



A Report Prepared For:

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

Attention: Mr. Rand Perry

RO 411

Alameda County
JUN 0 9 2003
Environmental Health

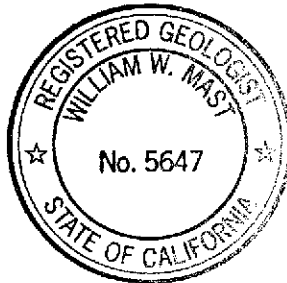
**FIRST QUARTER 2003
GROUNDWATER MONITORING REPORT
PACIFIC ELECTRIC MOTOR COMPANY
1009 66TH AVENUE
OAKLAND, CALIFORNIA**

JUNE 5, 2003

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TABLE OF CONTENTS

TABLE OF CONTENTS ii
LIST OF TABLES iii
LIST OF ILLUSTRATIONS iii
1.0 INTRODUCTION1
2.0 BACKGROUND INFORMATION1
3.0 WATER-LEVEL AND DISSOLVED OXYGEN MEASUREMENTS3
4.0 GROUNDWATER SAMPLING3
5.0 DISCUSSION OF MONITORING RESULTS4
 5.1 Water-Level and Dissolved Oxygen Measurements.....4
 5.2 Groundwater Chemistry.....5
6.0 REFERENCES6

TABLES

ILLUSTRATIONS

APPENDICES A - GROUNDWATER SAMPLING REPORT

 B - LABORATORY REPORT AND CHAIN-OF-CUSTODY RECORDS

DISTRIBUTION

LIST OF TABLES

Table 1	Monitoring Well Completion Details
Table 2	Water-Level Elevation Data
Table 3	Summary of Analytical Results for Groundwater Samples

LIST OF ILLUSTRATIONS

Plate 1	Site Location Map
Plate 2	Site Plan and Monitoring Well Location and Water-Level Elevation Map

1.0 INTRODUCTION

This report presents the results of quarterly groundwater monitoring performed by PES Environmental, Inc. (PES) during the first quarter of 2003 at Pacific Electric Motor Company (PEM) in Oakland, California (Plate 1). The monitoring is being performed to fulfill post-remediation groundwater monitoring requirements of the Alameda County Health Care Services, Environmental Health Services (ACEHS), as described in a letter dated August 9, 2002.

The purpose of groundwater monitoring is to assess the presence and trend of petroleum hydrocarbons previously observed in onsite groundwater monitoring wells, and evaluate the success of recent remedial action conducted at the site.

Per the ACEHS' letter, the groundwater monitoring program consists of measuring the depth to groundwater in four monitoring wells (wells MW-1, MW-2, MW-3, MW-4), and one unused extraction well (EW-1), and purging and sampling the monitoring wells on a quarterly basis for four consecutive quarters, at which time the monitoring program will be reevaluated. The first quarter 2003 monitoring event marks the second of the four consecutive monitoring events to be performed at the site.

2.0 BACKGROUND INFORMATION

The site is located in a residential and light industrial area in Oakland, California and is not currently occupied. Most recently the site housed repair operations for 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 (TPHg) at concentrations up to 10,000 milligrams per kilogram.

In April 1995, WAC performed a soil investigation consisting of the drilling and sampling 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). Because of its uncertain construction, ACEHS stated that no monitoring of Well WAC-1 is required (ACEHS, 1997). WAC summarized the results of their remediation program in a report entitled *Excavation and Sampling Report, Pacific*

Electric Motor Co., 1009 66th Avenue, Oakland, California, dated May 12, 1997 (WAC, 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, 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.

In September 1998 PES conducted additional soil and groundwater sampling in the vicinity of the former UST, as requested by the ACEHS in a May 13, 1998 letter to PEM (ACEHS, 1998a). Two soil borings were drilled within the backfill of the former UST excavation, and one monitoring well was installed downgradient of the former UST. Petroleum hydrocarbons were generally not detected in the excavation backfill, although groundwater samples collected from both soil borings indicated the presence of methyl tert-butyl ether (MTBE), a gasoline additive. Elevated petroleum hydrocarbons were found in soil and groundwater downgradient of the UST excavation during installation and groundwater sampling of monitoring well MW-4. On the basis of the elevated concentrations of petroleum hydrocarbons, PES recommended performing periodic groundwater monitoring. The additional investigation was summarized in the PES report *Results of Additional Soil and Groundwater Investigation, 1009 66th Avenue, Oakland, California*, dated November 11, 1998 (PES, 1998a).

Groundwater monitoring has been conducted at the site since the installation of monitoring wells MW-1, MW-2, and MW-3 in June 1997. Monitoring well MW-4 was incorporated into the monitoring program upon installation in September 1998. Historical and current water-level elevation data is presented in Table 2. Historical and current analytical results of groundwater monitoring events are presented in Table 3.

Additional site remediation activities were conducted by Decon Environmental Services (Decon) in 2002. The remediation activities included soil excavation from an area located to the south/southwest of the original excavation discussed above and the injection of Oxygen Release Compound[®] (ORC[®]) at 25 locations in the vicinity of monitoring well MW-4 and around the northern portion of the additional excavation area. The areas of excavation and ORC[®] injection are shown on Plate 2. To dewater the excavation, Decon constructed an extraction well (EW-1) in the northern portion of the excavation area following backfilling activities.

3.0 WATER-LEVEL AND DISSOLVED OXYGEN MEASUREMENTS

Water levels in the five onsite wells were measured by Blaine Tech Services, Inc. (Blaine Tech) of San Jose, California, prior to sampling on February 26, 2003. Depth-to-water in the wells was measured from the top-of-casing (TOC) reference benchmark to a precision of 0.01-feet using an electronic water-level indicator. Depth-to-water measurements were converted to water-level elevations by subtracting the depth to water from the surveyed TOC elevation. Well construction details and TOC elevations are compiled in Table 1. Measurable free product was observed in monitoring well MW-1. Free product was not observed in the remaining four wells.

Following completion of water-level measurements, Blaine Tech collected dissolved oxygen (DO) readings from each well. DO measurements were collected using a handheld meter. A probe was lowered into the screened interval of the well and gently raised and lowered until the DO readings stabilized. Due to the presence of free product observed in monitoring well MW-1, the DO measurement for well MW-1 was collected following the completion of purging activities.

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

4.0 GROUNDWATER SAMPLING

On February 26, 2003, Blaine Tech collected groundwater samples from Wells MW-1, MW-2, MW-3, MW-4, and EW-1. Groundwater samples were collected from each well after removing approximately three well volumes of water with disposable bailers. Because of the large volume of water required for adequate purging, EW-1 was purged using a submersible electric pump. The pump and associated tubing was cleaned prior to and following the completion of well purging using a phosphate-free detergent/deionized water solution and double rinsed with deionized water. During well purging, the discharged water was monitored for pH, temperature, electrical conductivity, and turbidity.

Following purging, samples were collected from the wells using disposable polyethylene bailers 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. Sampling procedures are documented in the groundwater sampling report prepared by Blaine Tech, included as Appendix A.

Groundwater samples were transported under chain-of-custody protocol to Severn Trent Laboratories, Inc. (STL), a state-certified laboratory in Pleasanton, California. STL analyzed samples for:

- Total petroleum hydrocarbons quantified as gasoline (TPHg) using U.S. Environmental Protection Agency (EPA) Test Method 8015-Modified
- Benzene, toluene, ethyl-benzene, and total xylenes (BTEX) using U.S. EPA Test Method 8021B or U.S. EPA Test Method 8260B; and
- Tert-butyl alcohol (TBA), methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), ethylene dichloride (EDC [also known as 1,2-dichloroethane]), and ethylene dibromide (EDB) using U.S. EPA Test Method 8260B.

Analytical data from the fourth first quarter 2003 monitoring event will be submitted electronically to the SWRCB Geotracker database along with the well location data. The laboratory reports and chain-of-custody records are included in Appendix B.

5.0 DISCUSSION OF MONITORING RESULTS

This section summarizes the field measurements (water-level and DO) and groundwater analytical results from the February 2003 sampling event.

5.1 Water-Level and Dissolved Oxygen Measurements

Depth-to-water measurements taken on February 26, 2003 ranged from 3.10 feet (EW-1) to 4.00 feet (MW-4) below TOC. Calculated groundwater elevations ranged from 6.41 feet (MW-3) to 7.16 feet (EW-1) relative to mean sea level (MSL). Historical and current depth-to-water measurements and water-level elevations are presented in Table 2.

Groundwater-level elevations are presented on Plate 2. A definitive groundwater flow direction could not be extrapolated from the groundwater-level elevations observed on February 26, 2003. It should be noted, however, that the area in the center of the groundwater monitoring zone has been highly disturbed during remediation activities (Section 2.0). Consequently, any number of factors including the excavation of soil and subsequent backfilling of the remediation area and the injection of ORC[®] could be influencing groundwater elevations in the vicinity of the monitoring wells.

Prior to pumping MW-1, Blaine Tech observed approximately 0.01 feet of separate phase petroleum hydrocarbons.

DO measurements collected on February 26, 2003 ranged from 0.1 milligrams per liter (mg/L), in monitoring well MW-4 and extraction well EW-1, to 2.2 mg/L in well MW-1. DO

measurements are presented in Blain Tech's groundwater sampling report (Appendix B) and in Table 3.

5.2 Groundwater Chemistry

A summary of current laboratory chemical results for petroleum hydrocarbons is presented in Table 4. Copies of the laboratory report and chain-of-custody documentation are provided in Appendix B.

During the current monitoring period no petroleum hydrocarbon compounds were detected in the groundwater sample from monitoring well MW-3. Petroleum hydrocarbon compounds were detected in the remaining four wells. However, only MTBE was detected in well MW-2 at a concentration of 10 micrograms per liter ($\mu\text{g/L}$).

In the sample collected from monitoring well MW-1, petroleum hydrocarbons were detected at the following concentrations: TPH-g at $8,300 \mu\text{g/L}$; benzene at $12 \mu\text{g/L}$; ethyl-benzene at $240 \mu\text{g/L}$; and total xylenes at $720 \mu\text{g/L}$. No other compounds were detected at or above the respective laboratory reporting limits in the sample collected from well MW-1. Petroleum hydrocarbon concentrations detected in the sample collected from well MW-1 in February 2003 are consistent with concentrations observed during the previous monitoring event conducted in December 2002.

In the sample collected from monitoring well MW-4, petroleum hydrocarbons were detected at the following concentrations: TPHg at $63,000 \mu\text{g/L}$; benzene at $8,100 \mu\text{g/L}$; toluene at $4,400 \mu\text{g/L}$; ethyl-benzene at $1,900 \mu\text{g/L}$; total xylenes at $8,200 \mu\text{g/L}$; and MTBE at $30,000 \mu\text{g/L}$. Concentrations of petroleum hydrocarbon compounds detected during the February 2003 event were generally greater than those observed in December 2002. Concentrations of TPHg, benzene, ethyle-benzene, and total xylenes observed in well MW-4 during the current 2003 sampling event are consistent with the range of concentrations observed prior to the 2002 remediation activities, while concentrations of toluene and MTBE are lower.

In the sample collected from EW-1, petroleum hydrocarbons were detected as follows: TPHg at $4,000 \mu\text{g/L}$; benzene at $170 \mu\text{g/L}$; toluene at $20 \mu\text{g/L}$; ethyl-benzene at $41 \mu\text{g/L}$; total xylenes at $53 \mu\text{g/L}$; TBA at $130 \mu\text{g/L}$; and MTBE at $5,000 \mu\text{g/L}$. No other compounds were detected at or above the respective laboratory reporting limits in the sample collected from the extraction well. With the exception of MTBE, concentrations detected in well EW-1 during the current sampling event were generally lower than those observed during the previous quarter.

As noted above, the water sample from downgradient monitoring well MW-2 contained only MTBE at $1.0 \mu\text{g/L}$, and no petroleum hydrocarbon compounds were detected in well MW-3. These data appear to indicate that the petroleum hydrocarbon plume associated with the former UST remains localized and relatively stable.

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.
- _____, 1998a. *Evaluation of Residual Health Risks at Pacific Electric Motor Company, 1009 66th Avenue, Oakland, CA 94601.* May 13.
- _____, 1998b. *Additional Soil and Groundwater Investigation Report, 1009 66th Ave., Oakland, 94601.* December 1.
- ENVIRON Corporation, 1997. *Soil and Groundwater Investigation, Summary Report, Pacific Electric Motor Co., 1009-66th Avenue, Oakland, California.* July 17.
- PES Environmental, Inc. (PES), 1998a. *Results of Additional Soil and Groundwater Investigation, 1009 66th Avenue, Oakland, California.* November 11.
- _____, 1998b. *Proposal, Quarterly Groundwater Sampling, Pacific Electric Motor Company, Oakland, California.* December 11.
- W. A. Craig, Inc. (WAC), 1997. *Excavation and Sampling Report, Pacific Electric Motor Co., 1009 66th Avenue, Oakland, California.* May 12. (Partial)

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

Well Number	Date Installed	Installed By	Top of Casing Elevation (feet MSL)	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	6/10/1997	ENVIRON	10.87	8	2	26.5	25.5	5	25
MW-2	6/10/1997	ENVIRON	10.02	8	2	25.5	25.5	5	25
MW-3	6/10/1997	ENVIRON	10.12	8	2	25.5	25.5	5	25
MW-4	9/14/1998	PES	10.50	8	2	25.0	25.0	15	25
EW-1*	NP	Decon	10.26	NP	7	NP	8.77	NP	NP

Notes:

bgs = Below ground surface

NP = Information not provided to PES

* = Well completion information derived from December 2002 sampling event field notes

Table 2
Water-Level Elevation Data
Groundwater Monitoring Report
Pacific Electric Motor Company
1009 66th Avenue, Oakland, California

Well Number	Date Measured	Measured By	Top of Casing Elevation (feet¹/feet MSL²)	Depth to Water (feet BTOC)	Water-level Elevation (feet¹/feet MSL²)
MW-1	6/19/1997	ENVIRON	100.67	5.87	94.80
	7/1/1997	ENVIRON	100.67	5.88	94.79
	9/29/1997	PES	100.67	6.45	94.22
	12/16/1997	PES	100.67	3.42	97.25
	3/10/1998	PES	100.67	3.06	97.61
	10/1/1998	PES	100.67	6.36	94.31
	1/19/1999	PES	100.67	5.33	95.34
	4/15/1999	PES	100.67	3.23	97.44
	5/6/1999	PES	100.67	4.36	96.31
	7/30/1999	PES	100.67	5.49	95.18
	11/15/1999	PES	100.67	6.30	94.37
	3/24/2000	PES	100.67	3.47	97.20
	5/18/2000	PES	100.67	4.34	96.33
	7/26/2000	PES	100.67	5.28	95.39
	10/30/2000	PES	100.67	5.68	94.99
	11/14/2000	PES	100.67	5.53	95.14
	7/24/2001	PES	100.67	5.52	95.15
	11/28/2001	PES	100.67	5.31	95.36
	2/18/2002	PES	100.67	3.69	96.98
	12/11/2002	PES	10.87	5.71	5.16
2/26/2003	PES	10.87	3.90	6.97	
MW-2	6/19/1997	ENVIRON	99.85	5.30	94.55
	7/1/1997	ENVIRON	99.85	5.37	94.48
	9/29/1997	PES	99.85	6.05	93.80
	12/16/1997	PES	99.85	3.81	96.04
	3/10/1998	PES	99.85	2.89	96.96
	10/1/1998	PES	99.85	5.83	94.02
	1/19/1999	PES	99.85	5.26	94.59
	4/15/1999	PES	99.85	3.19	96.66
	5/6/1999	PES	99.85	3.91	95.94
	7/30/1999	PES	99.85	4.79	95.06
	11/15/1999	PES	99.85	5.92	93.93
	3/24/2000	PES	99.85	3.55	96.30
	5/18/2000	PES	99.85	4.04	95.81
	7/26/2000	PES	99.85	4.85	95.00
	10/30/2000	PES	99.85	5.31	94.54
	11/14/2000	PES	99.85	5.14	94.71
	7/24/2001	PES	99.85	5.12	94.73
	11/28/2001	PES	99.85	5.15	94.70
	2/18/2002	PES	99.85	3.73	96.12
	12/11/2002	PES	10.02	5.30	4.72
2/26/2003	PES	10.02	3.55	6.47	
MW-3	6/19/1997	ENVIRON	99.93	5.50	94.43
	7/1/1997	ENVIRON	99.93	5.52	94.41
	9/29/1997	PES	99.93	6.16	93.77
	12/16/1997	PES	99.93	5.52	94.41
	3/10/1998	PES	99.93	3.11	96.82
	10/1/1998	PES	99.93	5.96	93.97
1/19/1999	PES	99.93	5.45	94.48	

Table 2
Water-Level Elevation Data
Groundwater Monitoring Report
Pacific Electric Motor Company
1009 66th Avenue, Oakland, California

Well Number	Date Measured	Measured By	Top of Casing Elevation (feet ¹ /feet MSL ²)	Depth to Water (feet BTOC)	Water-level Elevation (feet ¹ /feet MSL ²)
MW-3 cont.	4/15/1999	PES	99.93	3.85	96.08
	5/6/1999	PES	99.93	4.12	95.81
	7/30/1999	PES	99.93	5.14	94.79
	11/15/1999	PES	99.93	6.35	93.58
	3/24/2000	PES	99.93	3.29	96.64
	5/18/2000	PES	99.93	4.16	95.77
	7/26/2000	PES	99.93	5.14	94.79
	10/30/2000	PES	99.93	5.43	94.50
	11/14/2000	PES	99.93	5.25	94.68
	7/24/2001	PES	99.93	5.29	94.64
	11/28/2001	PES	99.93	4.92	95.01
	2/18/2002	PES	99.93	3.88	96.05
	12/11/2002	PES	10.12	5.37	4.75
	2/26/2003	PES	10.12	3.71	6.41
MW-4	10/1/1998	PES	100.32	6.32	94.00
	1/19/1999	PES	100.32	5.59	94.73
	4/15/1999	PES	100.32	7.71 #	92.61 #
	5/6/1999	PES	100.32	4.50	95.82
	7/30/1999	PES	100.32	5.18	95.14
	11/15/1999	PES	100.32	6.27	94.05
	3/24/2000	PES	100.32	3.59	96.73
	5/18/2000	PES	100.32	4.40	95.92
	7/26/2000	PES	100.32	5.65	94.67
	10/30/2000	PES	100.32	5.89	94.43
	11/14/2000	PES	100.32	5.61	94.71
	7/24/2001	PES	100.32	5.34	94.98
	11/28/2001	PES	100.32	5.67	94.65
	2/18/2002	PES	100.32	4.21	96.11
12/11/2002	PES	10.50	5.77	4.73	
2/26/2003	PES	10.50	4.00	6.50	
EW-1	12/11/2002	PES	10.26	5.00	5.26
	2/26/2003	PES	10.26	3.10	7.16

Notes:¹ = Top of casing elevations referenced to site datum established by ENVIRON (1997), used through February 2002² = Top of casing elevations resurveyed by Cross Land Surveying, Inc. on January 16, 2003; referenced to NGVD 1929

MSL = Mean sea level

BTOC = Below top of casing

= Anomalous data, not used for water-level elevation contouring

Table 3
 Summary of Analytical Results for Groundwater Samples
 Groundwater Monitoring Report
 Pacific Electric Motor Company
 1009 66th Avenue, Oakland, California

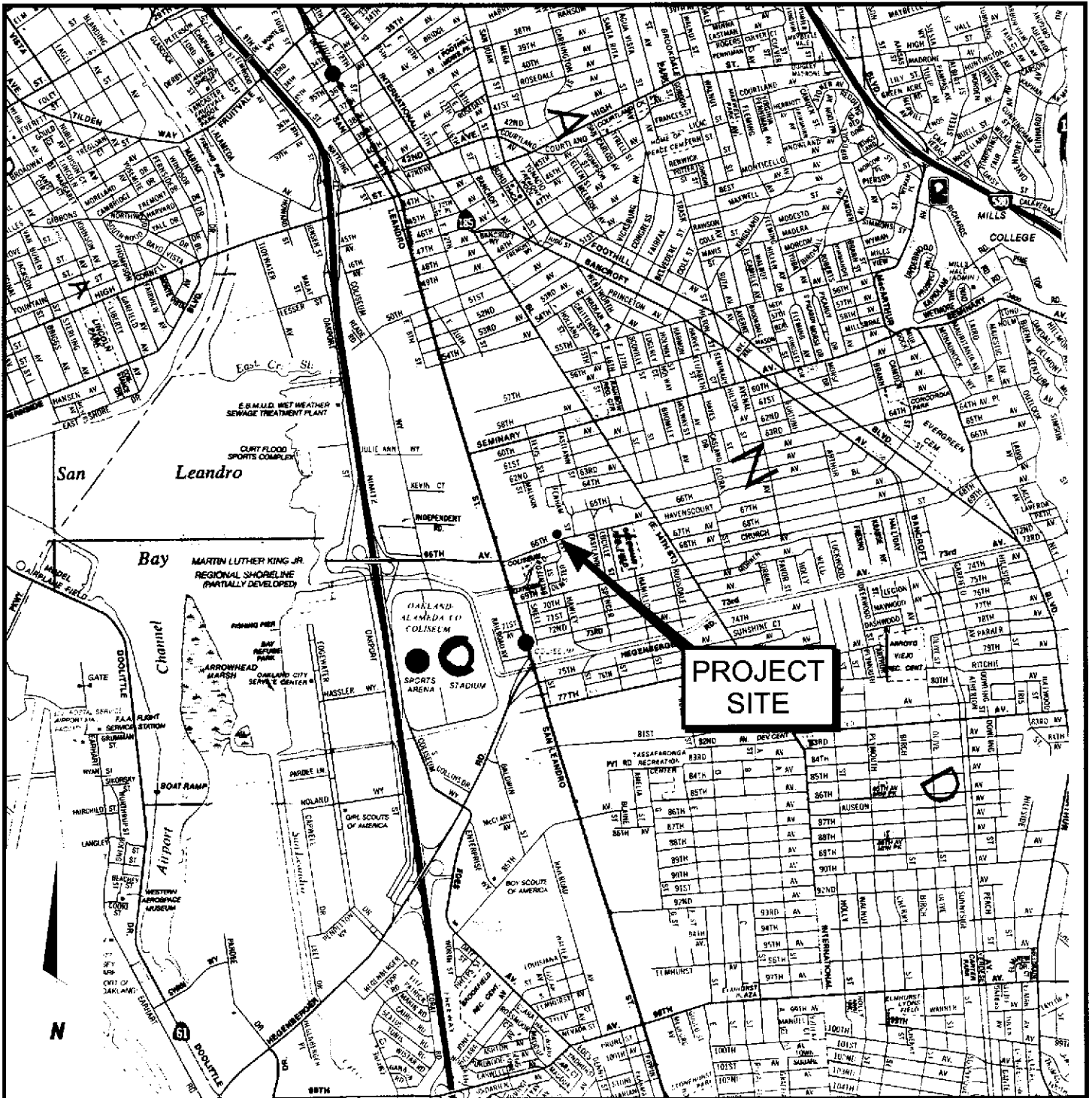
Well Number	Date Sampled	Sampled By	Dissolved Oxygen (mg/L)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE EPA 8020 (µg/L)	MTBE EPA 8260 (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	EDC (µg/L)	EDB (µg/L)
MW-1	6/19/1997	ENVIRON	na	18,000	3,300	200	1,100	4,900	<250	-	-	-	-	-	-	-
	9/29/1997	PES	na	29,000	4,800	<25	2,000	3,500	<250	-	-	-	-	-	-	-
	12/16/1997	PES	na	<50	1.3	<0.5	0.6	0.7	<5	-	-	-	-	-	-	-
	3/10/1998	PES	na	190	2.0	<0.5	5.7	1.7	<5	-	-	-	-	-	-	-
	1/19/1999	PES	na	1,000	40	<0.5	18	68	8.3	6.9	-	-	-	-	-	-
	4/15/1999	PES	na	<50	0.92	0.9	0.7	0.87	<5.0	-	-	-	-	-	-	-
	7/30/1999	PES	na	1,400	60	<0.5	63	120	13	<5.0	-	-	-	-	-	-
	11/15/1999	PES	na	3,600	120	<0.5	150	620	<5.0	-	-	-	-	-	-	-
	3/24/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/18/2000	PES	na	1,300	10	1.2	38	130	8.8	<5.0	-	-	-	-	-	-
	7/26/2000	PES	na	6,400	100	7.4	260	680	<5.0	-	-	-	-	-	-	-
	10/30/2000	PES	na	6,000	130	14	330	950	<100	-	-	-	-	-	-	-
	7/24/2001	PES	na	1,200	13	<0.5	70	39	13	-	-	-	-	-	-	-
	11/28/2001	PES	na	1,800	27	0.93	72	160	<5.0	-	-	-	-	-	-	-
	2/18/2002	PES	na	2,400	18	<2.5	89	200	<25	-	-	-	-	-	-	-
12/11/2002	PES	0.7	8,400	83	9.2	320	640	-	<0.50	<5.0	<1.0	<0.50	<0.50	<0.50	<0.50	
2/26/2003	PES	2.2*	8,300	12	<10	240	720	-	<10	<100	<20	<10	<10	<10	<10	
MW-2	6/19/1997	ENVIRON	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/29/1997	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-	-
	12/16/1997	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-	-
	3/10/1998	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	1/19/1999	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	-	-	-	-	-	-
	4/15/1999	PES	na	<50	0.75	0.64	<0.5	0.74	<5.0	-	-	-	-	-	-	-
	7/30/1999	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	11/15/1999	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	3/24/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/18/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	7/26/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	10/30/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	7/24/2001	PES	na	<50	<0.5	<0.5	<0.5	<0.5	7.6	-	-	-	-	-	-	-
	11/28/2001	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	2/18/2002	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
12/11/2002	PES	1.4	<50	<0.50	<0.50	<0.50	<1.0	-	5.8	<5.0	<1.0	<0.50	<0.50	<0.50	<0.50	
2/26/2003	PES	0.8	<50	<0.50	<0.50	<0.50	<1.0	-	10	<5.0	<1.0	<0.50	<0.50	<0.50	<0.50	
MW-3	6/19/1997	ENVIRON	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	9/29/1997	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-	-
	12/16/1997	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5	-	-	-	-	-	-	-
	3/10/1998	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	1/19/1999	PES	na	<50	0.78	<0.5	<0.5	<0.5	8.7	<5.0	-	-	-	-	-	-
	4/15/1999	PES	na	<50	5.4	3.9	1.7	5.6	23	25	-	-	-	-	-	-
	7/30/1999	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	11/15/1999	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	3/24/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	5/18/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	7/26/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-
	10/30/2000	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	-	-	-	-	-	-	-

Table 3
 Summary of Analytical Results for Groundwater Samples
 Groundwater Monitoring Report
 Pacific Electric Motor Company
 1009 66th Avenue, Oakland, California

Well Number	Date Sampled	Sampled By	Dissolved Oxygen (mg/L)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE EPA 8020 (µg/L)	MTBE EPA 8260 (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	EDC (µg/L)	EDB (µg/L)
MW-3 cont.	7/24/2001	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--
	11/28/2001	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--
	2/18/2002	PES	na	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--
	12/11/2002	PES	1.9	<50	<0.50	<0.50	<0.50	<1.0	--	0.78	<5.0	<1.0	<0.50	<0.50	<0.50	<0.50
	2/26/2003	PES	1.9	<50	<0.50	<0.50	<0.50	<1.0	--	<0.50	<5.0	<1.0	<0.50	<0.50	<0.50	<0.50
MW-4	9/15/1998	PES	na	170,000	26,000	32,000	2,900	18,000	26,000	--	--	--	--	--	--	--
	1/19/1999	PES	na	2,600	1,700	3.8	25	29	13,000	16,000	--	--	--	--	--	--
	4/15/1999	PES	na	210,000	28,000	15,000	3,700	19,000	52,000	67,000	--	--	--	--	--	--
	7/30/1999	PES	na	91,000	16,000	7,500	2,300	8,500	68,000	67,000	--	--	--	--	--	--
	11/15/1999	PES	na	63,000	8,500	2,400	1,400	4,000	57,000	58,000	--	--	--	--	--	--
	3/24/2000	PES	na	95,000	16,000	13,000	2,500	12,000	44,000	--	--	--	--	--	--	--
	5/18/2000	PES	na	91,000	15,000	10,000	2,200	9,600	64,000	77,000	--	--	--	--	--	--
	7/26/2000	PES	na	130,000	11,000	6,400	1,700	6,500	80,000	--	--	--	--	--	--	--
	10/30/2000	PES	na	59,000	6,700	2,200	750	3,100	68,000	68,000*	--	--	--	--	--	--
	7/24/2001	PES	na	180,000	25,000	23,000	3,500	20,000	44,000	44,000*	--	--	--	--	--	--
	11/28/2001	PES	na	67,000	8,100	3,300	1,400	5,600	57,000	57,000*	--	--	--	--	--	--
	2/18/2002	PES	na	98,000	20,000	12,000	2,300	15,000	47,000	47,000*	--	--	--	--	--	--
	12/11/2002	PES	0.8	290,000	340	<50	590	1,000	--	17,000	3,600	<100	<50	<50	<50	<50
	2/26/2003	PES	0.1	63,000	8,100	4,400	1,900	8,200	--	30,000	<1,300	<250	<130	<130	<130	<130
EW-1	12/11/2002	PES	2.4	6,600	530	<50	87	<100	--	2,600	1,600	<100	<50	<50	<50	<50
	2/26/2003	PES	0.1	4,000	170	20	41	53	--	5,000	130	<25	<13	<13	<13	<13

Notes:

TPH-g = Total petroleum hydrocarbons quantified as gasoline (EPA 8015M)
 MTBE = Methyl tert-butyl ether (EPA 8020; detected concentrations were confirmed by EPA 8260)
 TBA = tert-butyl alcohol
 DIPE = diisopropyl ether
 ETBE = ethyl tert-butyl ether
 TAME = tert-amyl methyl ether
 EDC = ethylene dichloride (also known as 1,2-dichloroethane)
 EDB = ethylene dibromide
 mg/L = milligrams per liter
 µg/L = micrograms per liter
 na = not analyzed
 * = Dissolved oxygen measurement collected following purging
 <50 = Not detected at or above the indicated laboratory reporting limit
 -- = Not analyzed



0 2000 4000
 Scale in Feet

Oakland Map, California State Automobile Association, 1997.



PES Environmental, Inc.
 Engineering & Environmental Services

Site Location Map
 First Quarter 2003 Groundwater
 Monitoring Report
 Pacific Electric Motor Company
 1009 66th Avenue, Oakland, California

PLATE
1

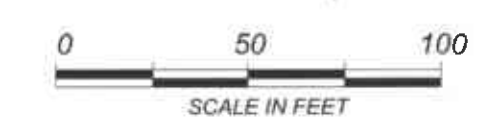
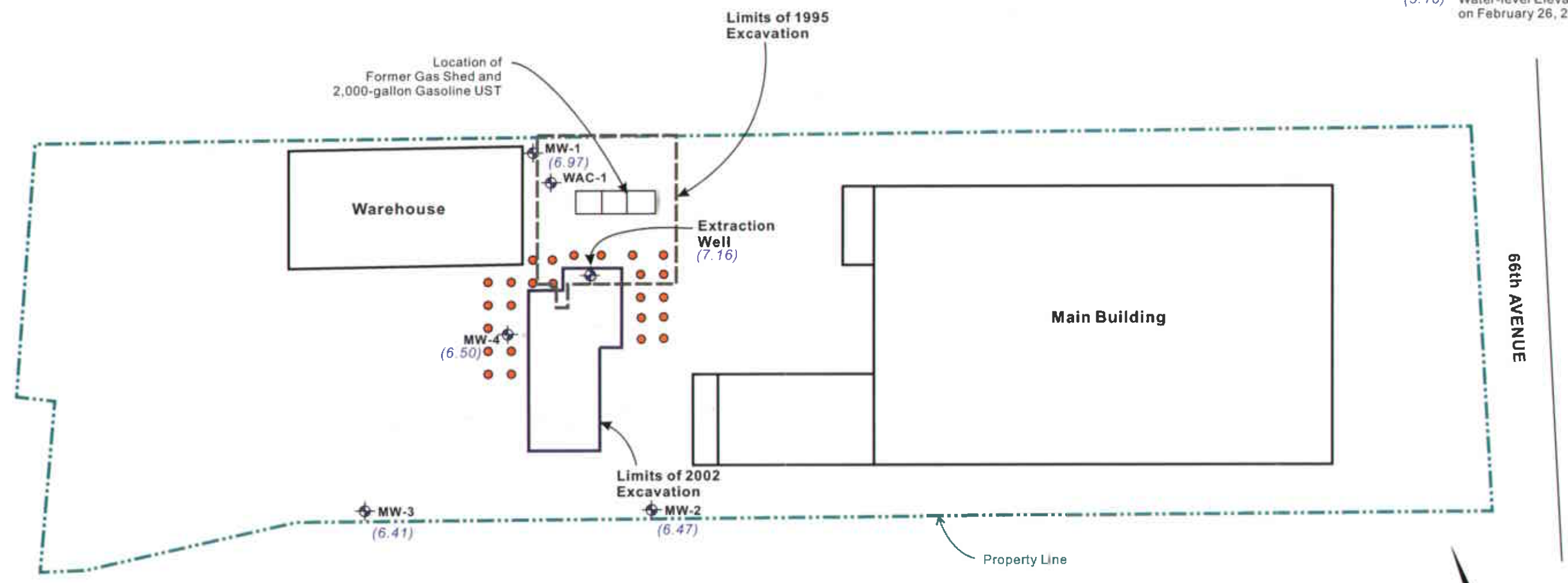
618.001.02.005
 JOB NUMBER

61800101004_V1.CDR
 DRAWING NUMBER

WWM
 REVIEWED BY

6/03
 DATE

- Explanation**
- ⊕ Monitoring Well Location
 - ORC Injection Boring Location
 - (5.16) Water-level Elevation (feet MSL) on February 26, 2003:



Drawing modified from ENVIRON, 1997.

APPENDIX A

GROUNDWATER SAMPLING REPORT

WELL MONITORING DATA SHEET

Project #: <u>030226-DW-1</u>	Client: <u>PES Environmental</u>
Sampler: <u>Dave Walter</u>	Start Date: <u>2-26-03</u>
Well I.D.: <u>MW-1</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <u>24.90</u>	Depth to Water: <u>3.70</u>
Before: _____ After: _____	Before: _____ After: _____
Depth to Free Product: <u>3.59</u>	Thickness of Free Product (feet): <u>1.01</u>
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

Purge Method:

- | | |
|--|--|
| <input type="checkbox"/> Bailer
<input checked="" type="checkbox"/> Disposable Bailer
<input type="checkbox"/> Middleburg
<input type="checkbox"/> Electric Submersible | <input type="checkbox"/> Waterra
<input type="checkbox"/> Peristaltic
<input type="checkbox"/> Extraction Pump
<input type="checkbox"/> Other _____ |
|--|--|

Sampling Method:

- | | |
|--|--------------|
| <input checked="" type="checkbox"/> Bailer
<input checked="" type="checkbox"/> Disposable Bailer
<input type="checkbox"/> Extraction Port
<input type="checkbox"/> Dedicated Tubing | Other: _____ |
|--|--------------|

$3.4 \text{ (Gals.)} \times 3 = 10.2$
 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp. (°F or °C)	pH	Conductivity (mS or µS)	Turbidity (NTU)	Gals. Removed	Observations
12:11	10				3.4	SPH present
12:17					6.8	
12:33	60.4	7.1	351	7200	10.2	grayish color
	Removed ≈ 20 ml		SPH with	purge water		

Did well dewater? Yes No Gallons actually evacuated: 10.2

Sampling Time: 12:38 Sampling Date: 2-26-03

Sample I.D.: MW-1 Laboratory: STL

Analyzed for: (TPH-G BTEX MTBE) TPH-D Other: TAME, ETBE, DIPE, TBA, EPB, EOC All by 8260

Equipment Blank I.D.: _____ @ _____ Time Duplicate I.D.: _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Test post-purge due to product

D.O. (if req'd):	<u>(Pre-purge)</u>	mg/L	<u>(Post-purge)</u>	mg/L
ORP (if req'd):	<u>(Pre-purge)</u>	mV	<u>(Post-purge)</u>	mV

WELL MONITORING DATA SHEET

Project #: <u>030226-DW-1</u>	Client: <u>PES Environmental</u>
Sampler: <u>Dave Walter</u>	Start Date: <u>2-26-03</u>
Well I.D.: <u>MW-2</u>	Well Diameter: (<u>2</u> 3 4 6 8)
Total Well Depth: <u>24.88</u>	Depth to Water: <u>3.55</u>
Before: _____ After: _____	Before: _____ After: _____
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Purge Method:

- Bailer
 Disposable Bailer
 Middleburg
 Electric Submersible
- Waterra
 Peristaltic
 Extraction Pump
 Other _____

Sampling Method:

- Bailer
 Disposable Bailer
 Extraction Port
 Dedicated Tubing
 Other: _____

3.4 (Gals.) X 3 = 10.2
 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp. (°F or °C)	pH	Conductivity (mS or µS)	Turbidity (NTU)	Gals. Removed	Observations
9:56	58.6	7.2	1143	> 200	3.4	Brown
10:01	60.3	7.2	1194	> 200	6.8	
10:06	60.4	7.3	1205	> 200	10.2	

Did well dewater? Yes No Gallons actually evacuated: 10.2

Sampling Time: 10:11 Sampling Date: 2-26-03

Sample I.D.: MW-2 Laboratory: STL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: TAME, ETBE, DIPE, TBA, EPB, EOC All by 8260

Equipment Blank I.D.: _____ @ _____ Time Duplicate I.D.: _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____

D.O. (if req'd): Pre-purge: 0.8 mg/L Post-purge: _____ mg/L

ORP (if req'd): Pre-purge: _____ mV Post-purge: _____ mV

WELL MONITORING DATA SHEET

Project #: <u>030226-DW-1</u>	Client: <u>PES Environmental</u>
Sampler: <u>Dave Walter</u>	Start Date: <u>2-26-03</u>
Well I.D.: <u>MW-3</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <u>24.71</u>	Depth to Water: <u>3.71</u>
Before: _____ After: _____	Before: _____ After: _____
Depth to Free Product: _____	Thickness of Free Product (feet): _____
Referenced to: <u>(PVC)</u> Grade	D.O. Meter (if req'd): <u>(YSI)</u> HACH

Purge Method:

- Bailer
- Disposable Bailer
- Middleburg
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other _____

Sampling Method: Bailer

- Disposable Bailer
- Extraction Port
- Dedicated Tubing

Other: _____

34 (Gals.) X 3 = 10.2
Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp. (°F or °C)	pH	Conductivity (mS or µS)	Turbidity (NTU)	Gals. Removed	Observations
10:23	59.8	7.1	2836	> 200	3.4	Brown
10:38	60.6	7.1	3115	> 200	6.8	
10:33	61.2	7.1	3489	> 200	10.2	

Did well dewater? Yes No Gallons actually evacuated: 10.2

Sampling Time: 10:38 Sampling Date: 2-26-03

Sample I.D.: MW-3 Laboratory: STL

Analyzed for: (TPH-G BTEX MTBE) TPH-D Other: TAME, ETBE, DIPE, TBA, EDB, EOC All by 8260

Equipment Blank I.D.: _____ @ _____ Time Duplicate I.D.: _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____

D.O. (if req'd):	Pre-purge: <u>1.9</u> mg/L	Post-purge: _____ mg/L
ORP (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

WELL MONITORING DATA SHEET

Project #: <u>030226-DW-1</u>	Client: <u>PES Environmental</u>
Sampler: <u>Dave Walter</u>	Start Date: <u>2-26-03</u>
Well I.D.: <u>mw-4</u>	Well Diameter: <u>(2)</u> 3 4 6 8 <u> </u>
Total Well Depth: <u>24.74</u>	Depth to Water: <u>4.00</u>
Before: After:	Before: After:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Purge Method:	Sampling Method: <u>Bailer</u>
<input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Middleburg <input type="checkbox"/> Electric Submersible	<input type="checkbox"/> Waterra <input type="checkbox"/> Peristaltic <input type="checkbox"/> Extraction Pump <input type="checkbox"/> Other: _____
	<input checked="" type="checkbox"/> Disposable Bailer <input type="checkbox"/> Extraction Port <input type="checkbox"/> Dedicated Tubing <input type="checkbox"/> Other: _____

3.3 (Gals.) X 3 = 9.9
Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Time	Temp. (°F or °C)	pH	Conductivity (mS or µS)	Turbidity (NTU)	Gals. Removed	Observations
<u>11:20</u>	<u>63.4</u>	<u>7.2</u>	<u>3033</u>	<u>>200</u>	<u>3.3</u>	<u>gray/odor</u>
<u>11:24</u>	<u>64.4</u>	<u>7.1</u>	<u>3042</u>	<u>>200</u>	<u>6.6</u>	
<u>11:37</u>	<u>65.3</u>	<u>7.1</u>	<u>3436</u>	<u>>200</u>	<u>9.9</u>	

Did well dewater? Yes No Gallons actually evacuated: 9.9

Sampling Time: 11:30 Sampling Date: 2-26-03

Sample I.D.: mw-4 Laboratory: STL

Analyzed for: TPH-G BTEX MTBE TPH-D Other: TAME, ETBE, DIPE, TBA, EDB, EDC All by 8260

Equipment Blank I.D.: _____ @ _____ Time Duplicate I.D.: _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other:

D.O. (if req'd):	Pre-purge: <u>0.1</u> mg/L	Post-purge: _____ mg/L
ORP (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

APPENDIX B

**LABORATORY REPORT
AND
CHAIN-OF-CUSTODY RECORDS**



Submission#: 2003-02-0568

PES

March 06, 2003

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Attn.: Will Mast
Project#: 030226-DW-1

Dear Mr. Mast,

Attached is our report for your samples received on 02/27/2003 16:58
This report has been reviewed and approved for release. Reproduction of this report
is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after
04/13/2003 unless you have requested otherwise.

We appreciate the opportunity to be of service to you. If you have any questions,
please call me at (925) 484-1919.

You can also contact me via email. My email address is: asalimpour@stl-inc.com

Sincerely,

A handwritten signature in black ink, reading "Afsaneh Salimpour". The signature is written in a cursive style with a long, sweeping underline.

Afsaneh Salimpour
Project Manager

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-2	02/26/2003 10:11	Water	1
MW-3	02/26/2003 10:38	Water	2
MW-4	02/26/2003 11:32	Water	3
EW-1	02/26/2003 11:10	Water	4
MW-1	02/26/2003 12:28	Water	5

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Prep(s):	5030B	Test(s):	8260B
Sample ID:	MW-2	Lab ID:	2003-02-0568 - 1
Sampled:	02/26/2003 10:11	Extracted:	3/4/2003 21:46
Matrix:	Water	QC Batch#:	2003/03/04-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/04/2003 21:46	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	03/04/2003 21:46	
Methyl tert-butyl ether (MTBE)	10	0.50	ug/L	1.00	03/04/2003 21:46	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	1.00	03/04/2003 21:46	
Ethyl tert-butyl ether (ETBE)	ND	0.50	ug/L	1.00	03/04/2003 21:46	
tert-Amyl methyl ether (TAME)	ND	0.50	ug/L	1.00	03/04/2003 21:46	
1,2-DCA	ND	0.50	ug/L	1.00	03/04/2003 21:46	
EDB	ND	0.50	ug/L	1.00	03/04/2003 21:46	
Benzene	ND	0.50	ug/L	1.00	03/04/2003 21:46	
Toluene	ND	0.50	ug/L	1.00	03/04/2003 21:46	
Ethylbenzene	ND	0.50	ug/L	1.00	03/04/2003 21:46	
Total xylenes	ND	1.0	ug/L	1.00	03/04/2003 21:46	
Surrogates(s)						
1,2-Dichloroethane-d4	100.6	76-114	%	1.00	03/04/2003 21:46	
Toluene-d8	100.3	88-110	%	1.00	03/04/2003 21:46	

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-3 Lab ID: 2003-02-0568 - 2
Sampled: 02/26/2003 10:38 Extracted: 3/4/2003 22:08
Matrix: Water QC Batch#: 2003/03/04-01.27

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/04/2003 22:08	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	1.00	03/04/2003 22:08	
Methyl tert-butyl ether (MTBE)	ND	0.50	ug/L	1.00	03/04/2003 22:08	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	1.00	03/04/2003 22:08	
Ethyl tert-butyl ether (ETBE)	ND	0.50	ug/L	1.00	03/04/2003 22:08	
tert-Amyl methyl ether (TAME)	ND	0.50	ug/L	1.00	03/04/2003 22:08	
1,2-DCA	ND	0.50	ug/L	1.00	03/04/2003 22:08	
EDB	ND	0.50	ug/L	1.00	03/04/2003 22:08	
Benzene	ND	0.50	ug/L	1.00	03/04/2003 22:08	
Toluene	ND	0.50	ug/L	1.00	03/04/2003 22:08	
Ethylbenzene	ND	0.50	ug/L	1.00	03/04/2003 22:08	
Total xylenes	ND	1.0	ug/L	1.00	03/04/2003 22:08	
Surrogates(s)						
1,2-Dichloroethane-d4	95.9	76-114	%	1.00	03/04/2003 22:08	
Toluene-d8	102.5	88-110	%	1.00	03/04/2003 22:08	

Severn Trent Laboratories, Inc.

STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496

03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Prep(s): 5030B Test(s): 8260B
Sample ID: MW-4 Lab ID: 2003-02-0568 - 3
Sampled: 02/26/2003 11:32 Extracted: 3/5/2003 15:34
Matrix: Water QC Batch#: 2003/03/05-01.62
Analysis Flag: o (See Legend and Note Section)

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	63000	13000	ug/L	250.00	03/05/2003 15:34	
tert-Butyl alcohol (TBA)	ND	1300	ug/L	250.00	03/05/2003 15:34	
Methyl tert-butyl ether (MTBE)	30000	130	ug/L	250.00	03/05/2003 15:34	
Di-isopropyl Ether (DIPE)	ND	250	ug/L	250.00	03/05/2003 15:34	
Ethyl tert-butyl ether (ETBE)	ND	130	ug/L	250.00	03/05/2003 15:34	
tert-Amyl methyl ether (TAME)	ND	130	ug/L	250.00	03/05/2003 15:34	
1,2-DCA	ND	130	ug/L	250.00	03/05/2003 15:34	
EDB	ND	130	ug/L	250.00	03/05/2003 15:34	
Benzene	8100	130	ug/L	250.00	03/05/2003 15:34	
Toluene	4400	130	ug/L	250.00	03/05/2003 15:34	
Ethylbenzene	1900	130	ug/L	250.00	03/05/2003 15:34	
Total xylenes	8200	250	ug/L	250.00	03/05/2003 15:34	
Surrogates(s)						
1,2-Dichloroethane-d4	109.9	76-114	%	250.00	03/05/2003 15:34	
Toluene-d8	97.4	88-110	%	250.00	03/05/2003 15:34	

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B
Method Blank
MB: 2003/03/04-01.27-007

Water

Test(s): 8260B
QC Batch # 2003/03/04-01.27
Date Extracted: 03/04/2003 11:34

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/04/2003 11:34	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	03/04/2003 11:34	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	03/04/2003 11:34	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	03/04/2003 11:34	
Ethyl tert-butyl ether (ETBE)	ND	0.5	ug/L	03/04/2003 11:34	
tert-Amyl methyl ether (TAME)	ND	0.5	ug/L	03/04/2003 11:34	
1,2-DCA	ND	0.5	ug/L	03/04/2003 11:34	
EDB	ND	0.5	ug/L	03/04/2003 11:34	
Benzene	ND	0.5	ug/L	03/04/2003 11:34	
Toluene	ND	0.5	ug/L	03/04/2003 11:34	
Ethylbenzene	ND	0.5	ug/L	03/04/2003 11:34	
Total xylenes	ND	1.0	ug/L	03/04/2003 11:34	
Surrogates(s)					
1,2-Dichloroethane-d4	103.0	76-114	%	03/04/2003 11:34	
Toluene-d8	97.0	88-110	%	03/04/2003 11:34	

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2003/03/05-01.62-059

Water

Test(s): 8260B

QC Batch # 2003/03/05-01.62

Date Extracted: 03/05/2003 12:57

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/05/2003 12:57	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	03/05/2003 12:57	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	03/05/2003 12:57	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	03/05/2003 12:57	
Ethyl tert-butyl ether (ETBE)	ND	0.5	ug/L	03/05/2003 12:57	
tert-Amyl methyl ether (TAME)	ND	0.5	ug/L	03/05/2003 12:57	
1,2-DCA	ND	0.5	ug/L	03/05/2003 12:57	
EDB	ND	0.5	ug/L	03/05/2003 12:57	
Benzene	ND	0.5	ug/L	03/05/2003 12:57	
Toluene	ND	0.5	ug/L	03/05/2003 12:57	
Ethylbenzene	ND	0.5	ug/L	03/05/2003 12:57	
Total xylenes	ND	1.0	ug/L	03/05/2003 12:57	
Surrogates(s)					
1,2-Dichloroethane-d4	110.6	76-114	%	03/05/2003 12:57	
Toluene-d8	98.2	88-110	%	03/05/2003 12:57	

Severn Trent Laboratories, Inc.

STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496

03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B

Method Blank

MB: 2003/03/06-01.62-061

Water

Test(s): 8260B

QC Batch # 2003/03/06-01.62

Date Extracted: 03/06/2003 11:21

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/06/2003 11:21	
tert-Butyl alcohol (TBA)	ND	5.0	ug/L	03/06/2003 11:21	
Methyl tert-butyl ether (MTBE)	ND	0.5	ug/L	03/06/2003 11:21	
Di-isopropyl Ether (DIPE)	ND	1.0	ug/L	03/06/2003 11:21	
Ethyl tert-butyl ether (ETBE)	ND	0.5	ug/L	03/06/2003 11:21	
tert-Amyl methyl ether (TAME)	ND	0.5	ug/L	03/06/2003 11:21	
1,2-DCA	ND	0.5	ug/L	03/06/2003 11:21	
EDB	ND	0.5	ug/L	03/06/2003 11:21	
Benzene	ND	0.5	ug/L	03/06/2003 11:21	
Toluene	ND	0.5	ug/L	03/06/2003 11:21	
Ethylbenzene	ND	0.5	ug/L	03/06/2003 11:21	
Total xylenes	ND	1.0	ug/L	03/06/2003 11:21	
Surrogates(s)					
1,2-Dichloroethane-d4	106.6	76-114	%	03/06/2003 11:21	
Toluene-d8	96.0	88-110	%	03/06/2003 11:21	

Sewern Trent Laboratories, Inc.

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03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B

Test(s): 8260FAB

Laboratory Control Spike

Water

QC Batch # 2003/03/04-01.27

LCS 2003/03/04-01.27-003

Extracted: 03/04/2003

Analyzed: 03/04/2003 10:45

LCSD 2003/03/04-01.27-004

Extracted: 03/04/2003

Analyzed: 03/04/2003 11:12

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	21.7	20.7	25.0	86.8	82.8	4.7	69-129	20		
Toluene	22.2	21.8	25.0	88.8	87.2	1.8	70-130	20		
Methyl tert-butyl ether (MTBE)	25.6	26.4	25.0	102.4	105.6	3.1	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	531	536	500	106.2	107.2		76-114			
Toluene-d8	506	485	500	101.2	97.0		88-110			

Severn Trent Laboratories, Inc.

STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496

03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B

Test(s): 8260FAB

Laboratory Control Spike

Water

QC Batch # 2003/03/05-01.62

LCS 2003/03/05-01.62-012

Extracted: 03/05/2003

Analyzed: 03/05/2003 13:19

LCSD 2003/03/05-01.62-035

Extracted: 03/05/2003

Analyzed: 03/05/2003 12:35

Compound	Conc. ug/L		Exp. Conc.	Recovery		RPD	Ctrl. Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	25.7	24.0	25.0	102.8	96.0	6.8	69-129	20		
Toluene	25.9	24.5	25.0	103.6	98.0	5.6	70-130	20		
Methyl tert-butyl ether (MTBE)	23.5	21.9	25.0	94.0	87.6	7.0	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	522	525	500	104.4	105.0		76-114			
Toluene-d8	489	495	500	97.8	99.0		88-110			

Severn Trent Laboratories, Inc.

STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496

03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100
Novato, CA 94947-7021
Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Batch QC Report

Prep(s): 5030B

Test(s): 8260FAB

Laboratory Control Spike

Water

QC Batch # 2003/03/06-01.62

LCS 2003/03/06-01.62-037

Extracted: 03/06/2003

Analyzed: 03/06/2003 10:37

LCSD 2003/03/06-01.62-059

Extracted: 03/06/2003

Analyzed: 03/06/2003 10:59

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD		%	Rec.	RPD	LCS
Benzene	24.5	24.7	25.0	98.0	98.8	0.8	69-129	20		
Toluene	25.1	24.6	25.0	100.4	98.4	2.0	70-130	20		
Methyl tert-butyl ether (MTBE)	23.6	22.3	25.0	94.4	89.2	5.7	65-165	20		
Surrogates(s)										
1,2-Dichloroethane-d4	535	523	500	107.0	104.6		76-114			
Toluene-d8	477	476	500	95.4	95.2		88-110			

Severn Trent Laboratories, Inc.

STL San Francisco * 1220 Quarry Lane, Pleasanton, CA 94566

Tel 925 484 1919 Fax 925 484 1096 * www.stl-inc.com * CA DHS ELAP# 2496

03/06/2003 15:45

Fuel Oxygenates by 8260B

PES

Attn.: Will Mast

1682 Novato Blvd., Suite 100

Novato, CA 94947-7021

Phone: (415) 899-1600 Fax: (415) 899-1601

Project: 030226-DW-1

Received: 02/27/2003 16:58

Legend and Notes

Analysis Flag

o

Reporting limits were raised due to high level of analyte present in the sample.

BLAINE

TECH SERVICES, INC.

1680 ROGERS AVENUE
 SAN JOSE, CALIFORNIA 95112-1105
 FAX (408) 573-7771
 PHONE (408) 573-0555

CONDUCT ANALYSIS TO DETECT

LAB

STL San Francisco

DHS #

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

- EPA
- LIA
- OTHER

RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to : PES

Attn: Will Mast

2003-02-0568

CHAIN OF CUSTODY

BTS # *030226-DW-1*

CLIENT **PES**

SITE **Pacific Electric Motor**

1099 66th Avenue

Oakland, CA

C = COMPOSITE ALL CONTAINERS

TPH - Gas (8260)

BTEX, MTBE, TAME, ETBE, DIPE, TBA, EDB, EDC (8260)

MATRIX CONTAINERS

S= SOIL
W=H₂O

TOTAL

SAMPLE I.D.

DATE

TIME

S= SOIL
W=H₂O

TOTAL

C

TPH - Gas (8260)

BTEX, MTBE, TAME, ETBE, DIPE, TBA, EDB, EDC (8260)

ADD'L INFORMATION

STATUS

CONDITION

LAB SAMPLE #

SAMPLE I.D.	DATE	TIME	MATRIX	TOTAL	C	TPH - Gas (8260)	BTEX, MTBE, TAME, ETBE, DIPE, TBA, EDB, EDC (8260)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
<i>mw-2</i>	<i>2-26</i>	<i>10:11</i>	<i>W</i>	<i>6</i>		<i>X</i>	<i>X</i>				
<i>mw-3</i>	<i>↓</i>	<i>16:38</i>	<i>↓</i>	<i>↓</i>		<i>X</i>	<i>X</i>				
<i>mw-4</i>	<i>↓</i>	<i>11:32</i>	<i>↓</i>	<i>↓</i>		<i>X</i>	<i>X</i>				
<i>EW-1</i>	<i>↓</i>	<i>11:16</i>	<i>↓</i>	<i>↓</i>		<i>X</i>	<i>X</i>				
<i>mw-1</i>	<i>↓</i>	<i>12:38</i>	<i>↓</i>	<i>↓</i>		<i>X</i>	<i>X</i>				

SAMPLING COMPLETED *2-26-03 12:52* | DATE *2-26-03* | TIME *12:52* | SAMPLING PERFORMED BY *Dave Walter* | RESULTS NEEDED NO LATER THAN *As Contracted with PES*

RELEASED BY *David C Skalt* | DATE *2/27/03* | TIME *1037* | RECEIVED BY *[Signature]* | DATE *2/27/03* | TIME *1037*

RELEASED BY *[Signature]* | DATE *2/27/03* | TIME *1638* | RECEIVED BY *[Signature]* | DATE *2/27/03* | TIME *1638*

RELEASED BY *[Signature]* | DATE *2/27/03* | TIME *1638* | RECEIVED BY *Norma K. JTL-SF* | DATE *02/27/03* | TIME *1638*

SHIPPED VIA _____ | DATE SENT _____ | TIME SENT _____ | COOLER # _____

3.1°C

STL San Francisco

Sample Receipt Checklist

Submission #: 2003- 02 - 0568

Checklist completed by: (initials) OK Date: 02/28/03

Courier name: STL San Francisco Client _____

Custody seals intact on shipping container/samples

Yes ___ No ___ Not Present

Chain of custody present?

Yes No ___

Chain of custody signed when relinquished and received?

Yes No ___

Chain of custody agrees with sample labels?

Yes No ___

Samples in proper container/bottle?

Yes No ___

Sample containers intact?

Yes No ___

Sufficient sample volume for indicated test?

Yes No ___

All samples received within holding time?

Yes No ___

Container/Temp Blank temperature in compliance ($4^{\circ}\text{C} \pm 2$)?

Temp: 5/°C Yes No ___

Water - VOA vials have zero headspace?

No VOA vials submitted ___ Yes No ___

(if bubble is present, refer to approximate bubble size and itemize in comments as S (small ~O), M (medium ~ O) or L (large ~ O))

Water - pH acceptable upon receipt? Yes No

pH adjusted- Preservative used: HNO₃ HCl H₂SO₄ NaOH ZnOAc

For any item check-listed "No", provided detail of discrepancy in comment section below:

Comments:

Project Management [Routing for instruction of indicated discrepancy(ies)]

Project Manager: (initials) _____ Date: ____/____/03

Client contacted: Yes No

Summary of discussion:

Corrective Action (per PM/Client):

DISTRIBUTION

**FIRST QUARTER 2003
GROUNDWATER MONITORING REPORT
PACIFIC ELECTRIC MOTOR COMPANY
1009 66TH AVENUE
OAKLAND, CALIFORNIA**

JUNE 5, 2003

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