NT	
	3/25/91	8015/8020	<0.050	<0.050	NT	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	NT	0.0013	0.0018	<0.0005	0.0020	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	8015/8020	<0.05	0.3	0.2	<0.0005	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	<0.05	0.69	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	<0.05	0.4	0.3	<0.0005	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**<0.05**	**0.5**	**0.6**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.002**	
MW-2	3/14/88	8015	NT	0.05	NT	NT	NT	NT	NT	
	3/25/91	8015/8020	0.053	<0.050	NT	0.0006	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	8/30/94	8260	<0.050	0.200	NT	0.0006	<0.0005	<0.0005	<0.0005	
	11/29/94	8015/8020	0.07	3.9	0.9	0.0009	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	0.08	3.9	0.2	0.0007	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	0.05	2.4	0.2	0.0007	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**0.06**	**4.1**	**0.8**	**0.0007**	**<0.0005**	**<0.0005**	**<0.002**	
MW-3	3/14/88	8015	NT	0 15	NT	NT	NT	NT	NT	
	3/25/91	NS	NS	NS	NT	NS	NS	NS	NS	Free product
	11/10/93	NS	NS	NS	NT	NS	NS	NS	NS	Free product (0.23 ft)
	2/23/94	8260	<0.050	11.000	NT	0 0007	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	NS	NS	NS	NS	NS	NS	NS	Well cover jammed
	8/30/94	8260	<0.050	1.300	NT	0.0013	<0.0005	<0.0005	0.0006	

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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-3	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
(cont)	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (Trace: <0.01 ft)**
MW-4	3/14/88	8015	NT	1.2	NT	NT	NT	NT	NT	
	3/25/91	8015/8020	1.300	2.500	NT	0.7100	0.0030	0.0020	0.0060	
	11/10/93	8260	0.800	34.000	NT	0.4400	0.0030	<0.0020	<0.0020	Free product (0.02 ft)
	2/23/94	8260	0.560	18.000	NT	0.4500	0.0025	<0.0005	0.0020	
	6/2/94	8260	<0.500	13.000	NT	0.760	<0.005	<0.005	<0.005	
	8/30/94	8260	1.400	<0 050	NT	0.470	<0.0005	<0.0005	<0.0005	
	11/29/94	8015/8020	3.5	14	1.5	0.500	0.004	0.0007	0.003	
	3/3/95	8015/8020	3.1	11	0.7	0.610	0.004	0.001	0.004	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Well buried under soil stockpile
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well abandoned**
MW-5	3/14/88	8015	NT	<1	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	6.800	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	7.100	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.500	8.100	NT	<0.005	<0.005	<0.005	<0.005	
	8/30/94	8260	<0.050	1.400	NT	<0.0005	<0.0005	<0.0005	<0.0005	0.0005 - 1,2-DCA
	11/29/94	8015/8020	2.1	4.3	1.1	0.0006	0.0006	<0.0005	<0.002	
	3/3/95	8015/8020	0.6	5.3	0.2	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	0.06	5.2	0.8	<0.0005	<0.0005	<0.0005	<0 002	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well abandoned**
MW-6	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-6	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
(cont)	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MW-7	3/10/88	NS	NS	NS	NS	NS	NS	NS	NS	Free product (1.32 ft)
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.22 ft)
	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.01 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Well not accessible
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well abandoned**
MW-8	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	0.190	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MW-9	3/14/88	8015	NT	<1	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-9	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
(cont)	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MW-10	3/14/88	8015	NT	<1.0	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MW-11	3/14/88	NS	NS	NS	NS	NS	NS	NS	NS	Well was dry
	11/10/93	8260	<0.050	<0.050	NT	0.0008	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	0.0008	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	0.0021	<0.0005	<0.0005	<0.0005	
	8/30/94	8260	<0.050	<0.050	NT	0.0028	<0.0005	<0.0005	<0.0005	
	11/29/94	8015/8020	0.07	2.0	0.8	0.002	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	0.06	3.7	0.2	0.005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	0.09	2.5	0.6	0.011	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**<0.05**	**3.3**	**0.5**	**0.001**	**<0.0005**	**<0.0005**	**<0.002**	
MW-12	3/14/88	8015	NT	0.05	NT	NT	NT	NT	NT	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-12	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
(cont)	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	8015/8020	<0.05	0.3	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	<0.05	0.3	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	<0.05	0.66	0.4	<0.0005	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**<0.05**	**0.6**	**0.2**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.002**	
MW-13	3/14/88	8015/8020	NT	1.7	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (1.06 ft)
	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.01 ft)
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (0.27 ft)**
MW-14	3/14/88	8015	NT	<1	NT	NT	NT	NT	NT	
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.27 ft)
	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0 01 ft)
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MW-15	3/14/88	8015/8020	NT	1.8	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.15 ft)

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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-15	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
(cont)	6/2/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0 01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Well not accessible
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well abandoned**
MW-16	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	NT	
	4/21/89	8015	NT	<1.0	NT	0.0009	0.0026	0.0004	0.0041	
	3/25/91	8015/8020	<0.050	<0.050	NT	<0.0003	<0.0003	<0.0003	0.0003	
	5/20/92	8015/8020	<0.050	0.140	NT	<0.0003	<0.0003	<0.0003	<0.0003	Non-standard diesel pattern
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	
	3/3/95	8015/8020	<0.05	0.5	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well abandoned**
MW-18	3/14/88	8015	NT	<0.05	NT	NT	NT	NT	NT	
	5/20/92	8015/8020	<0.050	<0.050	NT	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Well area flooded
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Well area flooded, almost under water
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Well area flooded
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Well buried under soil stockpile
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	

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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MW-19	10/6/94	8015/8020	<0.05	<0.05	0.4	<0.0005	<0.0005	<0.0005	<0.002	
	10/31/94	8015/8020	<0.05	0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	11/29/94	8015/8020	0.07	<0.05	0.5	0.002	0.005	0.0009	0.005	
	3/3/95	8015/8020	<0.05	0.3	<0.2	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	<0.05	0.4	0.4	<0.0005	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**<0.05**	**<0.05**	**0.5**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.002**	
MG-1	4/21/89	NS	NS	NS	NS	NS	NS	NS	NS	Free product
	3/25/91	NS	NS	NS	NS	NS	NS	NS	NS	Free product
	5/21/92	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.03 ft)
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.36 ft)
	2/23/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	6/2/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.09 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	5/25/95	NS	NS	NS	NS	NS	NS	NS	NS	Well buried under soil stockpile
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Free product (0.49 ft)**
MG-2	4/21/89	8015	NT	<1.0	NT	0.09	0.0027	<0.0003	0.0017	
	3/25/91	8015/8020	<0.050	<0.050	NT	0.0010	<0.0003	<0.0003	<0.0003	
	5/21/92	8015	0.210	1.400	NT	0.0820	0.0018	0.0006	0.0014	
	11/10/93	8260	0.050	0.540	NT	0 0160	0.0009	<0.0005	<0.0005	
	2/23/94	8260	<0.050	3.300	NT	0.0033	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	0.490	<0.050	NT	0.016	0.0009	<0.0005	<0.0005	
	8/30/94	8260	<0.050	0.875	NT	0.0078	0.0006	<0.0005	0.0006	
	11/29/94	8015/8020	0.3	3.2	0.9	0.015	0.001	<0.0005	<0.002	
	3/3/95	8015/8020	0.8	3.1	0.7	0.002	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	0.8	3.9	0.4	0.098	0.003	<0.0005	<0.002	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well covered by equipment**

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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MG-3	4/21/89	8015	NT	<1.0	NT	0.1	0.0023	<0.0003	0.0089	
	3/25/91	8015/8020	0.610	2.600	NT	0.0750	0.0008	0.0004	0.0020	
	5/21/92	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.85 ft)
	11/10/93	NS	NS	NS	NS	NS	NS	NS	NS	Free product (0.47 ft)
	2/23/94	8260	NS	NS	NS	NS	NS	NS	NS	Free product (0.02 ft)
	6/2/94	8260	NS	NS	NS	NS	NS	NS	NS	Free product (0.08 ft)
	11/29/94	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Free product (Trace: <0.01 ft)
	5/25/95	8015/8020	12	130	<10	0.014	0.0007	0.001	0.003	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	
MG-4	4/21/89	8015	NT	<1 0	NT	0.0003	<0.0003	<0.0003	0.0013	
	3/25/91	8015/8020	<0.050	<0.050	NT	0.0004	<0.0003	<0.0003	0.0005	
	5/20/92	8015/8020	<0.050	<0.050	NT	<0.0003	<0.0003	<0.0003	<0.0003	
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	9/6/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	0.0007 - 1,2-DCA
	11/29/94	8015/8020	<0.05	4.8	0.6	<0.0005	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	0.05	9.9	0.9	<0.0005	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	<0.05	10	1	0.0007	<0.0005	<0.0005	<0.002	
	8/23/95	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**Well buried under soil stockpile**
MG-7	3/25/91	8015/8020	<0.050	<0.050	NT	0.0005	<0.0003	<0.0003	<0.0003	
	5/20/92	8015/8020	<0.050	0.060	NT	<0.0003	<0.0003	<0.0003	<0.0003	Non-standard diesel pattern
	11/10/93	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	2/23/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	
	6/2/94	8260	<0.050	<0.050	NT	<0.0005	<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	TPH as Motor Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Comments
MG-7	8/30/94	8260	<0.050	<0.050	NT	<0.0005	<0.0005	<0.0005	<0.0005	0.0007 - 1,2-DCA
(cont)	11/29/94	8015/8020	<0.05	2.6	0.4	<0.0005	<0.0005	<0.0005	<0.002	
	3/3/95	NS	NS	NS	NS	NS	NS	NS	NS	Well buried under soil stockpile
	5/25/95	8015/8020	<0.05	1.7	0.4	0.0007	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**0.1**	**2.8**	**<0.2**	**0.0008**	**<0.0005**	**<0.0005**	**<0.002**	
PZ-1	3/25/91	8015/8020	0.320	0.340	NT	0.0004	<0.0003	<0.0003	0.0010	
	5/21/92	8015/8020	0.120	0.600	NT	0.0018	0.0003	0.0003	0.0012	
	11/10/93	8260	<0.050	<0.050	NT	0.0015	<0.0005	<0.0005	<0.0005	0.450 - TPH as light petroleum distillate
	2/23/94	8260	<0.050	<0.050	NT	0.0009	<0.0005	<0.0005	<0.0005	0.200 - TPH as stoddard solvent
	6/2/94	8260	<0.050	<0.050	NT	0.0016	<0.0005	<0.0005	<0.0005	2.400 - TPH as light petroleum distillate
	11/29/94	8015/8020	0.2	1.4	1.7	0.0007	<0.0005	<0.0005	<0.002	
	3/3/95	8015/8020	2.0	3.7	0.8	0.0006	<0.0005	<0.0005	<0.002	
	5/25/95	8015/8020	0.6	3.7	0.6	0.002	<0.0005	<0.0005	<0.002	
	8/23/95	**8015/8020**	**0.2**	**5.4**	**1.5**	**0.0007**	**<0.0005**	**<0.0005**	**<0.002**	

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	8/23/95	8.72	NP	5.39		3.33	
MW-2	8/23/95	9.83	NP	6.58		3.25	
MW-3	8/23/95	10.86	Trace	7.85	<0.01	3.01	
MW-4	8/23/95	11.58	NM	NM		NM	
MW-5	8/23/95	11.16	NM	NM		NM	
MW-6	8/23/95	11.42	NP	7.87		3.55	
MW-7	8/23/95	11.84	NM	NM		NM	
MW-8	8/23/95	7.48	NP	5.76		1.72	
MW-9	8/23/95	7.50	NP	3.55		3.95	
MW-10	8/23/95	7.38	NP	5.25		2.13	
MW-11	8/23/95	11.89	NP	9.08		2.81	
MW-12	8/23/95	9.42	NP	6.02		3.40	
MW-13	8/23/95	10.83	5.39	5.66	0.27	5.17	5.40
MW-14	8/23/95	11.74	NP	6.05		5.69	
MW-15	8/23/95	11.86	NM	NM		NM	
MW-16	8/23/95	10.82	NM	NM		NM	
MW-18	8/23/95	6.21	NM	NM		NM	
MW-19	8/23/95	9.94	NP	6.74		3.20	
MG-1	8/23/95	11.82	8.78	9.27	0.49	2.55	2.97
MG-2	8/23/95	10.83	NM	NM		NM	
MG-3	8/23/95	9.76	NM	NM		NM	
MG-4	8/23/95	7.38	NM	NM		NM	
MG-7	8/23/95	10.06	NP	10.24		-0.18	
PZ-1	8/23/95	7.99	NP	4.85		3.14	

Notes:

Revised top of casing elevations based on December 27, 1994 and January 4, 1995 Kier & Wright survey.

NP = No free product observed

Trace = Slight residue on interface probe or other indication of free-product. Product thickness is less than 0.01 foot.

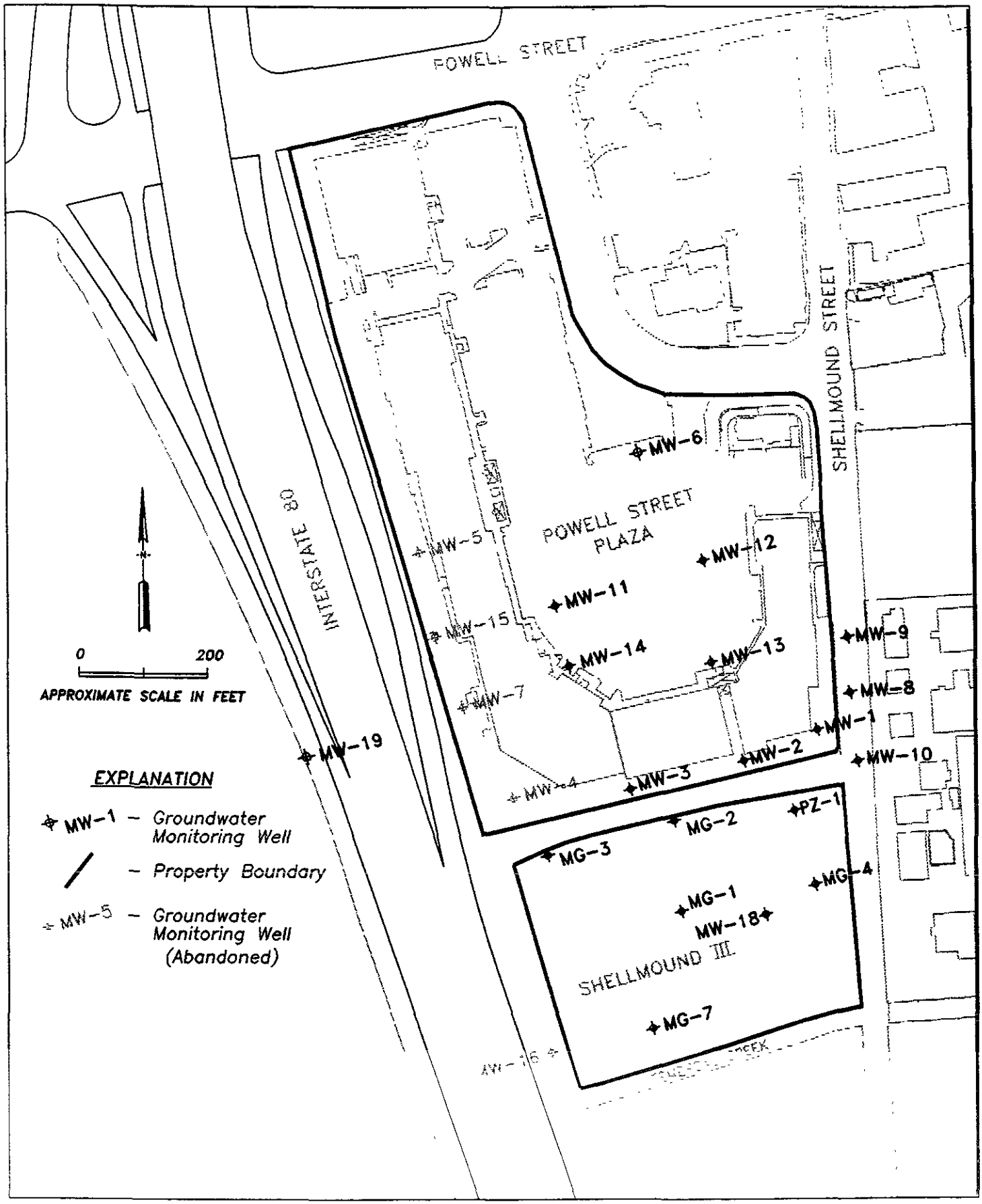
NM = Not measured

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

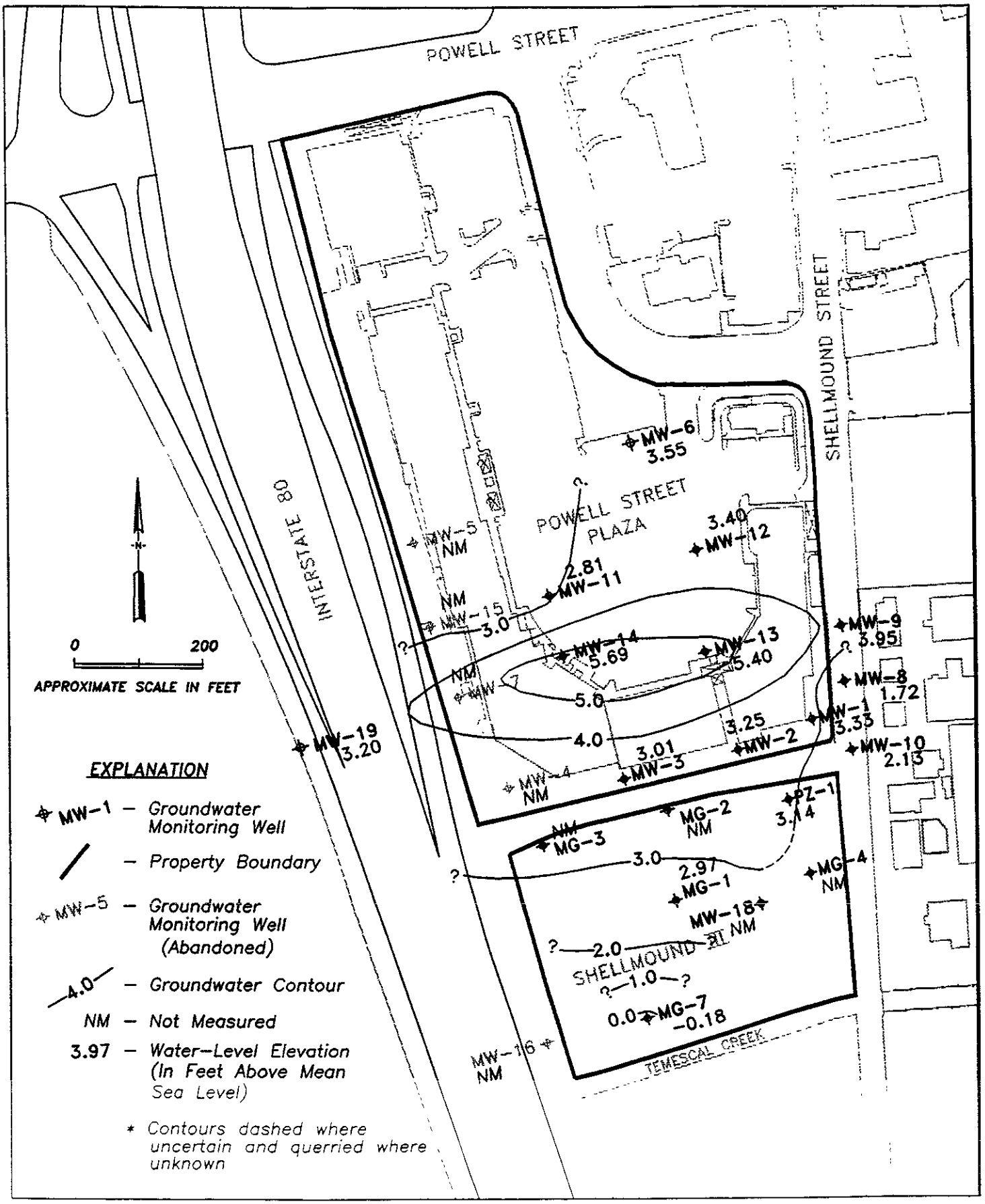


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
1

241.0102.008	020080P6	BJS	1/96
JOB NUMBER	DWG NUMBER		DATE

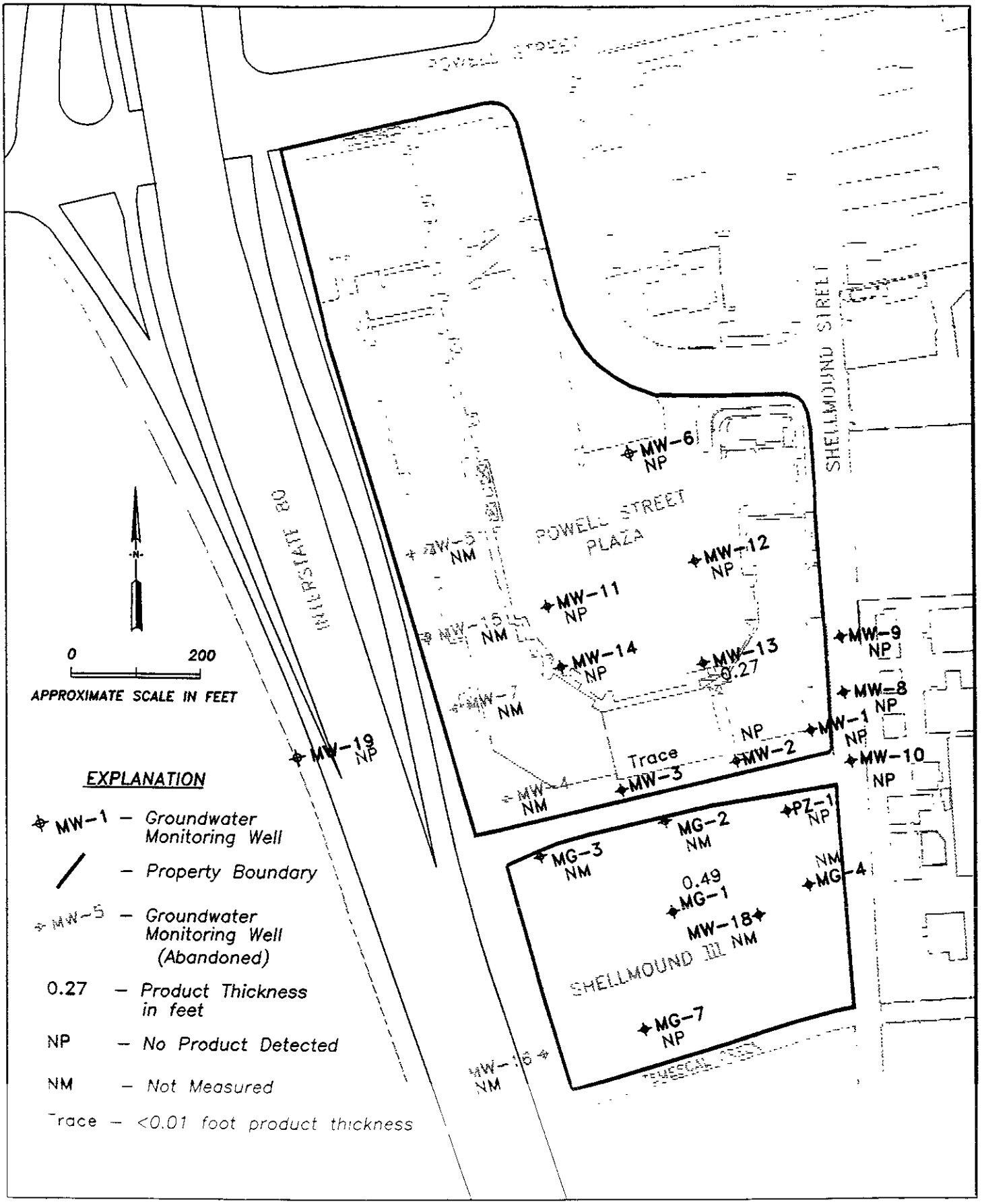


PES Environmental, Inc.
Engineering & Environmental Services

Water-Level Elevations on August 23, 1995
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE
2

241.0102.005	020050P6	BJS	1/96
JOB NUMBER	DWG NUMBER		DATE



PES Environmental, Inc.
Engineering & Environmental Services

Free-Phase Product Thickness on August 23, 1995
Powell Street Plaza and
Shellmound III Sites
Emeryville, California

PLATE 3

241.0102.005	020050P6	BJS	1/96
JOB NUMBER	DWG NUMBER		DATE

APPENDIX A

LABORATORY REPORT SHEETS
AND
CHAIN OF CUSTODY RECORDS
GROUNDWATER SAMPLES

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: JOHN SKALBECK
CLIENT PROJ. ID: 241.0102.005
CLIENT PROJ. NAME: POWELL ST.

REPORT DATE: 09/05/95

DATE(S) SAMPLED: 08/23/95

DATE RECEIVED: 08/23/95

AEN WORK ORDER: 9508308

PROJECT SUMMARY:

On August 23, 1995, this laboratory received 8 water sample(s).

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

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

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

Larry Klein
Laboratory Director

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340000
AEN LAB NO: 9508308-01
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1 *	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	ND	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	ND	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340001
AEN LAB NO: 9508308-02
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	0.5 *	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	0.6 *	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL. INC.

SAMPLE ID: 95340002
AEN LAB NO: 9508308-03
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	0.7 *	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	0.06 *	0.05	mg/L	08/29/95
#Extraction for TPH	**EPA 3510**	-		Extrn Date	08/31/95
TPH as Diesel	**GC-FID**	4.1 *	0.05	mg/L	09/01/95
TPH as Oil	**GC-FID**	0.8 *	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340011
AEN LAB NO: 9508308-04
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1 *	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	3.3 *	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	0.5 *	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340012
AEN LAB NO: 9508308-05
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	0.6 *	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	0.2 *	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340019
AEN LAB NO: 9508308-06
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	ND	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	0.5 *	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340107
AEN LAB NO: 9508308-07
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.8 *	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	0.1 *	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	2.8 *	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	ND	0.2	mg/L	09/01/95

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

PES ENVIRONMENTAL, INC.

SAMPLE ID: 95340201
AEN LAB NO: 9508308-08
AEN WORK ORDER: 9508308
CLIENT PROJ. ID: 241.0102.005

DATE SAMPLED: 08/23/95
DATE RECEIVED: 08/23/95
REPORT DATE: 09/05/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	0.7 *	0.5	ug/L	08/29/95
Toluene	108-88-3	ND	0.5	ug/L	08/29/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	08/29/95
Xylenes, Total	1330-20-7	ND	2	ug/L	08/29/95
Purgeable HCs as Gasoline	5030/GCFID	0.2 *	0.05	mg/L	08/29/95
#Extraction for TPH	EPA 3510	-		Extrn Date	08/31/95
TPH as Diesel	GC-FID	5.4 *	0.05	mg/L	09/01/95
TPH as Oil	GC-FID	1.5 *	0.2	mg/L	09/01/95

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508308

CLIENT PROJECT ID: 241.0102.005

Quality Control Summary

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

Definitions

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

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

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

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

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

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

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

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9508308
DATE EXTRACTED: 08/31/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
09/01/95	95340000	01	98
09/01/95	95340001	02	104
09/01/95	95340002	03	106
09/01/95	95340011	04	106
09/01/95	95340012	05	I
09/01/95	95340019	06	99
09/01/95	95340107	07	99
09/01/95	95340201	08	107
QC Limits:			59-118

I: Interference

DATE EXTRACTED: 08/31/95
DATE ANALYZED: 08/31/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.03	85	3	58-107	15

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9508308
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
08/29/95	95340000	01	100
08/29/95	95340001	02	102
08/29/95	95340002	03	98
08/29/95	95340011	04	99
08/29/95	95340012	05	101
08/29/95	95340019	06	99
08/29/95	95340107	07	99
08/29/95	95340201	08	98
QC Limits:			92-109

DATE ANALYZED: 08/29/95
SAMPLE SPIKED: 9508303-07
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	36.1	98	2	85-109	17
Toluene	99.3	103	3	87-111	16
HCs as Gasoline	1000	100	<1	66-117	19

*** END OF REPORT ***

R-1,3,11
R-3,5,3

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 241.0102.005
NAME/LOCATION Powell St. Plaza
PROJECT MANAGER John Skalbeck

SAMPLERS: Keith Brown of BlaineTech
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
95	08	23	1240	9534000001	23	X							X			27	01
			1230	9534000011													10
			0925	9534000022													10
			0805	9534001111													00
			1150	9534001212													00
			1000	9534001919													00
			1130	9534010707													00
			1100	9534020211													00

5 each

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)	TPH motor oil
	X			X	X	X

NOTES

Standard TAT
Pricing per agreement with Dean Peters & conversation with Robin & Roxie.

CHAIN OF CUSTODY RECORD

		DATE	TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	8-23-95	1:15
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	8-23-95	14:3
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	8-23-95	15
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE	TIME
DISPATCHED BY: (Signature) DATE TIME	RECEIVED FOR LAB BY: (Signature)	DATE 8/23/95	TIME 1510

METHOD OF SHIPMENT: Carrier pick-up - AEN

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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

August 31, 1995

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

ATTN: Bryan Smith

Site:
Shellmound 3
Powell Street Plaza
Shellmound & Christie
Emeryville, California

Date:
August 23, 1995

GROUNDWATER SAMPLING REPORT 950823-K-1

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

This report deals with the groundwater well sampling performed by our firm in response to your request. Data collected in the course of our work at the site are presented in the TABLE OF WELL MONITORING DATA. This information was collected during our inspection, well evacuation and sample collection. Measurements include the total depth of the well and the depth to water. Water surfaces were further inspected for the presence of immiscibles. A series of electrical conductivity, pH, and temperature readings were obtained during well evacuation and at the time of sample collection.

STANDARD PRACTICES

Evacuation and Sampling Equipment

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

Samples were collected using bailers.

Electric Submersible Pumps: Electric submersible pumps are appropriate for the high volume evacuation of wells of any depth provided the well diameter is large enough to admit the pump. Four inch and three inch diameter wells will readily accept electric submersible pumps, while two inch wells do not. In operation, the pump is lowered into the well with a pipe train above it. A checkvalve immediately above the pump and below the first section of pipe prevents water that has entered the pipe from flowing back into the well. Electricity is provided to the pump via an electrical cable and the action of the pump is to push water up out of the well.

Electric submersible pumps are often used as well evacuation devices, which are then supplanted with a more specialized sample collection device (such as a bailer) at the time of sampling. An alternative is to use the pump for both evacuation and sampling. When a bailer is used to collect the sample, interpretation of results by the consultant should allow for variations attributable to near surface contamination entering the bailer. When the electric submersible is, itself, used for sample collection it should be operated with the output restricted to a point where the loss of volatiles becomes indistinguishable from the level obtained with true sampling pumps. It should be noted that when the pump is used for both evacuation and sample collection that it is possible to perform these operations as an uninterrupted continuum. This contrasts with the variations in elapsed time between evacuation and sample collection that occur when field personnel cease one mode of operation and must bring other apparatus into use.

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

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

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

Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site.

Effluent Materials

The evacuation process creates a volume of effluent water which must be contained. Blaine Tech Services, Inc. will place this water in appropriate containers of the client's choice or bring new 55 gallon DOT 17 E drums to the site, which are appropriate for the containment of the effluent materials. The determination of how to properly dispose of the effluent water must usually await the results of laboratory analyses of the sample collected from the groundwater well. If that sample does not establish whether or not the effluent water is contaminated, or if effluent from more than one source has been combined in the same container, it may be necessary to conduct additional analyses on the effluent material.

Sampling Methodology

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

Sample Containers

Sample containers are supplied by the laboratory performing the analyses.

Sample Handling Procedures

Following collection, samples are promptly placed in an ice chest containing deionized ice or an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

Sample Designations

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

Chain of Custody

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

Personnel

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

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

Please call if we can be of any further assistance.

James Blaine Jr.

Richard C. Blaine

RCB/lp

attachments: table of well monitoring data
chain of custody

TABLE OF WELL MONITORING DATA

Well I.D.	MW-1		MW-2			MW-4	MW-5	
Date Sampled	08/23/95		08/23/95			08/23/95	08/23/95	
Well Diameter (in.)	4		4			--	--	
Total Well Depth (ft.)	13.64		14.13			--	--	
Depth To Water (ft.)	5.39		6.58			--	--	
Free Product (in.)	NONE		NONE			--	--	
Reason If Not Sampled	--		--			BURIED	BURIED	
1 Case Volume (gal.)	5.4		4.9					
Did Well Dewater?	YES @ 7.0 gals.		NO					
Gallons Actually Evacuated	7.0		15.0					
Purging Device	ELECTRIC SUBMERSIBLE		ELECTRIC SUBMERSIBLE					
Sampling Device	BAILER		BAILER					
Time	08:45	12:21	09:11	09:12	09:14			
Temperature (Fahrenheit)	61.0	62.2	64.4	65.6	64.8			
pH	6.8	7.0	7.2	7.2	7.3			
Conductivity (micromhos/cm)	3900	4000	5400	7200	7100			
Nephelometric Turbidity Units	62.3	>200	13.3	4.4	5.7			
BTS Chain of Custody	950823-K-1		950823-K-1					
BTS Sample I.D.	95340001		95340002					
DHS HMTL Laboratory	AEN		AEN					
Analysis	TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)		TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)					

TABLE OF WELL MONITORING DATA

Well I.D.	MW-11			MW-12		MW-19			MG-2
Date Sampled	08/23/95			08/23/95		08/23/95			08/23/95
Well Diameter (in.)	2			2		2			--
Total Well Depth (ft.)	12.73			11.49		14.65			--
Depth To Water (ft.)	9.08			6.02		6.74			--
Free Product (in.)	NONE			NONE		NONE			--
Reason If Not Sampled	--			--		--			BURIED
1 Case Volume (gal.)	0.5			0.8		1.2			
Did Well Dewater?	NO			YES @ 1.75 GALS.		NO			
Gallons Actually Evacuated	1.5			1.0		4.0			
Purging Device	BAILER			BAILER		BAILER			
Sampling Device	BAILER			BAILER		BAILER			
Time	07:54	07:55	07:57	08:24	11:44	09:49	09:51	09:52	
Temperature (Fahrenheit)	64.8	65.0	64.8	66.0	65.4	64.8	59.6	60.8	
pH	6.8	6.6	6.7	6.9	7.2	7.8	8.0	8.0	
Conductivity (micromhos/cm)	2600	2300	2300	1300	1900	2200	2000	2000	
Nephelometric Turbidity Units	18.0	14.6	9.4	88.2	46.3	125.3	135.8	>200	
BTS Chain of Custody	950823-K-1			950823-K-1		950823-K-1			
BTS Sample I.D.	95340011			95340012		95340019			
DHS HMTL Laboratory	AEN			AEN		AEN			
Analysis	TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)			TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)		TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)			

TABLE OF WELL MONITORING DATA

Well I.D.	MG-4	MG-7			PZ-1	
Date Sampled	08/23/95	08/23/95			08/23/95	
Well Diameter (in.)	--	2			2	
Total Well Depth (ft.)	--	13.90			13.95	
Depth To Water (ft.)	--	10.24 extraction from creek work.			4.85	
Free Product (in.)	--	NONE			NONE	
Reason If Not Sampled	BURIED	--			--	
1 Case Volume (gal.)		0.5			1.4	
Did Well Dewater?		NO			NO	
Gallons Actually Evacuated		1.5			4.5	
Purging Device		BAILER			BAILER	
Sampling Device		BAILER			BAILER	
Time		11:18	11:20	11:22	10:49	10:51	10:54
Temperature (Fahrenheit)		60.8	59.8	59.4	64.6	64.6	64.6
pH		7.6	7.8	7.8	7.4	7.4	7.4
Conductivity (micromhos/cm)		5000	4900	5000	3800	3600	3700
Nephelometric Turbidity Units		>200	>200	>200	56.2	58.4	62.3
BTS Chain of Custody		950823-K-1			950823-K-1		
BTS Sample I.D.		95340107			95340201		
DHS HMTL Laboratory		AEN			AEN		
Analysis		TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)			TPH (GAS), BTEX, TPH (DIESEL) & TPH (MOTOR OIL)		

PES Environmental, Inc.
Engineering & Environmental Services

1682 NOVATO BOULEVARD, SUITE [redacted]
NOVATO, CALIFORNIA 94947
(415) 899-1600 FAX (415) 899-1601

CHAIN OF CUSTODY RECORD

JOB NUMBER: 241.0102.005
NAME/LOCATION: Powell St. Plaza
PROJECT MANAGER: John Skalbeck

SAMPLERS: Keith Brown of Blaine Tech
RECORDER: (Signature Required)

DATE YR	DATE MO	DATE DY	TIME	SAMPLE NUMBER/ DESIGNATION	SOURCE CODE	MATRIX: Water	MATRIX: Sediment	MATRIX: Soil	MATRIX: Oil	# CONTAINERS & PRESERV. 5: 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)	TPH motor oil
95	08	23	1240	953400000	13	X							X			27	01		X			X	X	X
			1230	953400001												2	10							
			0925	953400002												1	10							
			0805	953400011												1	10							
			1150	953400012												1	10							
			1000	953400019												1	10							
			1130	953401071												1	10							
			1100	953402011												1	10							
										5 each														

ANALYSIS REQUESTED

NOTES

Standard TAT
Pricing per agreement with Dan Peters & conversation with Robin & Roxie.

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)			RECEIVED BY: (Signature)	DATE 8-23-95	TIME 1:
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 pick-up - AEN

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DISTRIBUTION

QUARTERLY MONITORING REPORT
THIRD QUARTER 1995
POWELL STREET PLAZA
AND SHELLMOUND III SITES
EMERYVILLE, CALIFORNIA

JANUARY 22, 1996

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QUARTERLY MONITORING REPORT
THIRD QUARTER 1995
POWELL STREET PLAZA
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JANUARY 22, 1996

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QUALITY CONTROL REVIEWER

Robert S. Creps, P.E.
Principal Engineer