PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared For:

Pacific Electric Motor Company
1009 66th Avenue
Oakland, California 94601

Attention: Mr. Rand Perry

565

QUARTERLY MONITORING REPORT
PACIFIC ELECTRIC MOTOR COMPANY
1009 66TH AVENUE
OAKLAND, CALIFORNIA

APRIL 8, 1998

By:

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1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring performed by PES Environmental, Inc. (PES) during the first quarter of 1998 at Pacific Electric Motor Company (Site) in Oakland, California (Plate 1). The current groundwater monitoring program consists of measuring the depth to groundwater in three onsite monitoring wells, and purging and sampling the monitoring wells (Wells MW-1, MW-2, and MW-3) on a quarterly basis.

The purpose of the groundwater monitoring program is to: (1) evaluate the presence of petroleum hydrocarbons in groundwater; and (2) monitor water-level variations at the site. The quarterly monitoring program was performed in accordance with the sampling program specified in the Alameda County Environmental Health Services (ACEHS) letter *Soil and Groundwater Investigation for Pacific Electric Motor Co., 1009-66th Ave., Oakland, CA 94601*, dated August 19, 1997 and the procedures outlined in the *Proposal, Groundwater Sampling and Risk Evaluation, Pacific Electric Motor Company, Oakland, California* dated September 8, 1996 prepared by PES (PES, 1997).

2.0 BACKGROUND INFORMATION

The site is located in a residential and light industrial area in Oakland, California and is presently used to repair large electric motors. PEM formerly operated a 2,000-gallon steel gasoline underground storage tank (UST) on the east side of the warehouse building (Plate 2). The tank was reportedly installed in approximately 1975 (ENVIRON, 1997). In February 1995, the UST was removed by W.A. Craig, Inc. (WAC). Observations at the time of removal indicated that the tank was in good condition and no holes were evident. However, free-phase gasoline product was observed on the water surface in the tank excavation. Soil samples collected from the UST excavation and associated piping trenches detected total petroleum hydrocarbons as gasoline (TPH-g) at concentrations up to 10,000 milligrams per kilogram.

In April 1995, WAC performed a soil investigation consisting of nine soil borings to delineate the lateral and vertical extent of the petroleum hydrocarbons in soil. On the basis of the results of the soil investigation, WAC prepared and implemented a remediation program to remove soil affected by petroleum hydrocarbons. Approximately 1,500 cubic yards of soil were excavated and stockpiled onsite, and 116,000 gallons of petroleum hydrocarbon-affected water were pumped from the excavation and disposed. A dewatering sump installed by WAC during soil excavation was later converted to groundwater monitoring well WAC-1 (Plate 2). WAC summarized the results of their remediation program in a report entitled *Excavation and Sampling Report*, dated May 12, 1997.

ENVIRON, Inc. (ENVIRON) installed and sampled three shallow monitoring wells (MW-1, MW-2, MW-3) in June 1997 to evaluate groundwater conditions in the vicinity of the former UST. Well completion details are summarized in Table 1. The well installation program and associated soil and groundwater sampling program was summarized in the ENVIRON report *Soil and Ground Water Investigation, Summary Report, Pacific Electric Motor Co., 1009-66th Avenue, Oakland, California*, dated July 17, 1997. ENVIRON concluded that the remediation performed had successfully removed the source of the petroleum hydrocarbons (i.e., the former UST), and that residual concentrations of petroleum hydrocarbons in soil and groundwater were present only in the immediate vicinity of the former UST.

3.0 WATER-LEVEL MEASUREMENTS

Water levels in three onsite groundwater monitoring wells (Wells MW-1, MW-2, and MW-3) were measured by Blaine Tech Services, Inc. (Blaine Tech) of San Jose, California, under the direct supervision of PES, prior to sampling on March 10, 1998. Because of its uncertain construction, ACEHS stated that no further monitoring of Well WAC-1 is required (ACEHS, 1997). Depth-to-water in the monitoring wells was measured from the top-of-casing (TOC) reference benchmark to a precision of 0.01-feet using an electronic water-level indicator/interface probe. Depth-to-water measurements were converted to water-level elevations by subtracting the depth to water from the TOC elevation referenced to a site datum established by ENVIRON (ENVIRON, 1997). Free product was not observed in any of the monitoring wells.

To prevent cross-contamination between wells, the portion of the water-level indicator that was submerged in the well was cleaned between well measurements using a phosphate-free detergent/deionized water solution and double rinsed with deionized water.

4.0 GROUNDWATER SAMPLING

Groundwater samples were collected from Wells MW-1, MW-2, and MW-3 on March 10, 1998, by Blaine Tech under the direct supervision of PES. For the reasons described above, no samples were collected from Well WAC-1. Prior to well purging and groundwater sampling, Blaine Tech personnel measured dissolved oxygen in water in the well casing. This method of measurement disturbs the groundwater in the well casing minimally and provides the closest approximation to dissolved oxygen content in the adjacent aquifer. Groundwater samples were collected from each well after removing approximately three well volumes of water. A positive displacement pump was used to purge Wells MW-1 and MW-2, and a disposable bailer was used to purge Well MW-3. During well purging, the discharged water was monitored for pH, temperature, electrical conductivity, turbidity, and oxidation-reduction potential.

Following purging, samples were collected from the wells using a stainless steel or Teflon disposable bailer and transferred to the appropriate laboratory sample containers. The sample containers were filled slowly to minimize sample volatilization and to ensure that the sample was free of air bubbles. The samples were labeled to designate sample number, time and date collected, and analysis required. The samples were immediately placed in a chilled, thermally-insulated cooler. To prevent cross-contamination between wells, the pump and stainless steel bailer were decontaminated using a high pressure steam cleaner prior to initial use and after sampling at each well. Sampling procedures are documented in the groundwater sampling report prepared by Blaine Tech and included in Appendix A.

Groundwater samples were transported under chain-of-custody protocol to state-certified laboratories. Entech Analytical Labs of Sunnyvale, California analyzed samples for: total petroleum hydrocarbons quantified as gasoline (TPH-g) using EPA Test Method 8015 modified; benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Test Method 8020, and; nitrate as nitrogen and sulfate using SM 4500. Environmental Technical Services of Petaluma, California analyzed the samples for ferrous iron using SMEWW 3500-Fe D. As noted above, dissolved oxygen and oxidation-reduction potential were measured by Blaine Tech in the field. The laboratory reports and chain-of-custody records are included in Appendix B.

5.0 DISCUSSION OF MONITORING RESULTS

This section presents a summary of water-level measurements and groundwater analyses results from the March 1998 sampling event.

5.1 Water-Level Measurements

Depth-to-water measurements for March 1998, ranged from 2.89 feet (MW-2) to 3.11 feet (MW-3) below the TOC. Groundwater water-level elevations ranged from 96.82 feet (MW-3) to 97.61 feet (MW-1) referenced to site datum established by ENVIRON (ENVIRON, 1997). Depth-to-water measurements and calculated water-level elevations since installation of the monitoring wells in June 1997 and for the current period are presented in Table 2.

Plate 3 presents water-level elevation contours developed from water levels measured on March 10, 1998. The contoured water-level elevations indicate that groundwater flow is generally to the southwest. This flow direction is consistent with that observed in July and September 1997 and has shifted slightly from the flow direction observed in December 1997. The groundwater gradient is approximately 0.005 foot per foot (ft/ft).

5.2 Groundwater Chemistry

A summary of laboratory chemical analyses for petroleum hydrocarbons since well installation in June 1997 and for the current period is presented in Table 3. The results of field and

laboratory chemical analysis of the inorganic constituents are presented in Table 4. Field analytical results of dissolved oxygen and oxidation-reduction potential are presented in the Blaine Tech report (Appendix A). The analytical laboratory reports and chain-of-custody forms are presented in Appendix B.

Several petroleum hydrocarbon compounds were detected at low concentrations in the groundwater sample from Well MW-1. TPH-g was detected at a concentration of 190 micrograms per liter (μg/L), and benzene, ethylbenzene, and xylenes were detected at concentrations of 2.0, 5.7, and 1.7 μg/L, respectively. These concentrations are generally comparable to concentrations observed during the December 1997 groundwater monitoring event and significantly lower than concentrations observed in June and September 1997.

No petroleum hydrocarbon compounds were detected in the groundwater samples from Wells MW-2 and MW-3; the absence of petroleum hydrocarbon compounds in these wells is consistent with results for the three previous monitoring events.

The results of the inorganic analyses indicate that intrinsic (naturally occurring) biodegradation appears to be occurring in the vicinity of the former UST. The low concentration of sulfate in the sample from Well MW-1 (relative to Wells MW-2 and MW-3) suggests ongoing sulfate reduction that indicates petroleum hydrocarbon degradation from microbial activity. As a consequence of this biodegradation, oxygen appears to be consumed, resulting in a reduced environment as represented in elevated ferrous iron concentrations (relative to Wells MW-2 and MW-3).

6.0 REFERENCES

Alameda County Environmental Health Services (ACEHS), 1997. *Soil and Groundwater Investigation for Pacific Electric Motor Co., 1009-66th Ave., Oakland, CA 94601.* August 19.

ENVIRON Corporation, 1997. *Soil and Groundwater Investigation, Summary Report, Pacific Electric Motor Co., 1009-66th avenue, Oakland, California.* July 17.

PES Environmental, Inc. (PES), 1997. *Proposal, Quarterly Groundwater Sampling and Risk Evaluation, Pacific Electric Motor Company, Oakland, California.* September 8.

Table 1. Monitoring Well Completion Details
Pacific Electric Motor Company
1009 66th Avenue
Oakland, California

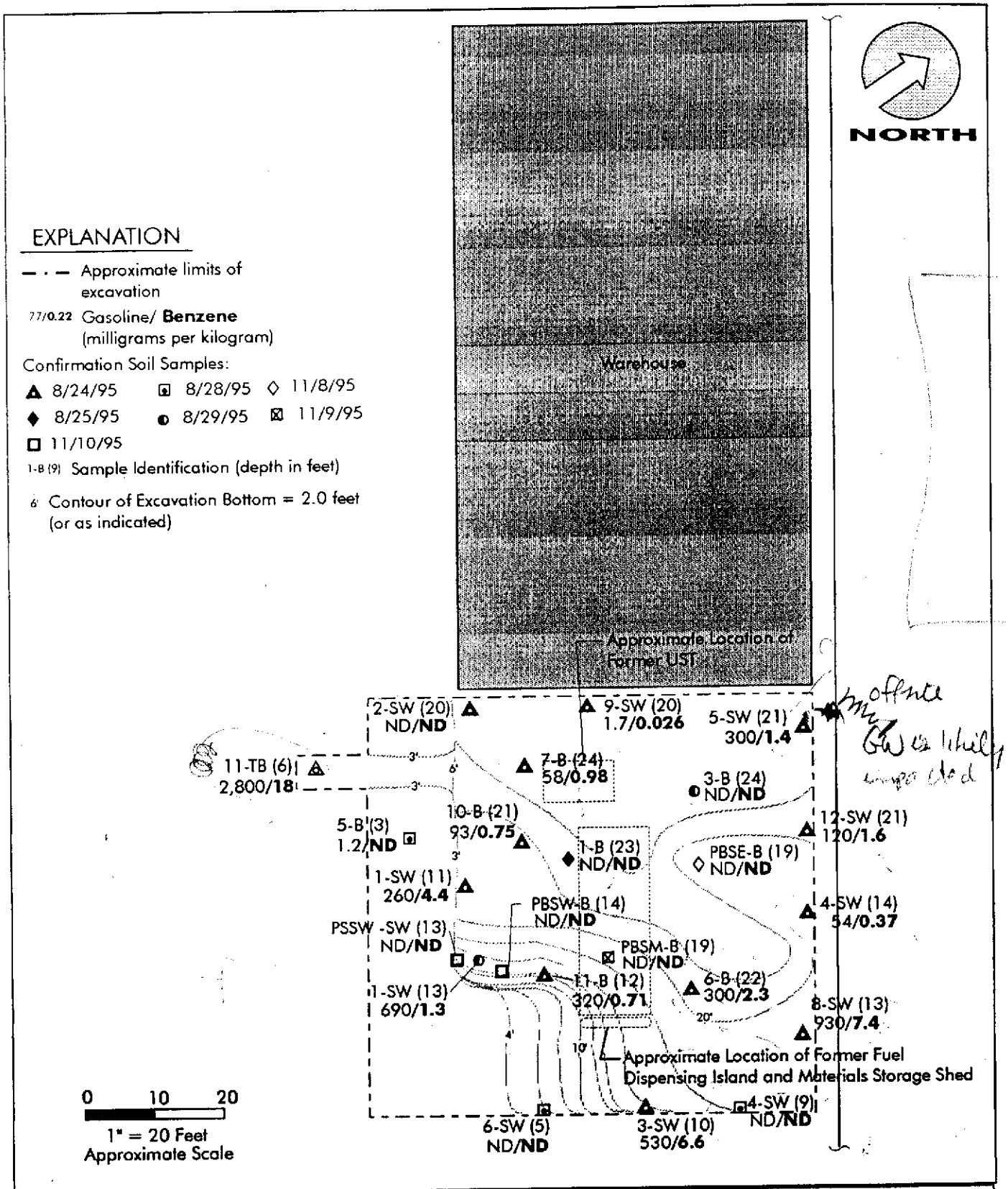
Well Number	Date Installed	Installed By	TOC Elevation (feet*)	Boring Diameter (inches)	Casing Diameter (inches)	Total Depth Boring (feet bgs)	Total Depth of Casing (feet bgs)	Screened Interval Depth (feet bgs)	
								Top	Bottom
MW-1	6/10/97	ENVIRON	101.04	8	2	26.5	25.5	5	25
MW-2	6/10/97	ENVIRON	100.12	8	2	25.5	25.5	5	25
MW-3	6/10/97	ENVIRON	100.23	8	2	25.5	25.5	5	25

Notes:
* = Site datum.
bgs = Below ground surface.
Reference: ENVIRON, 1997.

Table 2. Water-Level Elevation Data
Quarterly Monitoring Program
Pacific Electric Motor Company
1009 66th Avenue, Oakland, California

Well Number	Date	Measured By	Top of Casing Elevation (feet above assumed datum)	Depth to Water (feet BTOC)	Water-level Elevation (feet above assumed datum)
MW-1	6/19/97	ENVIRON	100.67	5.87	94.80
	7/1/97	ENVIRON	100.67	5.88	94.79
	9/29/97	PES	100.67	6.45	94.22
	12/16/97	PES	100.67	3.42	97.25
	3/10/98	PES	100.67	3.06	97.61
MW-2	6/19/97	ENVIRON	99.85	5.30	94.55
	7/1/97	ENVIRON	99.85	5.37	94.48
	9/29/97	PES	99.85	6.05	93.80
	12/16/97	PES	99.85	3.81	96.04
	3/10/98	PES	99.85	2.89	96.96
MW-3	6/19/97	ENVIRON	99.93	5.50	94.43
	7/1/97	ENVIRON	99.93	5.52	94.41
	9/29/97	PES	99.93	6.16	93.77
	12/16/97	PES	99.93	5.52	94.41
	3/10/98	PES	99.93	3.11	96.82

Notes:
Site datum established by ENVIRON (1997).
BTOC = Below top of casing.



offsite GW is likely impacted

Final Excavation Limits
PEM
1009 66th Avenue
Oakland, CA

Project No. 3471.3

December 1996

Figure 4

Checked by:

W. A. CRAIG, INC.
Environmental Contracting and Consulting
P. O. Box 448
Napa, California 94559-0448
Cal License #455752
(707) 252-3353
FAX (707) 252-3385

Table 3. Analytical Results for Groundwater Samples - Organics
Quarterly Monitoring Program
Pacific Electric Motor Company
1009 66th Avenue, Oakland, California

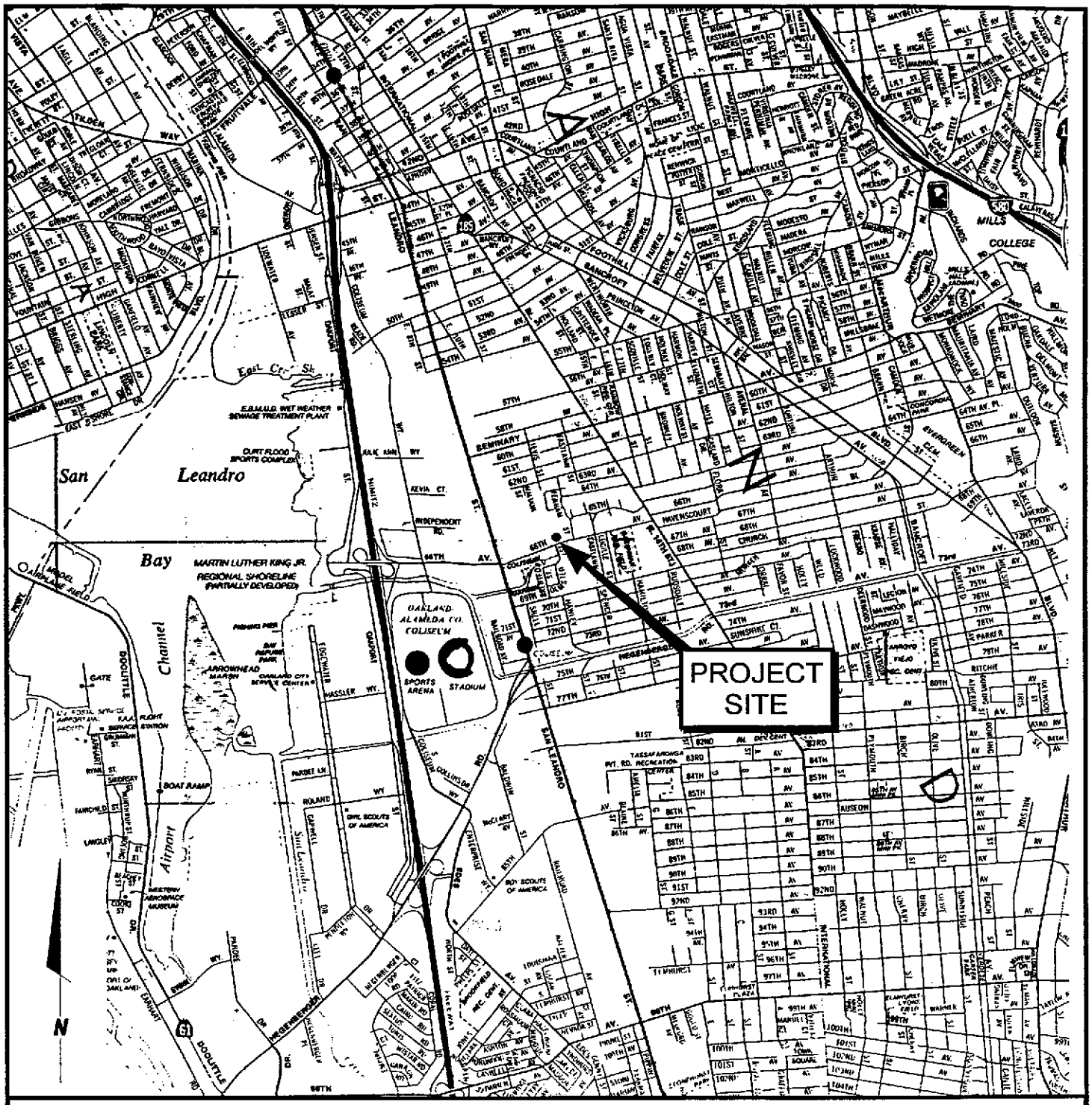
Sample Location	Date Sampled	Sampled By	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
MW-1	6/19/97	ENVIRON	18,000	3,300	200	1,100	4,900	<250
	9/29/97	PES	29,000	4,800	<25	2,000	3,500	<250
	12/16/97	PES	<50	1.3	<0.5	0.6	0.7	<5
	3/10/98	PES	190	2.0	<0.5	5.7	1.7	<5
MW-2	6/19/97	ENVIRON	<50	<0.5	<0.5	<0.5	<0.5	<5.0
	9/29/97	PES	<50	<0.5	<0.5	<0.5	<0.5	<5
	12/16/97	PES	<50	<0.5	<0.5	<0.5	<0.5	<5
	3/10/98	PES	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-3	6/19/97	ENVIRON	<50	<0.5	<0.5	<0.5	<0.5	<5.0
	9/29/97	PES	<50	<0.5	<0.5	<0.5	<0.5	<5
	12/16/97	PES	<50	<0.5	<0.5	<0.5	<0.5	<5
	3/10/98	PES	<50	<0.5	<0.5	<0.5	<0.5	<5.0

Notes:
TPH-g = Total petroleum hydrocarbons as gasoline (EPA 8015M).
MTBE = Methyl tert-butyl ether (EPA 8021).
µg/L = Micrograms per liter.
< = Not detected at or above the laboratory reporting limit indicated.

Table 4. Analytical Results for Groundwater Samples - Inorganics
Quarterly Monitoring Program
Pacific Electric Motor Company
1009 66th Avenue, Oakland, California

Sample Location	Date Sampled	Sampled By	Dissolved Oxygen (mg/L)	Ox-Redux Potential (mV)	Sulfate (mg/L)	Nitrate (mg/L)	Ferrous Iron (mg/L)
MW-1	9/29/97	PES	0.4	-86	12	0.15	3.61
	12/16/97	PES	1.8	75	35	1.85	0.53
	3/10/98	PES	1.4	75	<0.10	0.92	0.47
MW-2	9/29/97	PES	0.5	68	100	0.22	0.20
	12/16/97	PES	1.45	121	86.5	0.2	0.16
	3/10/98	PES	2.0	75	130	<0.10	0.07
MW-3	9/29/97	PES	0.4	73	290	2.9	0.14
	12/16/97	PES	0.7	131	274	3.75	0.24
	3/10/98	PES	2.0	75	340	0.10	0.07

Notes:
mg/L = Milligrams per liter.
mV = Millivolts.
Ox-Redux = Oxydation-reduction potential.



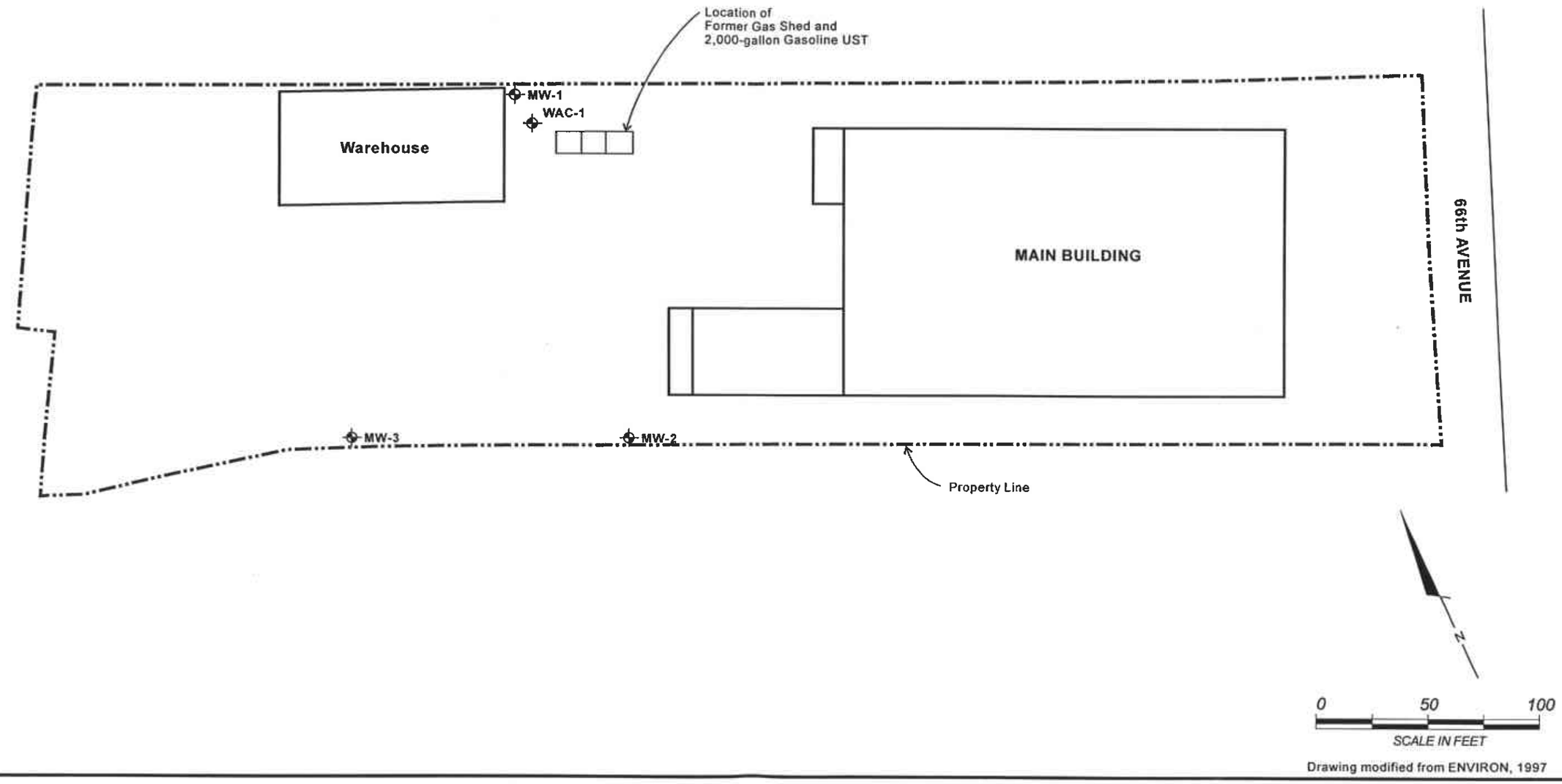
Oakland Map, California State Automobile Association, 1997.

PES Environmental, Inc.
Engineering & Environmental Services

Site Location Map
Pacific Electric Motor Company
1009 66th Avenue
Oakland, California

PLATE 1

618.0101.001	61801_V1.CDR	NWM	3/98
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Drawing modified from ENVIRON, 1997

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan and Monitoring Well Locations
Pacific Electric Motor Company
1009 66th Avenue
Oakland, California

PLATE
2

618.0101.001	61801_S1.CDR	WWM	3/98
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

Explanation

- Monitoring Well Location
- 97.61 Water-Level Elevation (in feet, referenced to site datum)
- Groundwater Contour (in feet, referenced to site datum; dashed where inferred)

Location of Former Gas Shed and 2,000-gallon Gasoline UST

MW-1
97.61
WAC-1

Warehouse

97.5

97.25

MAIN BUILDING

66th AVENUE

97.0

96.46
MW-2

MW-3
96.82

Property Line

N

0 50 100

SCALE IN FEET

Drawing modified from ENVIRON, 1997

PES Environmental, Inc.
Engineering & Environmental Services

Water-Level Elevation Map
Pacific Electric Motor Company
1009 66th Avenue
Oakland, California

PLATE
3

618.0101.001	61801_S2.CDR	WWM	3/98
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

GROUNDWATER SAMPLING REPORT

BLAINE
TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
(408) 573-7771 FAX
(408) 573-0555 PHONE

March 27, 1998

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

ATTN: Will Mast

Site:
Pacific Electric Motor Company
1099 66th Ave.
Oakland, California

Date:
March 10, 1998

GROUNDWATER SAMPLING REPORT 980310-T-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, turbidity, dissolved oxygen, oxidation reduction potential, 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 middleburg pumps and bailers.

Samples were collected using bailers.

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

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

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

USGS/Middleburg Positive Displacement Sampling Pumps: USGS/Middleburg positive displacement sampling pumps are EPA approved pumps appropriate for use in wells down to two inches in diameter and depths up to several hundred feet. Actuation of the pump is accomplished with compressed air supplied by a single hose. Water is pushed out of the pump and up a Teflon conductor pipe to the surface. Evacuation and sampling are accomplished as a continuum. The rate of water removal is relatively slow and loss of volatiles almost non-existent. There is only positive pressure on the water being sampled and there is no impeller cavitation or suction. The pumps can be placed at any location within the well, can draw water from the very bottom of the well case, and are virtually immune to the erosive effects of silt or lack of water which destroy other types of pumps.

Disadvantages associated with Middleburg pumps include their high cost, low flow rate, temperamental operation, and cleaning requirements which are both elaborate and time consuming.

Decontamination

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

Effluent Materials

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

Sampling Methodology

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

Sample Containers

Sample containers are supplied by the laboratory performing the analyses.

Sample Handling Procedures

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

Sample Designations

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

Chain of Custody

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

Hazardous Materials Testing Laboratory

The samples obtained at this site were delivered to Entech in Sunnyvale, California and Environmental Testing Services in Petaluma, California. Entech is certified by the California Department of Health Services as a Hazardous Materials Testing Laboratory, and is listed as DOHS HMTL #2224.

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.

Reportage

Submission to the Regional Water Quality Control Board and the local implementing agency should include copies of the sampling report, the chain of custody and the certified analytical report issued by the Hazardous Materials Testing Laboratory.

Please call if we can be of any further assistance.

Kent Brown

KEB/aa

attachments: table of well monitoring data
chain of custody

TABLE OF WELL MONITORING DATA

Well I.D.	MW-1			MW-2			MW-3		
Date Sampled	03/10/98			03/10/98			03/10/98		
Well Diameter (in.)	2			2			2		
Total Well Depth (ft.)	25.08			25.05			25.00		
Depth To Water (ft.)	3.06			2.89			3.11		
Free Product (in.)	NONE			NONE			NONE		
Reason If Not Sampled	--			--			--		
1 Case Volume (gal.)	3.5			3.6			3.5		
Did Well Dewater?	NO			NO			NO		
Gallons Actually Evacuated	10.5			11.0			10.5		
Purging Device	BAILER			MIDDLEBURG			MIDDLEBURG		
Sampling Device	BAILER			BAILER			BAILER		
Time	10:17	10:21	10:26	9:38	9:42	9:46	9:09	9:12	9:15
Temperature (Fahrenheit)	62.4	62.0	61.9	64.6	64.2	64.8	62.3	63.0	63.8
pH	7.6	7.1	7.2	7.1	7.0	6.9	7.0	6.6	6.5
Conductivity (micromhos/cm)	484	476	466	1244	1180	1101	6528	6778	6820
Nephelometric Turbidity Units	>200	>200	>200	>200	>200	>200	>200	>200	>200
Dissolved Oxygen (D.O) (mg/L)	1.4			2.0			2.0		
Oxidation Reduction Potential (mV)	3			19			36		
BTS Chain of Custody	980310-T1			980310-T1			980310-T1		
BTS Sample I.D.	MW-1			MW-2			MW-3		
DOHS HMTL Laboratory	ENTECH/ETS			ENTECH/ETS			ENTECH/ETS		
Analysis	TPH-G, BTEX, MTBE, SULFATE, NITRATE, & FERROUS IRON			TPH-G, BTEX, MTBE, SULFATE, NITRATE, & FERROUS IRON			TPH-G, BTEX, MTBE, SULFATE, NITRATE, & FERROUS IRON		

BLAINE TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY 980310-T1

CLIENT PES

SITE PACIFIC ELECTRIC MOTOR
1099 66TH AVE
OAKLAND, CA

C = COMPOSITE ALL CONTAINERS

CONDUCT ANALYSIS TO DETECT

LAB ENTECH DHS #

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

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

INVOICE & REPORT TO
PES
ATTN: WILL MAST

* SHORT HOLD TIMES

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		TPH-G, BTEX	MTBE	SULFATES	* ETHANOL					ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW1	3/10/98	1031	W	4	HCL VOA, NON/O	X	X	X	X								
MW2		955		4	HCL VOA, NON/O	X	X	X	X								
MW3		925		4	HCL VOA, NON/O	X	X	X	X								

SAMPLING COMPLETED DATE 3/10/98 TIME

SAMPLING PERFORMED BY Mike Toll

RESULTS NEEDED NO LATER THAN — PER CLIENT —

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Mike Toll	3/10/98	2:15	Brenda	3/10/98	2:10
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

BLAINE TECH SERVICES INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY 980310-T1

CLIENT PES

SITE PACIFIC ELECTRIC MOTOR
1099 66TH AVE
OAKLAND, CA

CONDUCT ANALYSIS TO DETECT

LAB ETS DHS #

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

☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

INVOICE & REPORT TO
PES
ATTN: WILL MAST

* SHORT HOLD TIMES

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	FERROUS IRON *								ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW1	3/10/98	1031	W	1	NON/P		X											
MW2	↓	955	↓	1	NON/P		X											
MW3	↓	925	↓	1	NON/P		X										*	

SAMPLING COMPLETED DATE 3/10/98 TIME 1035

SAMPLING PERFORMED BY Mike Toll

RESULTS NEEDED NO LATER THAN Per Client

RELEASED BY		DATE 3/10/98	TIME 1035	RECEIVED BY	William Mast	DATE 3/10/98	TIME 1035
RELEASED BY	William Mast	DATE 3/10/98	TIME 1602	RECEIVED BY	[signature]	DATE 3/10/98	TIME 1602
RELEASED BY		DATE	TIME	RECEIVED BY		DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

APPENDIX B

LABORATORY REPORT
AND
CHAIN-OF-CUSTODY RECORDS

RECEIVED MAR 1 9 1998

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

PES Environmental, Inc.
1682 Novato Blvd., Suite 100
Novato, CA 94947
Attn: Will Mast

Date:	3/17/98
Date Received:	3/10/98
Date Analyzed:	3/12-3/13/98
Project:	Pacific Electric Motor
Sampled By:	Blaine Tech Services

Certified Analytical Report

Water Sample Analysis:

Test	*MW1*	*MW2*	*MW3*	*Units*	*PQL*	*EPA Method #*
Sample Matrix	Water	Water	Water			
Sample Date	3/10/98	3/10/98	3/10/98			
Sample Time	1031	955	925			
Lab #	E4953	E4954	E4955			
Nitrate as Nitrogen	**0.92**	**ND**	**0.10**	mg/liter	0.10 mg/l	353.3
Sulfate	**ND**	**130**	**340**	mg/liter	0.10 mg/l	375.4
DF-Gas/BTEX	1	1	1			
TPH-Gas	**190**	**ND**	**ND**	µg/liter	50.0 µg/l	8015M
MTBE	**ND**	**ND**	**ND**	µg/liter	5.0 µg/l	8020
Benzene	**2.0**	**ND**	**ND**	µg/liter	0.5 µg/l	8020
Toluene	**ND**	**ND**	**ND**	µg/liter	0.5 µg/l	8020
Ethyl Benzene	**5.7**	**ND**	**ND**	µg/liter	0.5 µg/l	8020
Xylenes	**1.7**	**ND**	**ND**	µg/liter	0.5 µg/l	8020

1. DLR=DF x PQL
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #2224)

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4980312
Matrix: Water
Units: ug/L

Date Analyzed: 03/12/98
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB ug/L	SA ug/L	SR ug/L	SP ug/L	**SP % R**	SPD ug/L	**SPD %R**	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<0.50	80	ND	70	**87**	74	**92**	5.6	25	50-150
Toluene	8020	<0.50	80	ND	69	**86**	68	**85**	1.1	25	50-150
Ethyl Benzene	8020	<0.50	80	ND	70	**87**	69	**86**	0.8	25	50-150
Xylenes	8020	<0.50	240	ND	200	**84**	208	**87**	3.7	25	50-150
Gasoline	8015	<50.0	1000	ND	970	**97**	960	**96**	1.0	25	50-150

Note: LCS and LCSD results reported for the following Parameters:
All

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
NC: Not Calculated

BLAINE TECH SERVICES INC.

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CLIENT PES

SITE PACIFIC ELECTRIC MOTOR
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OAKLAND, CA

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LAB ENTECH DHS #

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☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

INVOICE & REPORT TO
PES ENVIRONMENTAL
ATTN: WILL MAST

* SHORT HOLD TIMES

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	TPH-G, BTEX	MTBE	SULFATE	NITRATE *				ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW1	3/10/98	1031	W	4	HCL VOA, NON/G		X	X	X	X							E4953
MW2	"	955	"	4	HCL VOA, NON/G		X	X	X	X							E4954
MW3	"	925	"	4	HCL VOA, NON/G		X	X	X	X							E4955

SAMPLING COMPLETED DATE 3/10/98 TIME

SAMPLING PERFORMED BY Mike Toll

RESULTS NEEDED NO LATER THAN — PER CLIENT —

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Mike Toll	3/10/98	2:15	Brenda [illegible]	3/10/98	2:10
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

E T S
1343 Redwood Way
Petaluma, CA 94954
(707) 795-9605/FAX 795-9384

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Technical Support

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WATER ANALYSIS REPORT

To: William Mast
PES Environmental, Inc.
1682 Novato Blvd. Suite 100
Novato, CA 94947

Date: March 16, 1998
Lab #: 98-03-0111, -0112 & -0113
Received: March 10, 1998
Tech(s): C. Lawrence
Lab Supervisor: D. Jacobson
Lab Director: G.S. Conrad, Ph.D.
Sample ID(s): MW-1, MW-2 & MW-3

Sample of: monitor well water
Project ID: PEM
Site Location: Pacific Electric Motor, 1099 66th Avenue, Oakland, California.

RESULTS

SAMPLE ID	FERROUS IRON
MW-1	**0.47 mg/l**
MW-2	**0.07 mg/l**
MW-3	**0.07 mg/l**

COMMENTS

These three samples ranged from low to moderate in ferrous iron with MW-1 significantly high than the other two. Assuming similar results among the three samples would sugges that either oxidation has been less at the MW-1 site; and/or there has been less microbial acitivity at the MW-1 groundwater location.

QC DATA - Ferrous Tests 2/13/98

Test	Lab Standard	Result	Percent Recovery
Ferrous Iron*	1.000 mg/l	0.92 mg/l	92.0%

* Ferrous Ammonium Sulfate - $(Fe(NH_4)_2(SO_4)_2 \cdot 6H_2O$

NOTES:
These tests were done according to the Association for Testing Materials (ASTM), and/or conform to standard and accepted protocols as described in Standard Methods for the Examination of Water and Wastewater, 18th ed., ç 1992: Ferrous Iron (Fe^{++}) - Phenanthroline Method (modified SMEWW 3500-Fe D); Redox - ASTM D 1498.

BLAINE TECH SERVICES INC.

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CLIENT PES

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OAKLAND, CA

LAB ETS DHS #

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PES
ATTN: WILL MAST

* SHORT HOLD TIMES

SAMPLE I.D.			MATRIX S = SOIL W = H2O	CONTAINERS TOTAL		C = COMPOSITE ALL CONTAINERS	CONDUCT ANALYSIS TO DETECT: FERROUS IRON *	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW1	3/10/98	1031	W	1	NON/P		X				
MW2	"	955	"	1	NON/P		X				
MW3	"	925	"	1	NON/P		X				

SAMPLING COMPLETED DATE 3/10/98 TIME 1035

SAMPLING PERFORMED BY Mike Toll

RESULTS NEEDED NO LATER THAN Per Client

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
M Mitchell	3/10/98	1035	William Mast	3/10/98	1035
William Mast	3/10/98	1602	J Conrad	3/10/98	1602

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

DISTRIBUTION

QUARTERLY MONITORING REPORT
PACIFIC ELECTRIC MOTOR COMPANY
1009 66TH AVENUE
OAKLAND, CALIFORNIA

APRIL 8, 1998

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