

SOIL AND GROUND WATER INVESTIGATION  
SUMMARY REPORT  
PACIFIC ELECTRIC MOTOR CO.  
1009 - 66TH AVENUE  
OAKLAND, CALIFORNIA

7/17/97

*Submitted to:*

Alameda County Environmental Health Department

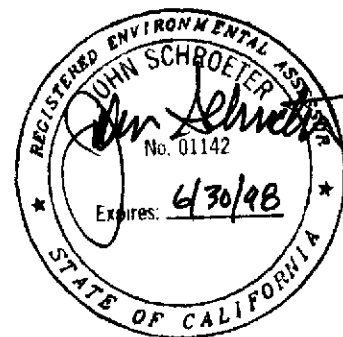
*Submitted on behalf of:*

Pacific Electric Motor Co.



*Prepared by:*

ENVIRON Corporation  
Emeryville, California



July 17, 1997  
Project No. 03-5991A

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## 1.0 INTRODUCTION

This report summarizes the results of a soil and ground water investigation that was recently completed at the Pacific Electric Motor Company (PEM) facility located at 1009 - 66th Avenue in Oakland, California (hereinafter referred to as the "Site"). The purpose of the investigation was to further define the lateral and vertical extent of gasoline constituents in soil and ground water within the vicinity of a former gasoline underground storage tank (UST) that was removed on February 16, 1995.

This soil and ground water investigation was completed under the jurisdiction of the Alameda County Environmental Health Department (ACEHD) in accordance with a work plan titled *Work Plan for Soil and Ground Water Investigation, Pacific Electric Motor Co., 1009 - 66th Avenue, Oakland, California (ENVIRON, May 27, 1997)* that was conditionally approved by the ACEHD in a letter dated May 30, 1997 (Appendix A). Field investigation activities included soil sampling and analysis, new monitoring well construction, well development, water level measurements, ground water sampling and analysis, and well surveying. These field activities were completed between June 10 and 19, 1997.

Following this brief introductory section, this report summarizes background information concerning previous UST removal and site investigation activities (Section 2.0), Site Investigation Procedures and Results (Section 3.0), and Conclusions and Recommendations (Section 4.0).

## 2.0 BACKGROUND INFORMATION

The Site is located at 1009 - 66th Avenue in Oakland, California (Figure 1). PEM formerly operated a 2,000-gallon steel gasoline UST located east of the on-site warehouse building (see Figure 2) that was reportedly removed on February 16, 1995 by W.A. Craig, Inc. (WAC). At the time of removal of the former UST, it was reported that the tank was approximately 20 years old, in good condition, and that no holes were evident. However, free product was encountered on the water surface within the tank excavation pit and elevated concentrations of gasoline constituents (including up to 10,000 mg/kg of TPH as gasoline), were detected in three soil samples collected from the UST excavation and associated piping trenches.

In a report titled *Final Closure Plan for Underground Storage Tank Removal (WAC, March 14, 1995)*, it was recommended that the soil stockpile resulting from the UST removal project be disposed of off-site, that clean material be used to backfill the tank pit, and that petroleum-impacted water from the pit be pumped and disposed of at a licensed disposal facility. In addition, further soil and ground water remediation was recommended. In a letter dated April 20, 1995, the ACEHD indicated its awareness of subsequent activities completed by WAC that included enlarging the initial tank pit area through overexcavation and constructing trenches, and requested additional information from PEM concerning these activities.

In a document titled *Subsurface Environmental Investigation (WAC, May 16, 1995)*, it was reported that from April 4 through 11, 1995, approximately 300 cubic yards of gasoline-impacted soils were excavated from the vicinity of the former UST and stockpiled at the Site on plastic sheeting. In addition, it was reported that approximately 18,000 gallons of contaminated water had been pumped from the excavation pit and placed in a Baker tank on-site.

On April 24 and 25, 1995, WAC reportedly performed a geoprobe investigation in an attempt to define the lateral and vertical extent of gasoline constituents. Nine soil borings were advanced to depths between 20 and 30 feet below ground and soil samples were collected above and below the water table. Ground water samples were not collected during this investigation because the fine-grained soils reportedly did not yield sufficient water.

Based on information provided to ENVIRON by PEM, it is ENVIRON's understanding that additional remedial actions were completed at the Site from August 1995 to November 1995 in accordance with a work plan dated July 5, 1995. These remedial actions reportedly included the removal of approximately 1,500 cubic yards of petroleum hydrocarbon-impacted soil and the treatment/discharge of an estimated 116,000 gallons of petroleum hydrocarbon-

impacted ground water. Other activities reportedly included demolition of the fuel dispensing island, associated product supply lines, and a materials storage structure; installation of a temporary ground water monitoring well; collection and analysis of excavation sidewall and bottom soil confirmation samples; and collection and analysis of ground water samples. The approximate horizontal and vertical extent of the final soil excavation, as well as confirmation soil sample results, were presented in Figure 4 of the report titled *Excavation and Sampling Report* (WAC, May 12, 1997).

Until recently, four soil stockpiles were located on-site that ENVIRON had identified as Stockpiles 1, 2, 3, and 4 for reference purposes (Figure 2). In order to assist PEM in evaluating potential soil recycling, treatment, or disposal methods, ENVIRON completed a soil stockpile characterization project that was completed in accordance with a work plan dated April 23, 1997 that was approved by the ACEHD in a letter dated April 24, 1997. Based on the results of the soil stockpile characterization effort that were summarized in a report titled *Soil Stockpile Characterization Summary Report* (ENVIRON, May 28, 1997), PEM recently arranged to transport the stockpiled soils off-site for disposal.

As noted above, the objective of this site investigation was to further define the lateral and vertical extent of gasoline constituents in soil and ground water within the vicinity of a former gasoline US that was removed on February 16, 1995. Site investigation procedures and results are summarized in the following section.

### 3.0 SITE INVESTIGATION PROCEDURES AND RESULTS

A field investigation was conducted between June 10 and 19, 1997 at the Pacific Electric Motor Company, Oakland, California facility in accordance with the document titled *Work Plan for Soil and Ground Water Investigation, Pacific Electric Motor Co., 1009-66th Avenue, Oakland, California* (ENVIRON, May 27, 1997), subject to the conditions contained in the ACEHD's May 30, 1997 approval letter. The field investigation included advancing three soil borings for the purposes of collecting soil samples, and converting the soil borings to monitoring wells in order to evaluate ground water quality conditions in the vicinity of a former underground storage tank. The boring and well locations are shown on Figure 2 and the boring logs and well construction details are presented on Figures B-1 through B-3 of Appendix B.

#### 3.1 Drilling Procedures

On June 10, 1997, drilling and installation of three ground water monitoring wells was performed by Gregg Drilling & Testing, Inc. of Martinez, California using hollow-stem auger drilling methods. At each monitoring well location, a soil boring was advanced using a Mobile B-53 drill rig. The borings were advanced using nominal 8-inch diameter hollow-stem augers and an 8½-inch diameter bit.

Relatively undisturbed soil samples were obtained by using a 2-inch inside diameter (ID) split spoon sampler lined with pre-cleaned, 6-inch long, brass liner tubes. The sampler was driven into undisturbed soils using a hammer weighing 130 pounds and falling 30 inches. Prior to collecting each sample, the sampler was cleaned with a liquinox and water solution, then double rinsed with potable water, and reassembled with pre-cleaned brass tubes. Upon removal from the borehole, the sampler was disassembled, and the tubes were removed from the sampler and labeled.

An ENVIRON geologist was present during drilling to obtain soil samples, maintain a continuous log of the borings, make observations of site conditions, conduct health and safety monitoring for organic vapors during drilling, and provide technical assistance as required. Soil samples were logged and classified according to the Unified Soil Classification System shown on Figure B-4 of Appendix B. Sample color (according to the Munsell soil color charts), consistency, moisture, and soil screening results are noted on the boring logs. The boring logs contain geologic descriptions of the materials encountered and an estimate of the grain size distribution. Discrete soil samples were collected at various depths throughout the drilling and placed in a ziploc bag for field screening using an organic vapor photoionization detector (PID) instrument. Soil samples were selected for chemical testing based upon field

observations and the results of the field screening. As noted above, the boring log and well construction details containing the field data for each location are presented on Figures B-1 through B-3.

### **3.2 Monitoring Well Installation Procedures**

The monitoring wells were constructed in accordance with the California Department of Water Resources and Alameda Zone 7 Water Agency regulations. Well materials were handled and stored prior to installation in a manner such that they were protected from contamination. Monitoring well construction details are summarized in Table 1.

Following completion of the soil boring, well screen consisting of 2-inch diameter Schedule 40 PVC (0.010-inch machine slotted) was fitted with endcaps and placed in the borehole. Unslotted 2-inch diameter Schedule 40 PVC was attached to the top of the screen interval using flush threaded couplings. The unslotted PVC casing extended to the ground surface. A locking expandable cap was placed inside of each well casing. A sand pack consisting of Lonestar #2/16 sand was then placed in the annulus from the bottom of the borehole to approximately one foot above the top of the slotted screen. Approximately one foot of bentonite pellets was placed above the sand pack. The bentonite pellets were hydrated with potable water prior to placement of the grout seal. The remaining annular space was filled to one foot below ground surface with a bentonite-cement grout seal. A 12-inch diameter, flush-mounted, traffic-rated Christy box was grouted in at the surface to complete the installation.

### **3.3 Well Development and Sampling**

Blaine Tech Services of San Jose, California performed well development on June 17, 1997, and sampling on June 19, 1997, under the supervision of ENVIRON staff. Well development procedures consisted of bailing, surging (with a surge block or bailer), and pumping. ENVIRON maintained field records of the volume of water removed from each well, pH readings, temperature readings, conductivity readings, and turbidity readings. Field records maintained during development activities are included in Appendix C.

Ground water samples were collected from the three newly constructed monitoring wells (MW-1, MW-2 and MW-3) and one previously existing well (WAC-1) on June 19, 1997 by Blaine Tech Services under the supervision of an ENVIRON geologist. Each well was purged with a Middleburg type displacement pump constructed of stainless steel and Teflon™. A minimum of three well-casing volumes of water were purged prior to sampling to produce samples that were representative of aquifer conditions. ENVIRON maintained field records of the volume of water removed from each well, pH readings, temperature readings, conductivity

readings, and turbidity readings. Field records maintained during sampling activities are included in Appendix C.

Samples were collected using a stainless steel bailer. All down-hole equipment was steam-cleaned prior and between use in each well. Samples were collected and submitted for chemical testing under chain-of-custody protocol.

### 3.4 Analytical Results

One soil sample was selected for chemical analysis from each of the three soil borings for MW-1, MW-2, and MW-3 on the basis of field screening measurements using an organic vapor monitoring (OVM) instrument, and field observations. The soil samples that were submitted for chemical analysis from the borings for MW-1 and MW-3 were selected to coincide with the highest OVM field measurements. Due to the low OVM field screening measurements that were encountered in the boring for MW-2, however, ENVIRON submitted the soil sample collected from a depth of 15.5 to 16.0 feet below ground for chemical analysis in order to provide a basis for comparison with the soil sample collected from the boring for MW-1. Soil analytical results are summarized in Table 2, OVM field measurements are included on the boring logs in Appendix B, and soil analytical laboratory reports are included in Appendix C. As shown in Table 2, concentrations of TPH/gasoline and BTEX compounds were non-detectable in soil samples collected from the borings for MW-2 and MW-3, while the soil sample collected from the boring for MW-1 at a depth of 15.5 to 16.0 feet below ground contained the following concentrations of gasoline constituents: TPH/gasoline - 480 mg/kg; benzene - 1.4 mg/kg; toluene - 0.71 mg/kg; ethylbenzene - 11 mg/kg; and xylenes - 35 mg/kg. As shown in Table 2, concentrations of TPH/gasoline and BTEX compounds were non-detectable in the equipment blank and trip blank associated with these soil samples.

Ground water analytical results for the three new monitoring wells and existing well WAC-1 are summarized in Table 3, and ground water analytical laboratory reports are included in Appendix D. As shown in Table 3, concentrations of TPH/gasoline and BTEX compounds were non-detectable in ground water samples collected from MW-2 and MW-3, while the ground water sample collected from MW-1 contained the following concentrations of gasoline constituents: TPH/gasoline - 18 mg/L; benzene - 3.3 mg/L; toluene - 0.2 mg/L; ethylbenzene - 1.1 mg/L; and xylenes - 4.9 mg/L. Although TPH/gasoline and BTEX concentrations were reported to be non-detectable in the ground water sample collected from WAC-1, this well reportedly contained 0.43 mg/L of methyl tertiary-butyl ether (MTBE). Lead concentrations were either below or near the detection limit of 0.005 mg/L in the ground water samples collected from the four wells, and non-detectable concentrations of TPH/gasoline, BTEX, MTBE, and lead were reported in the equipment blank and trip blank



associated with these ground water samples.

### 3.5 Water Level Measurements

Static water levels in the three newly installed monitoring wells (MW-1, MW-2, and MW-3) and one existing well (WAC-1) were measured on July 1, 1997. Measurements were made with an electronic water level probe with gradations to the nearest 0.02 feet. Readings were taken from a surveyed reference point until agreement was reached from two consecutive readings to the nearest 0.01 foot after interpolation. The ground water elevation measurements are presented in Table 4 and a ground water elevation contour map is included as Figure 3.

### 3.6 Surveying

Following completion of the monitoring wells, the well locations and important nearby site features were surveyed by Kister, Savio, & Rei, Inc. The surveying was conducted on June 25, 1997. Well locations were surveyed to the nearest 0.1 foot and are referenced to an assumed site coordinate system. The ground surface and top of casing elevations were surveyed to the nearest 0.01 foot and are referenced to an assumed site datum. The survey data are presented in Table 5.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

As noted above, this report summarizes the results of a site investigation that was completed at the PEM facility between June 10 and June 19, 1997. The investigation was completed in accordance with a work plan that was approved by the ACEHD in a letter dated May 30, 1997 and included the following activities: soil sampling and analysis, new monitoring well construction, well development, water level measurements, ground water sampling and analysis, and well surveying. The purpose of the investigation was to further define the lateral and vertical extent of gasoline constituents in soil and ground water within the vicinity of a former gasoline UST that was removed on February 16, 1995.

The results of this investigation have confirmed that the local ground water gradient is generally toward the south to southwest, which is consistent with site topography and results of other site investigations that have been conducted in area. Therefore, it is concluded that monitoring wells MW-2 and MW-3 appear to have been appropriately located to assess the potential migration of petroleum constituents from the former UST location. The absence of petroleum hydrocarbons in soil and ground water samples collected at these downgradient locations suggests that the occurrence of petroleum hydrocarbons is relatively limited in extent. Although TPH/gasoline and BTEX compounds were detected in the soil and ground water samples collected at MW-1 and MTBE was detected in a ground water sample collected from WAC-1, it is important to recognize that these concentrations are within ranges that the RWQCB has allowed to remain in soil and ground water at other similar sites located within the Bay Area, depending upon site-specific factors.

Based on the results of this investigation, it is recommended that the ACEHD consider requiring no further action at this Site for the following reasons:

- The former 2,000 gallon gasoline UST, which was the source of gasoline constituents identified in soils and ground water at the Site, has been removed;
- Additional source remedial actions have been implemented in the immediate vicinity of former UST, which have included the excavation and recent off-site disposal of approximately 1,500 cubic yards of petroleum-hydrocarbon impacted soil and the extraction, treatment, and disposal of an estimated 116,000 gallons of ground water;
- Site-specific hydrogeologic conditions, which include the nature and extent of fine-grained soils that were encountered during this investigation, are expected

to limit the lateral and vertical migration of petroleum hydrocarbons;

- No adverse soil or ground water quality impacts by petroleum hydrocarbons were identified at MW-2 or MW-3, which are located approximately 130 to 160 feet downgradient of the former UST;
- Ground water within the vicinity of the Site is reportedly not used as a drinking water supply; and
- Intrinsic bioremediation processes are likely to further reduce the concentrations of petroleum hydrocarbons in soil and ground water at the Site over time.

In summary, significant remedial actions have been completed at the Site to address soil and ground water issues associated with the former gasoline UST, which was removed nearly two and one-half years ago (on February 16, 1995). During the soil and ground water investigation summarized in this report, no adverse impacts were identified in monitoring wells that were constructed downgradient of the former UST, and the ranges of petroleum hydrocarbon constituents that were identified in the vicinity of the former UST are within ranges that the RWQCB has allowed to remain in soil and ground water at other similar sites located within the Bay Area. Based on these considerations, and the other considerations listed above, ENVIRON recommends that ACEHD consider requiring no further investigation, monitoring, or remediation at the Site.

**TABLE 1: MONITORING WELL CONSTRUCTION DETAILS**  
**Pacific Electric Motor Company, 1009 66th Avenue, Oakland, California**

Well	Total Depth (ft bgs)	Casing Material	Casing Diameter	Screen Slot Size	Filter Pack Size	Screen Interval (ft bgs)	Filter Pack Interval (ft bgs)	Bentonite Pellet Interval (ft bgs)	Grout Interval (ft bgs)
MW-1	25.5	Sch. 40 PVC	2"	0.010"	Lonestar 2/16	5.0 - 25.0	4.0 - 25.5	3.0 - 4.0	1.0 - 3.0
MW-2	25.5	Sch. 40 PVC	2"	0.010"	Lonestar 2/16	5.0 - 25.0	4.0 - 25.0	3.0 - 4.0	1.0 - 3.0
MW-3	25.5	Sch. 40 PVC	2"	0.010"	Lonestar 2/16	5.0 - 25.0	4.0 - 25.0	3.0 - 4.0	1.0 - 3.0
WAC-1 *	28.0	Sch. 40 PVC	10"	0.032"	#3 Monterey	19.6 - 27.6	18 - 27.9	12.6 - 18.6	N/A

**Notes:**

ft bgs = feet below ground surface

\*Well construction details for well WAC-1 are based on information contained in the report *Excavation and Sampling Report*.  
(W. A. Craig, Inc., May 12, 1997).

**TABLE 2: SOIL ANALYTICAL RESULTS**

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

Well	MW-1	MW-2	MW-3	MW-3EB	MW-1TB
Depth	15.5-16.0	15.5-16.0	9.5-10.0	--	--
Sample Code	Sample	Sample	Sample	Equipment Blank	Trip Blank
Sample ID	MW1-10C-15.5	MW2-10C-15.5	MW3-6C-9.5	MW-3EB	MW-1TB
Date Sampled	6/10/97	6/10/97	6/10/97	6/10/97	6/10/97
Date Analyzed	6/18/97	6/18/97	6/18/97	6/13/97	6/13/97
Lab Report	9706106	9706106	9706106	9706106	9706106
Analytical Method	8020A/8015M	8020A/8015M	8020A/8015M	8020A/8015M	8020A
Units	mg/kg	mg/kg	mg/kg	µg/L	µg/L
Gasoline	480	<1.0	<1.0	<50	na
Benzene	1.4	<0.0050	<0.0050	<0.50	<0.50
Toluene	0.71	<0.0050	<0.0050	<0.50	<0.50
Ethylbenzene	11	<0.0050	<0.0050	<0.50	<0.50
Xylenes	35	<0.0050	<0.0050	<0.50	<0.50

**Notes:**

<xx = not detected above detection limit xx.

na = not analyzed

**TABLE 3: GROUND WATER ANALYTICAL RESULTS**  
**Pacific Electric Motor Company, 1009 66th Avenue, Oakland, California**

Well		MW-1	MW-2	MW-3	WAC-1	WAC-1EB	MW-1TB
Sample Code		Sample	Sample	Sample	Sample	Equipment Blank	Trip Blank
Date Sampled		6/19/97	6/19/97	6/19/97	6/19/97	6/19/97	6/19/97
Date Analyzed		6/27/97	6/27/97	6/27/97	6/27/97	6/27/97	6/27/97
Lab Report		9706268	9706268	9706268	9706268	9706268	9706268
Analytical Method	Units	8020A/8015M	8020A/8015M	8020A/8015M	8020A/8015M	8020A/8015M	8020A/8015M
Gasoline	µg/L	18,000	<50	<50	<50	<50	<50
MTBE	µg/L	<250	<5.0	<5.0	430	<5.0	<5.0
Benzene	µg/L	3,300	<0.5	<0.5	<2.5	<0.5	<0.5
Toluene	µg/L	200	<0.5	<0.5	<2.5	<0.5	<0.5
Ethylbenzene	µg/L	1,100	<0.5	<0.5	<2.5	<0.5	<0.5
Xylenes	µg/L	4,900	<0.5	<0.5	<2.5	<0.5	<0.5
Lead (mg/L)	mg/L	0.0051	0.0052	<0.0050	<0.0050	<0.0050	na

**Note:**

<xx = not detected above detection limit xx.  
na = not analyzed

**TABLE 4: GROUND WATER ELEVATIONS**

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

<b>WELL</b>	<b>Screened Interval Elevation (ft above assumed datum)</b>	<b>Top of Casing Elevation (ft above assumed datum)</b>	<b>Depth to Water (ft below toc)</b>	<b>Ground Water Elevation (ft above assumed datum)</b>
MW-1	96.0 - 76.0	100.67	5.88	94.79
MW-2	95.1 - 75.1	99.85	5.37	94.48
MW-3	95.2 - 75.2	99.93	5.52	94.41
WAC-1 <sup>(2)</sup>	81.3 - 73.3	100.8	6.12	94.68

**Notes:**

ft above msl = feet above mean sea level datum

ft below toc = feet below top of casing

(1) Static water level measurements were made on July 1, 1997.

(2) Measured total depth of well WAC-1 was 17.09 ft (below ground surface) on July 1, 1997. Available well construction details for well WAC-1 indicate a total depth of 28.0 ft (below ground surface).

**TABLE 5: SURVEY MEASUREMENTS**

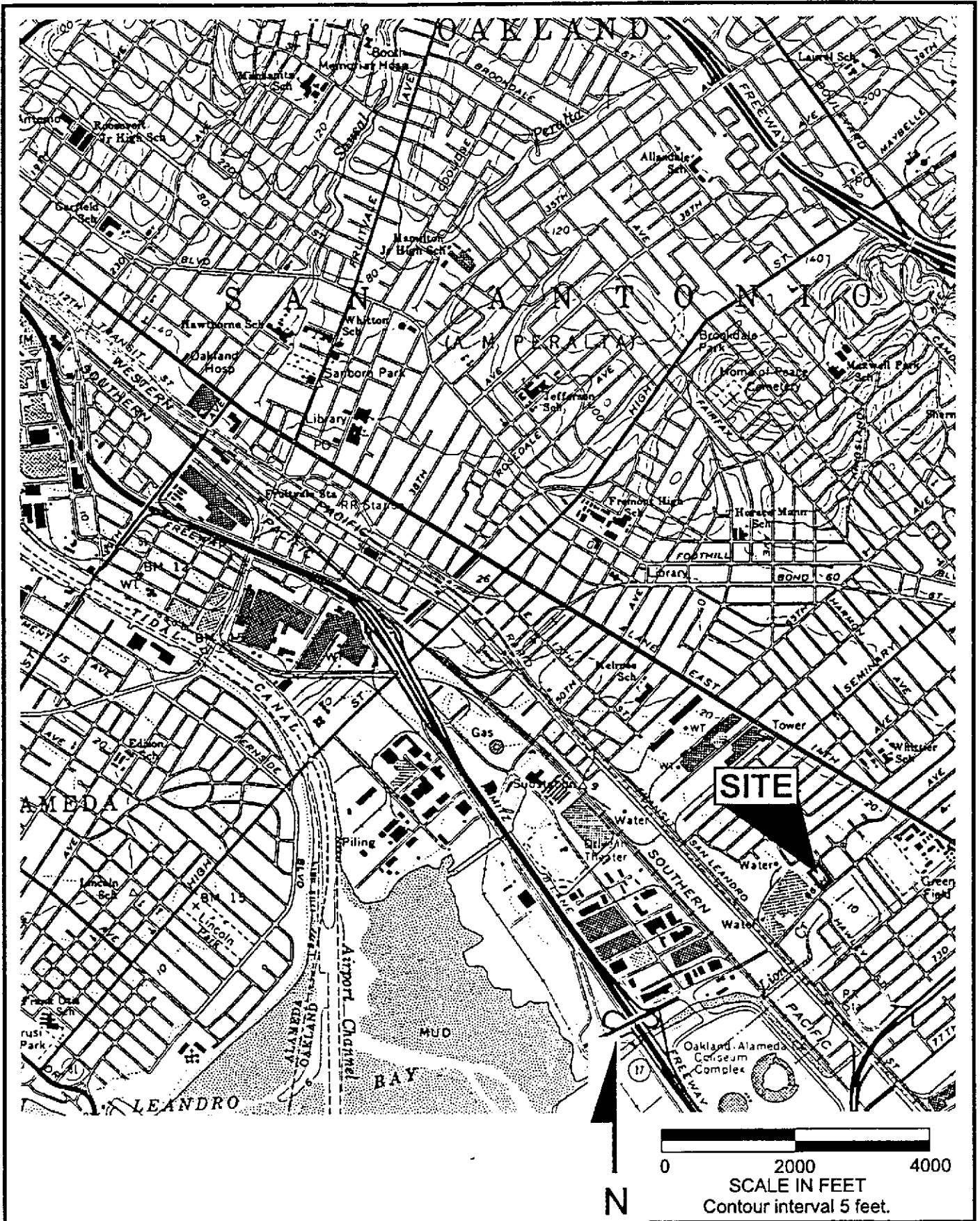
Pacific Electric Motor Company, 1009 66th Avenue, Oakland, California

<b>WELL/Site Feature</b>	<b>Northing</b>	<b>Easting</b>	<b>Ground Surface Elevation (ft above assumed datum)</b>	<b>Top of Casing Elevation (ft above assumed datum)</b>
MW-1	5157.0	4996.0	101.04	100.67
MW-2	4997.6	5015.8	100.12	99.85
MW-3	5022.7	4894.6	100.23	99.93
WAC-1	5143.0	5001.6	100.9	100.8
NE Corner of Warehouse	5160.9	4992.5	100.99	--
SE Corner of Warehouse	5111.6	4982.8	100.94	--
SW Corner of Warehouse	5131.2	4884.3	100.97	--
Surveyors Work Point 1	5000.0	5000.0	100	--
Surveyors Work Point 2	5149.5	5000.0	101	--

**Notes:**

- (1) Survey measurements made by Kister, Savio & Rei, Inc. on June 25, 1997 using an assumed coordinate system. Assumed coordinate system defined by the location of two surveying nails driven into the ground (Surveyor's Work Point 1 and Surveyor's Work Point 2). Assumed datum defined at Surveyor's Work Point 1 of 100 feet.





**ENVIRON**

Site Location Map  
1009 - 66th Avenue  
Oakland, California

Figure

**1**

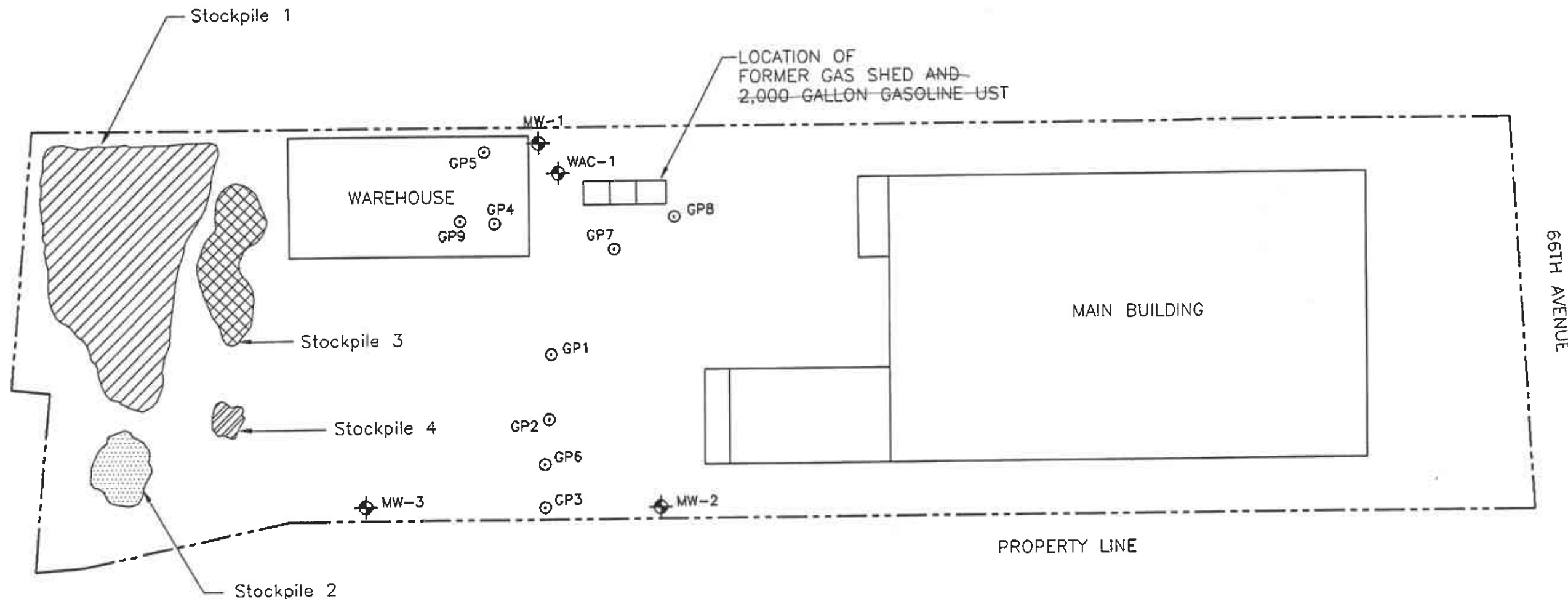
Drafter: RS

Date: 5/23/97

Contract Number: 03-5991A

Approved:

Revised:



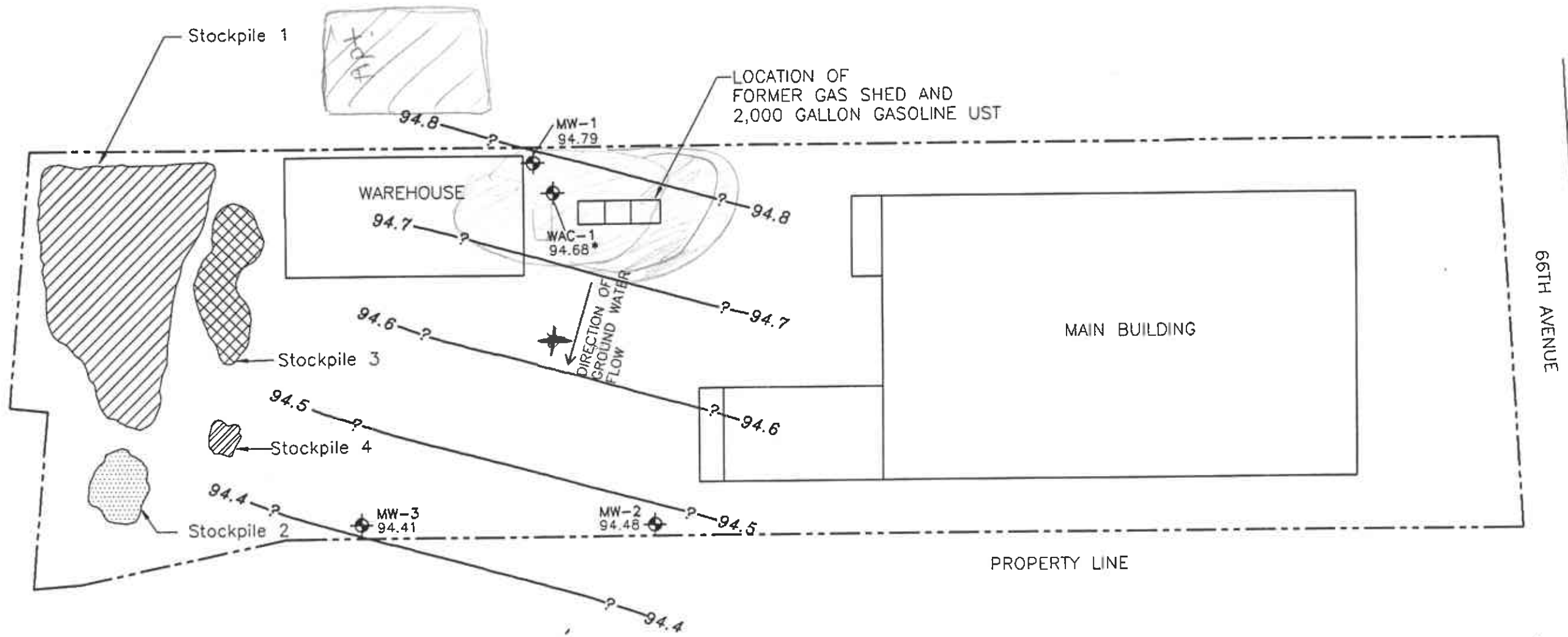
Notes: 1) Boundaries of existing soil stockpiles shown on this drawing are approximate and based on recent field observations.

EXPLANATION

- ⊙ GP1 Geoprobe Locations (WAC, May 1995)
- ⊕ Monitoring Well Location



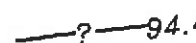



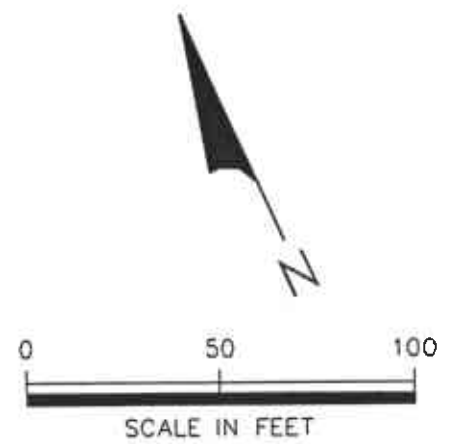
<b>ENVIRON</b>		
<small>5820 Shellmound Street, Suite 700, Emeryville, California 94608</small>		
Monitoring Well Locations Pacific Electric Motor Co. 1009-66th Avenue Oakland, California		
<small>DATE</small> 7/7/97	<small>CONTRACT NUMBER</small> 03-5991A	<small>FIGURE</small> 2
<small>DRAFTER</small> RS	<small>APPROVED</small>	<small>REVISED</small>



Notes: 1) Boundaries of existing soil stockpiles shown on this drawing are approximate and based on recent field observations.

**EXPLANATION**

-  Monitoring Well Location
-  94.79 Ground Water Elevation in Feet, referenced to an assumed site datum, July 1, 1997.
-  ?-94.4 Ground Water Elevation Contour in Feet, referenced to an assumed site datum
-  \* Data not used in contouring



**ENVIRON**

5820 Shellmound Street, Suite 700, Emeryville, California 94608

Ground Water Elevation Contour Map  
Pacific Electric Motor Co.  
1009-66th Avenue  
Oakland, California

DATE: 7/8/97	CONTRACT NUMBER: 03-5991A	FIGURE 3
DRAFTER: RS	APPROVED:	REVISED:

C:\DRAWING\030991A\DWLELEY

**APPENDIX A**

**ACEHD WORK PLAN APPROVAL LETTER**

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577  
(510) 567-6700  
(510) 337-9335 (FAX)

May 30, 1997  
StID # 565

Mr. Rand Perry, Vice President  
Pacific Electric Motor Co.  
1009 66th Ave.  
Oakland CA 94621

Re: Work Plan for Soil and Groundwater Investigation for Pacific  
Electric Motor Co., 1009 66th Ave., Oakland CA 94621

Dear Mr. Perry:

Our office has received and reviewed the May 27, 1997 work plan for soil and groundwater investigation as provided by Mr. John Schroeter of Environ. This work plan proposes the installation of three monitoring wells at this site; one upgradient and two in the assumed downgradient direction relative the former gasoline tank. Both soil and groundwater samples will be collected from the borings/ wells in addition to collecting a groundwater sample from the existing monitoring well.

This work plan is accepted with the following conditions:

1. On all future site plans, please indicate the location of the existing monitoring well. There was some uncertainty in its location and our office was never informed of its exact location.
2. Please provide a copy of the stockpile soil sampling report. At the time of our previous meeting, not all analytical results were available. Please keep our office updated on the disposition of these soils.
3. Please have Environ use its best professional judgement when determining the depth of borings and the slotting interval in the construction of the proposed wells. Using the same slotting interval as the adjacent Fire Station on 66th Ave. should occur only if site conditions dictate.
4. Please have your consultant field screen each boring within every five foot interval using either a PID or OVA instrument or equivalent. The soil samples with the highest values should be analyzed in the laboratory. Please keep in mind that our office may require additional chemical analysis based upon the complete results of the stockpile samples.

Quarterly groundwater sampling should be instituted after monitoring well installation.

Please notify me 72 working hours prior to your field work.

Mr. Rand Perry  
1009 66th Ave.  
StID # 565  
May 30, 1997  
Page 2.

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

*Barney M Chan*

Barney M. Chan  
Hazardous Materials Specialist

c: B. Chan, files

Mr. J. Schroeter, Environ, 5820 Shellmound St., Suite 700,  
Emeryville, CA 94608

Mr. G. Norton, Serrano & Cone Inc., 2092 Omega Rd., Suite F,  
San Ramon, CA 94583

wpap1009

**APPENDIX B**

**SOIL BORING LOGS AND WELL CONSTRUCTION DETAILS**

Top of PVC Casing  
Elevation: 100.67 feet

Surface Elev. 101.04 feet, Assumed Site Datum  
Coordinates N: 5157.0; E: 4996.0 (Assumed  
Coordinate System)

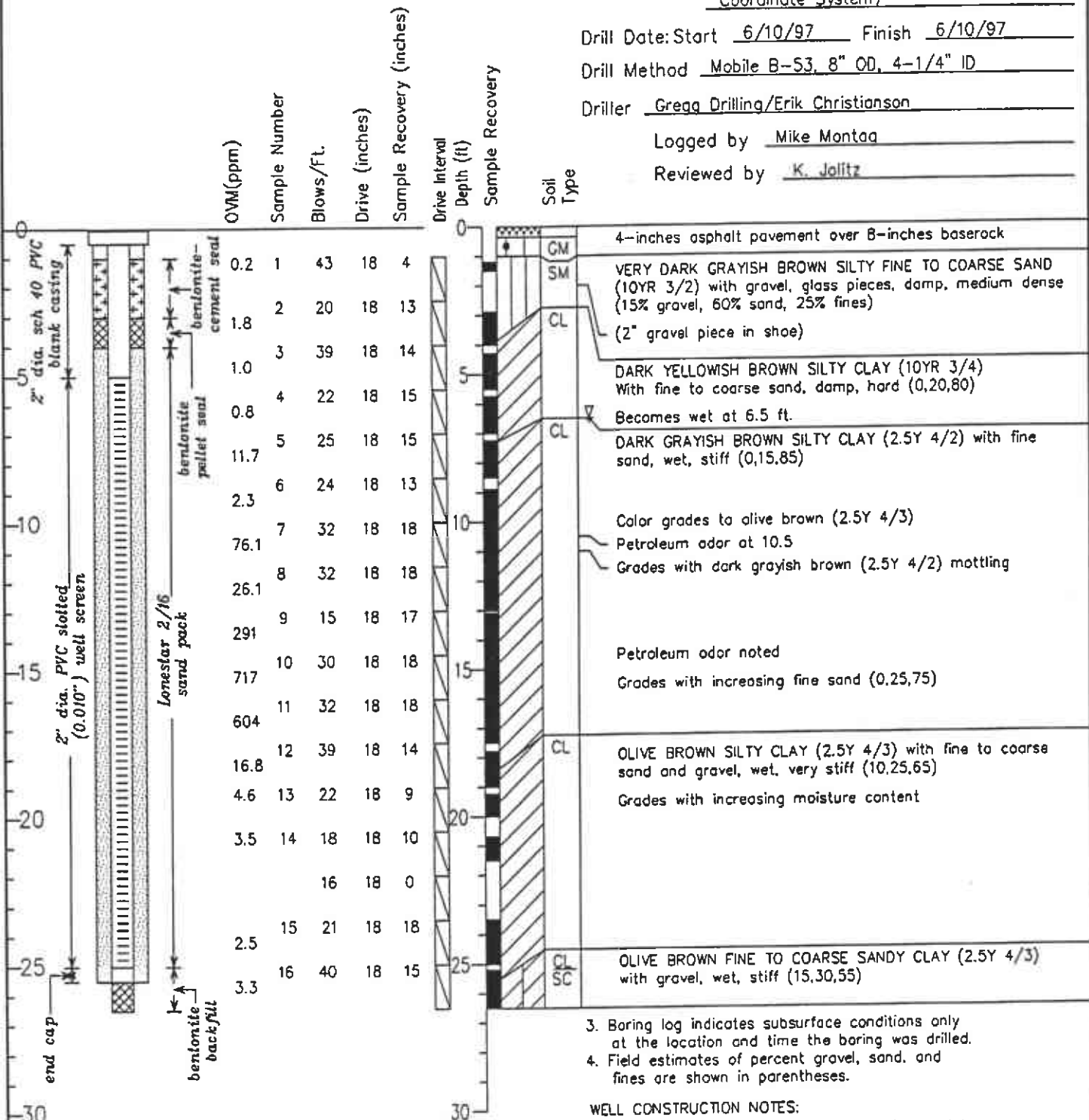
Drill Date: Start 6/10/97 Finish 6/10/97

Drill Method Mobile B-53, 8" OD, 4-1/4" ID

Driller Gregg Drilling/Erik Christianson

Logged by Mike Montaa

Reviewed by K. Jollitz



**DRILLING NOTES:**

- Boring completed at a depth of 26.5 feet on 6/10/97.
- Soil samples were collected using a California splitspoon sampler (2-inch ID). Sampling resistance is shown in blows per foot using a 140 lb. hammer falling 30-inches.

- Boring log indicates subsurface conditions only at the location and time the boring was drilled.
- Field estimates of percent gravel, sand, and fines are shown in parentheses.

**WELL CONSTRUCTION NOTES:**

- 2-inch diameter PVC monitoring well installed to a depth of 25.5 feet on 6/10/97.
- Screened interval from 5.0 to 25.0 feet; sand pack from 4.0 to 25.0 feet.
- Static ground water level recorded at a depth of 5.88 feet below ground surface on 7/1/97.

**ENVIRON**  
Counsel in Health and Environmental Science

Job No.03-5991A

Approved:

06/97

**LOG OF BORING AND WELL CONSTRUCTION DETAILS**

Pacific Electric Motor Company  
1009 66th Avenue  
Oakland, California

**Well MW1**

FIGURE

**B-1**



Top of PVC Casing  
Elevation: 99.85 feet

Surface Elev. 100.12 feet, Assumed Site Datum  
Coordinates N: 4997.6; E: 5015.8 (Assumed  
Coordinate System)

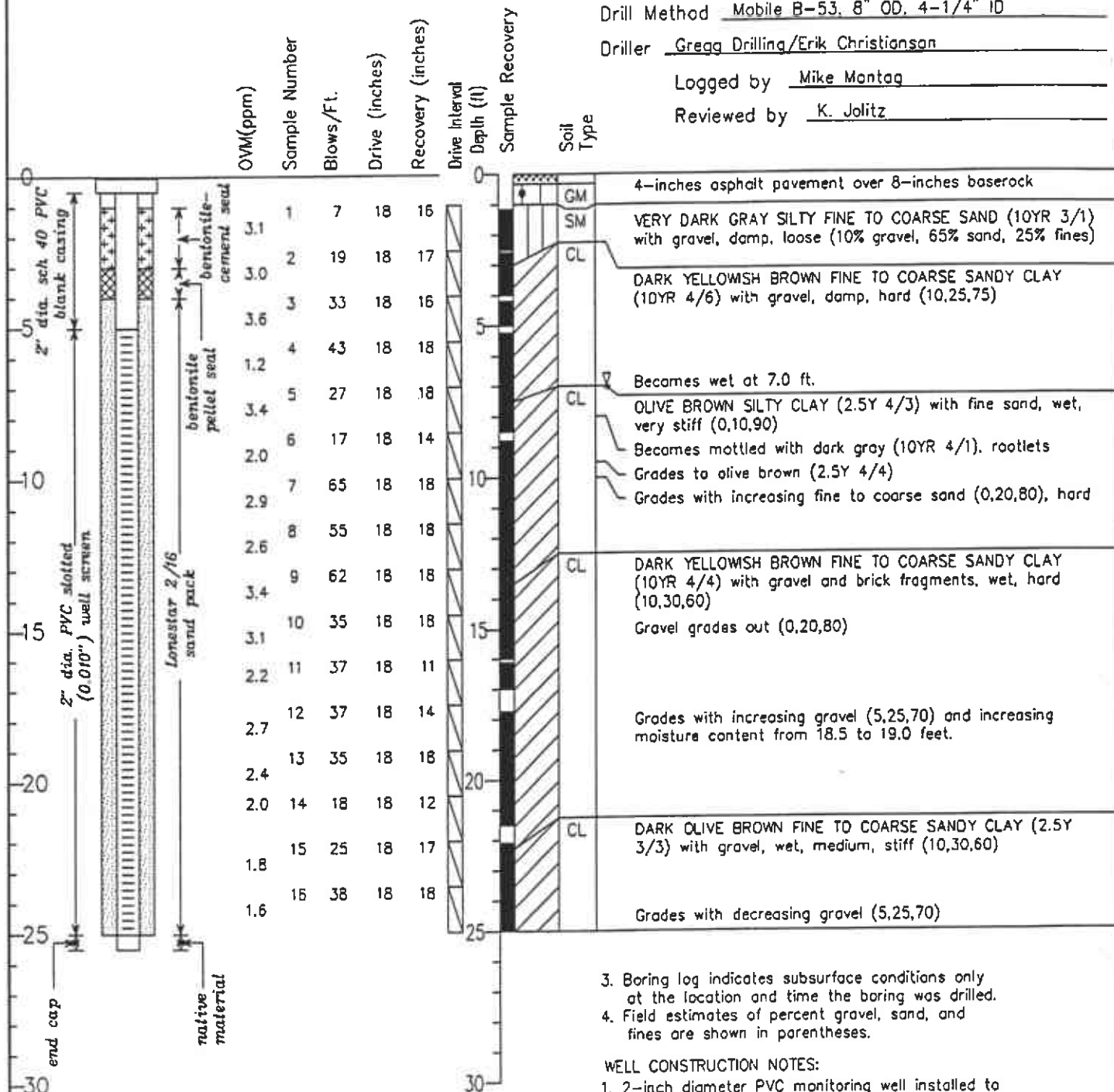
Drill Date: Start 6/10/97 Finish 6/10/97

Drill Method Mobile B-53, 8" OD, 4-1/4" ID

Driller Gregg Drilling/Erik Christianson

Logged by Mike Montag

Reviewed by K. Jolitz



**DRILLING NOTES:**

- Boring completed at a depth of 25.0 feet on 6/10/97.
- Soil samples were collected using a California spitspoon sampler (2-inch ID). Sampling resistance is shown in blows per foot using a 140 lb. hammer falling 30-inches.

- Boring log indicates subsurface conditions only at the location and time the boring was drilled.
- Field estimates of percent gravel, sand, and fines are shown in parentheses.

**WELL CONSTRUCTION NOTES:**

- 2-inch diameter PVC monitoring well installed to a depth of 25.5 feet on 6/10/97.
- Screened interval from 5.0 to 25.0 feet; sand pack from 4.0 to 25.0 feet.
- Static ground water level recorded at a depth of 5.32 feet below ground surface on 7/1/97.

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Job No.03-5991A

Approved:

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**LOG OF BORING AND WELL CONSTRUCTION DETAILS**

Pacific Electric Motor Company  
1009 66th Avenue  
Oakland, California

**Well MW2**

FIGURE

**B-2**

Top of PVC Casing  
Elevation: 99.93 feet

Surface Elev. 100.23 feet, Assumed Site Datum  
Coordinates N: 5022.7; E: 4894.6 (Assumed  
Coordinate System)

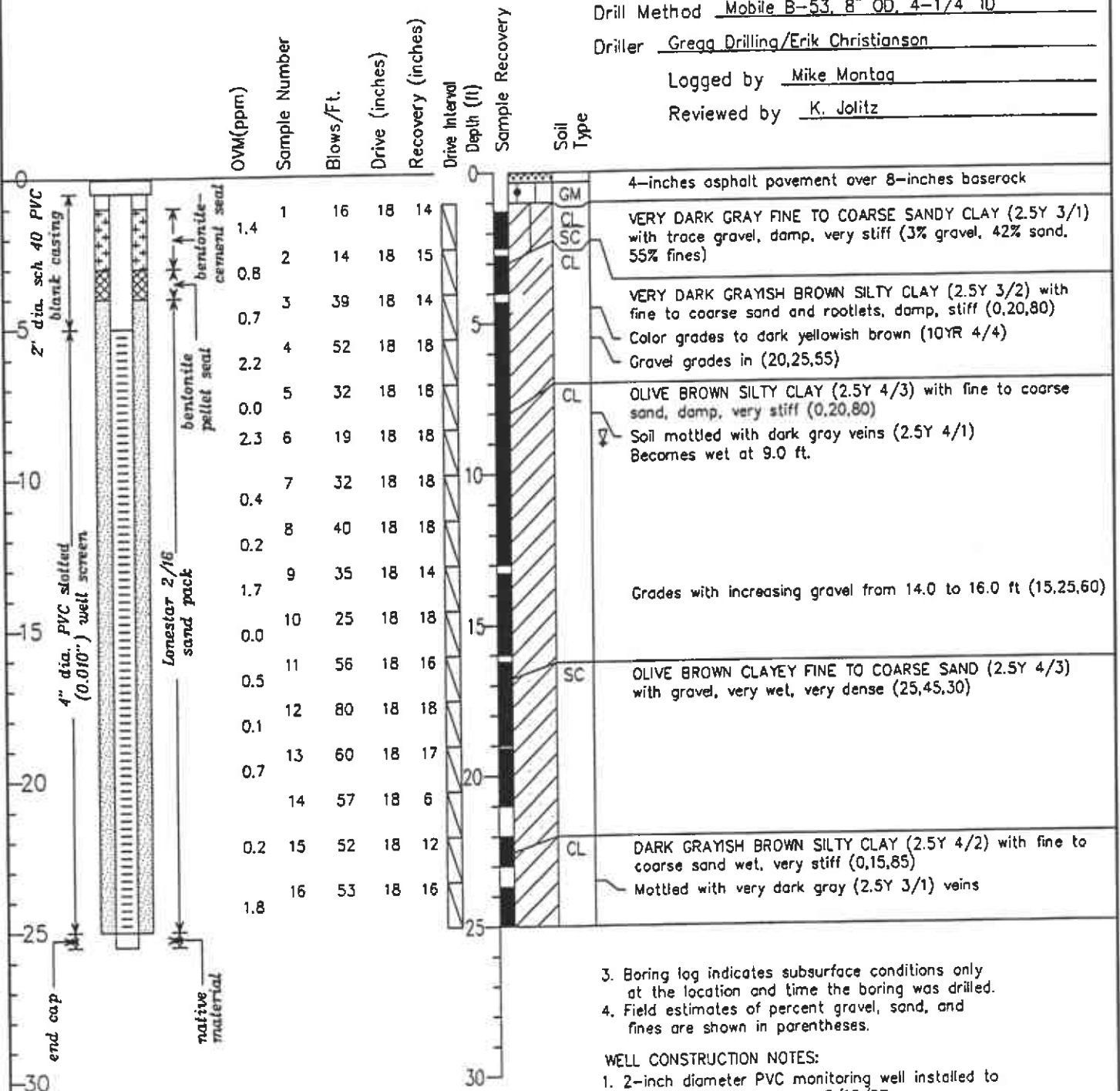
Drill Date: Start 6/10/97 Finish 6/10/97

Drill Method Mobile B-53, 8" OD, 4-1/4" ID

Driller Gregg Drilling/Erik Christianson

Logged by Mike Montag

Reviewed by K. Jolitz



**DRILLING NOTES:**  
 1. Boring completed at a depth of 25.0 feet on 6/10/97.  
 2. Soil samples were collected using a California splitspoon sampler (2-inch ID). Sampling resistance is shown in blows per foot using a 140 lb. hammer falling 30-inches.

3. Boring log indicates subsurface conditions only at the location and time the boring was drilled.  
 4. Field estimates of percent gravel, sand, and fines are shown in parentheses.

**WELL CONSTRUCTION NOTES:**  
 1. 2-inch diameter PVC monitoring well installed to a depth of 25.5 feet on 6/10/97.  
 2. Screened interval from 5.0 to 25.0 feet; sand pack from 4.0 to 25.0 feet.  
 3. Static ground water level recorded at a depth of 5.52 feet below ground surface on 7/1/97.

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Counsel in Health and Environmental Science

**LOG OF BORING AND WELL CONSTRUCTION DETAILS**  
Pacific Electric Motor Company  
1009 66th Avenue  
Oakland, California

**Well MW3**

FIGURE  
**B-3**

MAJOR DIVISIONS			GRAPHIC SYMBOL	SOIL CODE	DESCRIPTIONS
COARSE-GRAINED SOILS More than half is coarser than #200 sieve	GRAVELS more than half coarse fraction is larger than no. 4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES		GW	WELL GRADED GRAVELS, WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES		GP	POORLY GRADED GRAVELS, WITH OR WITHOUT SAND, LITTLE OR NO FINES
				GM	SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC	CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND	
	SANDS more than half coarse fraction is smaller than no. 4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES		SW	WELL GRADED SANDS, WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
				SP	POORLY GRADED SANDS, WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES		SM	SILTY SANDS, WITH OR WITHOUT GRAVEL
				SC	CLAYEY SANDS, WITH OR WITHOUT GRAVEL
	FINE-GRAINED SOILS	SILTS AND CLAYS liquid limit 50 or less		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, CLAYEY SILTS OF LOW PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL	ORGANIC SILTS OR CLAYS OF LOW PLASTICITY	
SILTS AND CLAYS liquid limit greater than 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
			OH	ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

**SAMPLE INTERVAL KEY**

- Continuous Core Barrel Run
- Drive Interval

**SOIL SAMPLE RECOVERY KEY**

- Soil Sample (disturbed) Partial Recovery
- Soil Sample Recovery
- Continuous Soil Sample Recovery where Contiguous
- Sample Attempt. No Recovery

**ENVIRON**

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Job No.03-5991A

Approved:

06/97

Unified Soil Classification Chart  
Pacific Electric Motor Company  
1009 66th Avenue  
Oakland, California

FIGURE

**B-4**

**APPENDIX C**

**FIELD RECORDS OF WELL DEVELOPMENT AND SAMPLING**

# ENVIRON

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# WELL DEVELOPMENT

METHOD(S)	PUMP	BALER	SURGE BLOCK
TYPE	Middleburg	NA	BTS
MATERIAL	Stainless S.	NA	Stainless st
DIMENSION			w/foam
OTHER			

PROJECT	Pacific Electric Motor Co.		WELL NO.	MW-1	
JOB NO.	970617-51	SITE	Environ	PREPARED BY	DOUG
DEVELOPMENT CRITERIA	per Environ				
DECONTAMINATION METHOD	Steam cleaner				

HOLE DIAMETER	$d_h = 6''$	
WELL CASING		
INSIDE DIAMETER	$d_w = 2''$	
CASING STICKUP	SU = NA	
DEPTH TO:		
WATER LEVEL	DTW = 5.81	
TOP SCREEN	SU + ST = 5.00	
BASE SCREEN	SU + SB = 25.00	
BOTTOM WELL	SU + TD = 24.95	

CASING VOLUME CALCULATION (USE CONSISTENT UNITS)

$$\text{CASING VOLUME} - V_c = \pi \left(\frac{d_w}{2}\right)^2 (TD-H) = 3.1$$

FIELD EQUIPMENT CALIBRATIONS			
EQUIPMENT MODEL/TYPE	Myron L	HF Scientific	Fiske Therm.
SERIAL NO.	021092GE	NTU 10	6245030
DATE CALIBRATED	6/17/97	6/17/97	6/17/97
TEMP (°C)			
STANDARD/ACTUAL	7.0/7.0	0.02/0.02	

DEVELOPMENT LOG:				CUMULATIVE TOTAL REMOVED		WATER CHARACTER				COMMENTS:	
DATE	TIME		METHOD	WATER REMOVED (gal)	GAL	CASING VOLUMES	PH	CONDUCTIVITY	TEMP.		TURBIDITY
	BEG	FINISH									
4/17	1359		Surged well								before pumping
4/17	1405		Began purging w/ Middleburg - pump								6" off bottom
4/17	1411			3.0	3.0	1.0	7.0	3800	20.6	7200	Very turbid/silty
6/17	1417			3.0	6.0	1.9	6.9	4000	19.6	7200	Odor and possible sheen?
6/17	1423			3.0	9.0	2.9	6.9	4000	19.3	7200	
6/17	1429			3.0	12.0	3.9	6.9	3400	19.1	7200	Continues to be very turbid
6/17	1435			3.0	15.0	4.8	6.8	3600	19.0	7200	
4/17	1437		well dewatered								@ 17.0 gallons DTW = 22.90
4/17	1440		Began surging well to regain flow								
6/17	1447		Added approx. 8 gallons of D.I. water to well								per Mike @ Environ DTW = 6.79
6/17	1456		Began surging well again								
6/17	1501		Began pumping w/ Middleburg again								Odor
6/17	1507			3.0	20.0	6.5	7.3	740	24.0	7200	
6/17	1513			3.0	23.0	7.4	7.1	1300	22.3	7200	
6/17	1514		Agitated bottom w/ pump - bottom feels hard								pump lowered to well bottom
4/17	1520			3.0	26.0	8.4	6.9	2300	20.8	7200	
6/17	1526			<del>3.0</del>	<del>29.0</del>	<del>9.4</del>					Well dewatered @ 2nd time - DTW = 21.60
4/17	1527		Stopped developing @ 27.0 gallons								per Mike @ Environ

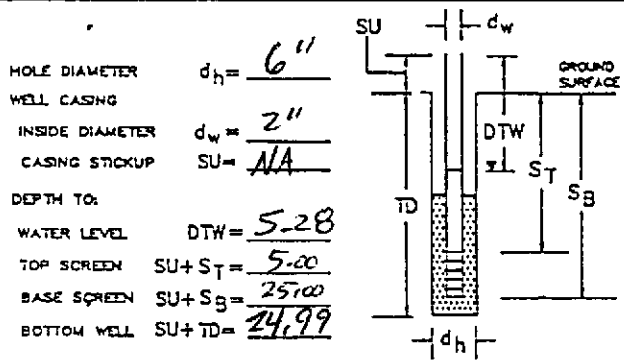
# ENVIRON

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# WELL DEVELOPMENT

METHOD(S)	PUMP	BALER	SURGE BLOCK
TYPE	Middleburg	N/A	BTS
MATERIAL	Stainless S.	N/A	Stainless Steel w/ foam
DIMENSION			
OTHER			

PROJECT Pacific Electric Motor Co.		WELL NO. MW-3
JOB NO. 970617-51	SITE Environ	PREPARED BY DOUG
DEVELOPMENT CRITERIA per Environ		
DECONTAMINATION METHOD Steam cleaner		



HOLE DIAMETER  $d_h = 6''$   
 WELL CASING  
 INSIDE DIAMETER  $d_w = 2''$   
 CASING STOCKUP  $SU = N/A$   
 DEPTH TO:  
 WATER LEVEL  $DTW = 5.28$   
 TOP SCREEN  $SU + ST = 5.00$   
 BASE SCREEN  $SU + SB = 25.00$   
 BOTTOM WELL  $SU + TD = 24.99$

CASING VOLUME CALCULATION (USE CONSISTENT UNITS)  

$$CASING VOLUME = V_c = \pi \left(\frac{d_w}{2}\right)^2 (TD-H) = 3.2$$

FIELD EQUIPMENT CALIBRATIONS			
EQUIPMENT MODEL/TYPE	Mycon L	HF Scintific	Fluke Term
SERIAL NO.	0210926E	NTV 10	6245030
DATE CALIBRATED	6/17/97	6/17/97	6/17/97
TEMP (°C)			
STANDARD/ACTUAL	7.0/7.0	0.02/0.02	

DEVELOPMENT LOG:				CUMULATIVE TOTAL REMOVED		WATER CHARACTER				COMMENTS: Page 1/2	
DATE	TIME		METHOD	WATER REMOVED (gal)	GAL	CASING VOLUMES	PH	CONDUCTIVITY	TEMP.		TURBIDITY
	BEGIN	FINISH									
6/17	1109		Surge well								
6/17	1114		Began purging well w/ Middleburg pump - soft bottom - pump 6" off bottom								
6/17	1120			3.0	3.0	0.9	7.0	2500	18.9	>200	
6/17	1126			3.0	6.0	1.9	7.1	2100	18.8	>200	Very turbid/sandy
6/17	1132			3.0	9.0	2.8	6.9	1800	18.6	>200	
6/17	1138			3.0	12.0	3.8	7.0	1700	18.1	>200	
6/17	1139		Pulled pump/stopped pumping to surge well for a 2nd time @ 12 gallons								
6/17	1143		Began pumping w/ Middleburg pump - pump on bottom - feels hard								
6/17	1149			3.0	15.0	4.7	6.9	1200	18.2	>200	
6/17	1155			3.0	18.0	5.6	6.9	1200	18.1	>200	Beginning to clear up - but still >200 NT
6/17	1156		Aggitated well w/ pump - bottom feels hard								
6/17	1201			3.0	21.0	6.6	6.8	1200	18.2	>200	
6/17	1202		Stopped pumping - surge well ~ 3rd time @ 21 gallons								
6/17	1206		Began purging w/ Middleburg - bottom feels hard - pump on bottom								
6/17	1212			3.0	24.0	7.5	7.0	1200	18.2	>200	
6/17	1218			3.0	27.0	8.4	7.1	1100	18.3	>200	
6/17	1224			3.0	30.0	9.4	7.0	1200	18.2	>200	Aggitated bottom w/ pump - hard bottom
6/17	1230			3.0	33.0	10.3	6.9	1200	18.3	>200	
6/17	1240			3.0	36.0	11.3					Unable to take parameter - pump stopped working
6/17	1250		Began purging w/ pump								
6/17	1252			3.0	36.0	11.3	7.0	1100	18.4	>200	
6/17	1258			3.0	39.0	12.2	7.0	1100	18.4	>200	

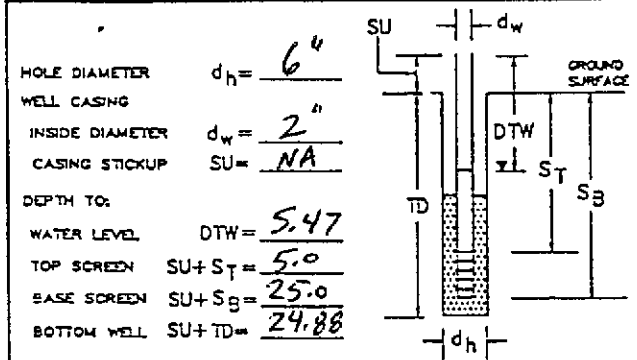


# ENVIRON

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# WELL DEVELOPMENT

METHOD(S)	PUMP	BAILER	SURGE BLOCK	PROJECT	WELL NO.
TYPE	<u>Middleburg</u>	<u>Teflon</u>	<u>BTS</u>	<u>Pacific Electric Motor Co.</u>	<u>MW-3</u>
MATERIAL	<u>Stainless S</u>	<u>Teflon</u>	<u>Stainless S.</u>	JOB NO.	SITE
DIMENSION			<u>w/ form</u>	<u>970617-S1</u>	<u>Environ</u>
OTHER				DEVELOPMENT CRITERIA	PREPARED BY
				<u>per Environ criteria</u>	<u>DOUG</u>
				DECONTAMINATION METHOD	
				<u>Steam Cleaner</u>	



CASING VOLUME CALCULATION (USE CONSISTENT UNITS)

CASING VOLUME =  $V_c = \pi \left(\frac{d_w}{2}\right)^2 (TD-H) = 3.2$

FIELD EQUIPMENT CALIBRATIONS

EQUIPMENT MODEL/TYPE	<u>Myron L</u>	<u>HF Scientific</u>	<u>Floke Thermo.</u>
SERIAL NO.	<u>0210926E</u>	<u>NTU 10</u>	<u>6245030</u>
DATE CALIBRATED	<u>6/17/97</u>	<u>6/17/97</u>	<u>6/17/97</u>
TEMP (°C)			
STANDARD/ACTUAL	<u>7.0 / 7.0</u>	<u>0.02 / 0.02</u>	

DEVELOPMENT LOG:					CUMULATIVE TOTAL REMOVED		WATER CHARACTER				COMMENTS: <u>page 1/2</u>
DATE	TIME		METHOD	WATER REMOVED (gal)	GAL	CASING VOLUMES	PH	CONDUCTIVITY	TEMP.	TURBIDITY	
	BEGN	FINISH									
<u>6/17/97</u>	<u>834</u>	<u>840</u>		<u>3.0</u>	<u>3.0</u>	<u>0.9</u>	<u>6.6</u>	<u>10000</u>	<u>18.9</u>	<u>7200</u>	<u>Surged well after gauging</u>
<u>6/17</u>	<u>846</u>			<u>3.0</u>	<u>6.0</u>	<u>1.9</u>	<u>6.9</u>	<u>9300</u>	<u>18.3</u>	<u>7200</u>	<u>Purging w/ Middleburg - fine mud</u>
<u>6/17</u>	<u>852</u>			<u>3.0</u>	<u>9.0</u>	<u>2.8</u>	<u>7.1</u>	<u>9200</u>	<u>18.3</u>	<u>7200</u>	
<u>6/17</u>	<u>855</u>		<u>stopped pumping / surged well after 10 gallons purged</u>								
<u>6/17</u>	<u>901</u>		<u>Began pumping w/ Middleburg / bottom of well feels hard</u>								
<u>6/17</u>	<u>905</u>			<u>3.0</u>	<u>12.0</u>	<u>3.8</u>	<u>7.2</u>	<u>8900</u>	<u>18.2</u>	<u>7200</u>	
<u>6/17</u>	<u>911</u>			<u>3.0</u>	<u>15.0</u>	<u>4.7</u>	<u>7.2</u>	<u>8700</u>	<u>18.2</u>	<u>7200</u>	<u>Very turbid</u>
<u>6/17</u>	<u>913</u>		<u>Aggathated bottom w/ pump / Bottom feels hard</u>								
<u>6/17</u>	<u>917</u>			<u>3.0</u>	<u>18.0</u>	<u>5.6</u>	<u>7.3</u>	<u>8700</u>	<u>18.2</u>	<u>7200</u>	
<u>6/17</u>	<u>919</u>		<u>Aggathated bottom w/ pump / Bottom feels hard</u>								
<u>6/17</u>	<u>923</u>			<u>3.0</u>	<u>21.0</u>	<u>6.6</u>	<u>7.2</u>	<u>8900</u>	<u>18.1</u>	<u>7200</u>	
<u>6/17</u>	<u>924</u>		<u>Stopped pumping / surged well after 21.0 gallons</u>								
<u>6/17</u>	<u>932</u>		<u>Began pumping w/ Middleburg</u>								
<u>6/17</u>	<u>938</u>			<u>3.0</u>	<u>24.0</u>	<u>7.5</u>	<u>7.1</u>	<u>8900</u>	<u>18.0</u>	<u>7200</u>	<u>light sheen noticed?</u>
<u>6/17</u>	<u>944</u>			<u>3.0</u>	<u>28.0</u>	<u>8.4</u>	<u>7.0</u>	<u>8900</u>	<u>18.2</u>	<u>7200</u>	<u>Clearing up abit - but still &gt;200 NTU</u>
<u>6/17</u>	<u>950</u>			<u>3.0</u>	<u>30.0</u>	<u>9.4</u>	<u>7.0</u>	<u>9000</u>	<u>18.0</u>	<u>7200</u>	<u>Aggathated bottom w/ pump</u>
<u>6/17</u>	<u>958</u>			<u>3.0</u>	<u>33.0</u>	<u>10.3</u>	<u>7.0</u>	<u>9100</u>	<u>18.0</u>	<u>7200</u>	
<u>6/17</u>	<u>1004</u>			<u>3.0</u>	<u>36.0</u>	<u>11.3</u>	<u>7.0</u>	<u>9100</u>	<u>18.1</u>	<u>7200</u>	<u>Cleaning up - still &gt;200 NTU's</u>
<u>6/17</u>	<u>1010</u>			<u>3.0</u>	<u>39.0</u>	<u>12.2</u>	<u>7.1</u>	<u>9000</u>	<u>18.1</u>	<u>7200</u>	
<u>6/17</u>	<u>1016</u>			<u>3.0</u>	<u>41.0</u>	<u>12.8</u>	<u>7.1</u>	<u>9100</u>	<u>18.1</u>	<u>7200</u>	
<u>6/17</u>	<u>1022</u>			<u>3.0</u>	<u>44.0</u>	<u>13.6</u>	<u>7.1</u>	<u>9100</u>	<u>18.0</u>	<u>7200</u>	
<u>6/17</u>	<u>1028</u>			<u>3.0</u>	<u>47.0</u>	<u>14.7</u>	<u>7.2</u>	<u>9200</u>	<u>18.2</u>	<u>7200</u>	





# ENVIRON

Counsel in Health and Environmental Science  
 5820 Shellmound St., Suite 700  
 Emeryville, California 94608

## PRELIMINARY FIELD DRAFT

REVIEW PENDING

## WATER PURGING AND SAMPLING LOG

PROJECT NAME 970619-F1 WELL NO: mw-1  
 CONTRACT NUMBER \_\_\_\_\_ SAMPLING DATE 6/19/97  
 P.M./SAMPLER(S) Tim Graf

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (°C)	STANDARD/ACTUAL
<u>SLOPE SOUNDER</u>	<u>24195</u>	<u>1/18</u>		<u>30.0 / 30.0</u>
<u>MYRON L</u>	<u>05303238</u>	<u>6/19</u>		<u>7.0, 3900 / 7.0, 3900</u>
<u>HF SCIENTIFIC</u>	<u>NTU 31</u>	<u>6/19</u>		<u>0.02 / 0.02</u>
<u>FLUKE THERMOMETER</u>	<u>6547006</u>	<u>-</u>		<u>-</u>

PURGING/SAMPLING METHOD 1.75" MIDDLESBURG - 30" ELEV. SUB. / SS BAILER  
 EQUIPMENT CLEANING METHOD(S) STEAM CLEANER  
 PURGE WATER DISPOSAL METHOD ON SITE

WELL NUMBER OR SAMPLING LOCATION mw-1  
 WELL CASING RADIUS (CR) (in) 1.0  
 TOTAL DEPTH (TD) OF WELL (ft) 24.95  
 DEPTH TO WATER (DTW) (ft) 5.87  
 CASING VOLUME (gal) = (TD-DTW) (CR)<sup>2</sup> (.163) = 3.1

### PURGING DATA

PURGING START TIME	TEMP (°C)	pH	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTU)	OTHER
<u>1158</u>				<u>0.5 Gpm</u>	
<u>TIME/GALLONS SINCE START</u>					
<u>1200 / 1.0</u>	<u>20.5</u>	<u>7.0</u>	<u>2800</u>	<u>7200</u>	<u>Odor</u>
<u>1206 / 3.5</u>	<u>19.4</u>	<u>7.2</u>	<u>2800</u>	<u>7200</u>	
<u>1213 / 6.5</u>	<u>18.7</u>	<u>7.2</u>	<u>2800</u>	<u>7200</u>	
<u>1219 / 9.5</u>	<u>18.9</u>	<u>7.5</u>	<u>2600</u>	<u>7200</u>	
<u>1228 / 12.5</u>	<u>18.9</u>	<u>7.4</u>	<u>2500</u>	<u>7200</u>	
<u>DEWATERED AT</u>		<u>13.0 GALLONS</u>		<u>DTW = 12.31'</u>	
<u>1345 / 12.75</u>	<u>19.3</u>	<u>6.6</u>	<u>2100</u>	<u>22.5</u>	

PURGING STOP TIME 1230 CASING VOLUMES PURGED 4  
 GALLONS PURGED 13.0 SAMPLING TIME 1350  
 OBSERVATIONS/COMMENTS CHECKED w/ INTERFACE PROBE - NO F.P.  
SLOWED PURGING DOWN AFTER THIRD CASE VOLUME (STARTING TO DEWATER)  
 LABORATORY NAME CHROMLAB SAMPLE I.D. mw-1

# ENVIRON

Counsel in Health and Environmental Science  
 5820 Shellmound St., Suite 700  
 Emeryville, California 94608

PRELIMINARY FIELD DRAFT  
 REVIEW PENDING

## WATER PURGING AND SAMPLING LOG

PROJECT NAME 970619-F1 WELL NO: MW-2  
 CONTRACT NUMBER \_\_\_\_\_ SAMPLING DATE 6/19/97  
 P.M./SAMPLER(S) /Tim Graf

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (°C)	STANDARD/ACTUAL
<u>SLOPE SONDER</u>	<u>24195</u>	<u>1/18</u>		<u>30.0 / 30.0</u>
<u>MYRON L</u>	<u>05303238</u>	<u>6/19</u>		<u>70,3900 / 70,3900</u>
<u>HE SCIENTIFIC</u>	<u>NTU 31</u>	<u>6/19</u>		<u>0.02 / 0.02</u>
<u>FLUKE THERMOMETER</u>	<u>6577006</u>	<u>-</u>		<u>-</u>

PURGING/SAMPLING METHOD 1.75" MIDDLEBURG - 30" ELEC. SUB. / 85 BAILER  
 EQUIPMENT CLEANING METHOD(S) STEAM CLEANER  
 PURGE WATER DISPOSAL METHOD ON SITE

WELL NUMBER OR SAMPLING LOCATION MW-2  
 WELL CASING RADIUS (CR) (in) 1.0  
 TOTAL DEPTH (TD) OF WELL (ft) 25.06  
 DEPTH TO WATER (DTW) (ft) 5.30  
 CASING VOLUME (gal) = (TD-DTW) (CR)<sup>2</sup> (.163) = 3.2

### PURGING DATA

PURGING START TIME	PURGING RATE (gpm)	TIME/GALLONS SINCE START	TEMP (°C)	pH	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTU)	OTHER
<u>1118</u>	<u>1.0 Gpm</u>	<u>1120 / 1.0</u>	<u>20.5</u>	<u>8.0</u>	<u>1300</u>	<u>7200</u>	
		<u>1122 / 3.5</u>	<u>19.6</u>	<u>8.1</u>	<u>1000</u>	<u>7200</u>	
		<u>1125 / 6.5</u>	<u>19.4</u>	<u>7.9</u>	<u>960</u>	<u>7200</u>	
		<u>1128 / 10.0</u>	<u>19.0</u>	<u>7.8</u>	<u>960</u>	<u>7200</u>	
		<u>1132 / 13.0</u>	<u>18.7</u>	<u>7.7</u>	<u>960</u>	<u>7200</u>	
		<u>1135 / 16.0</u>	<u>18.4</u>	<u>7.6</u>	<u>960</u>	<u>7200</u>	

PURGING STOP TIME 1135 CASING VOLUMES PURGED 5  
 GALLONS PURGED 16.0 SAMPLING TIME 1140  
 OBSERVATIONS/COMMENTS CLEARED UP TOWARDS END BUT STILL 7200 NTU'S

LABORATORY NAME CHROMOLAB SAMPLE I.D. MW-2

# ENVIRON

PRELIMINARY FIELD DRAFT

WATER PURGING  
AND SAMPLING LOG

Counsel in Health and Environmental Science  
5820 Shellmound St., Suite 700  
Emeryville, California 94608

REVIEW PENDING

PROJECT NAME 970619-F1  
CONTRACT NUMBER \_\_\_\_\_

WELL NO: MW-3  
SAMPLING DATE 6/19/97  
P.M./SAMPLER(S) Tim Goran

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (°C)	STANDARD/ACTUAL
<u>SLOPE SOUNDER</u>	<u>24195</u>	<u>1/18</u>		<u>30.0 / 30.0</u>
<u>MYRON L</u>	<u>05303238</u>	<u>6/19</u>		<u>70, 3900 / 70, 3900</u>
<u>HF SCIENTIFIC</u>	<u>NTU 31</u>	<u>6/19</u>		<u>0.02 / 0.02</u>
<u>FLUKE THERMOMETER</u>	<u>6547006</u>			<u>-</u>

PURGING/SAMPLING METHOD 1.75" MIDDLEBURG - 3.0" ELEC. W/S / SS BAILER  
EQUIPMENT CLEANING METHOD(S) STEAM CLEANER  
PURGE WATER DISPOSAL METHOD ON SITE

WELL NUMBER OR SAMPLING LOCATION MW-3  
WELL CASING RADIUS (CR) (in) 1.0  
TOTAL DEPTH (TD) OF WELL (ft) 24.62  
DEPTH TO WATER (DTW) (ft) 5.50  
CASING VOLUME (gal) = (TD-DTW) (CR)<sup>2</sup> (.163) = 3.1

## PURGING DATA

PURGING START TIME	PURGING RATE (gpm)	TIME/GALLONS SINCE START	TEMP (°C)	pH	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTU)	OTHER
<u>9:09 / 1031</u>	<u>0.8 Gpm</u>	<u>911 / 1.0</u>	<u>20.1</u>	<u>7.4</u>	<u>9800</u>	<u>7200</u>	
		<u>915 / 3.5</u>	<u>19.5</u>	<u>-*</u>	<u>9800</u>	<u>7200</u>	
		<u>918 / 6.5</u>	<u>19.2</u>	<u>-*</u>	<u>9400</u>	<u>7200</u>	
		<u>1033 / 7.5</u>	<u>19.0</u>	<u>6.4</u>	<u>7500</u>	<u>7200</u>	
		<u>1038 / 9.5</u>	<u>18.8</u>	<u>6.8</u>	<u>7500</u>	<u>7200</u>	
		<u>1042 / 12.5</u>	<u>18.2</u>	<u>7.1</u>	<u>7500</u>	<u>7200</u>	
		<u>1047 / 15.5</u>	<u>18.6</u>	<u>7.2</u>	<u>7500</u>	<u>7200</u>	
		<u>1051 / 19.0</u>	<u>18.8</u>	<u>7.2</u>	<u>7500</u>	<u>7200</u>	
		<u>1054 / 22.0</u>	<u>18.0</u>	<u>7.2</u>	<u>7500</u>	<u>7200</u>	
PURGING STOP TIME	CASING VOLUMES PURGED	<u>918 / 1054</u>			<u>7</u>		
GALLONS PURGED	SAMPLING TIME	<u>22.0</u>			<u>1100</u>		
OBSERVATIONS/COMMENTS <u>*MYRON L WENT OUT (PH METER) - STOPPED PURGING AT 918 - STARTED PURGING AT</u>							

LABORATORY NAME CHROMOLAB SAMPLE I.D. MW-3

# ENVIRON

PRELIMINARY FIELD DRAFT

WATER PURGING AND SAMPLING LOG

Counsel in Health and Environmental Science  
5820 Shellmound St., Suite 700  
Emeryville, California 94608

REVIEW PENDING

PROJECT NAME 970619 - F1  
CONTRACT NUMBER \_\_\_\_\_

WELL NO: WAC - 1  
SAMPLING DATE 6/19/97  
P.M./SAMPLER(S) Tim Gray

EQUIPMENT MODEL/TYPE	SERIAL NO.	DATE CALIBRATED	TEMP (°C)	STANDARD/ACTUAL
<u>SLOPE SOUNDER</u>	<u>24195</u>	<u>7/18</u>		<u>30.0 / 30.0</u>
<u>MYRON L</u>	<u>05303238</u>	<u>6/19</u>		<u>7.0, 3900 / 7.0, 3900</u>
<u>HF SCIENTIFIC</u>	<u>NTU 31</u>	<u>6/19</u>		<u>0.02 / 0.02</u>
<u>FLUKE THERMOMETER</u>	<u>6547006</u>	<u>-</u>		<u>-</u>

PURGING/SAMPLING METHOD 1.75" MIDDLEBURG - 3.0" ELEC. SURF. / SS BAILER  
EQUIPMENT CLEANING METHOD(S) STEAM CLEANER  
PURGE WATER DISPOSAL METHOD ON SITE

WELL NUMBER OR SAMPLING LOCATION WAC - 1  
WELL CASING RADIUS (CR) (in) 5.0  
TOTAL DEPTH (TD) OF WELL (ft) 17.22  
DEPTH TO WATER (DTW) (ft) 6.00  
CASING VOLUME (gal) = (TD-DTW) (CR)<sup>2</sup> (.163) = 45.7

## PURGING DATA

PURGING START TIME	PURGING RATE (gpm)	TIME/GALLONS SINCE START	TEMP (°C)	pH	CONDUCTIVITY (µmhos/cm)	TURBIDITY (NTU)	OTHER
<u>1300</u>	<u>8 GPM</u>	<u>1303 / 24</u>	<u>20.5</u>	<u>7.6</u>	<u>650</u>	<u>30.0</u>	
		<u>1306 / 46</u>	<u>20.7</u>	<u>7.6</u>	<u>640</u>	<u>9.3</u>	
		<u>1312 / 92</u>	<u>20.3</u>	<u>7.5</u>	<u>510</u>	<u>3.5</u>	
		<u>1318 / 138</u>	<u>20.3</u>	<u>7.4</u>	<u>510</u>	<u>2.0</u>	

PURGING STOP TIME 1319 CASING VOLUMES PURGED 3  
GALLONS PURGED 170 SAMPLING TIME 1330  
OBSERVATIONS/COMMENTS NO ODOR - BOTTOM DEPTH OF 17.22  
SEEMED VERY SHALLOW TO MIKE OF ENVIRON - GAUGED DTW 2x

LABORATORY NAME CHROMOLAB SAMPLE I.D. WAC - 1  
ETS @ 1335

**APPENDIX D**

**SOIL ANALYTICAL RESULTS**

# CHROMALAB, INC.

Environmental Services (SDB)

June 18, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A


re: One sample for BTEX analysis.  
Method: SW846 8020A Nov 1990


Client Sample ID: MW1TB  
Spl#: 135285  
Sampled: June 10, 1997

Matrix: WATER  
Run#: 7257

Analyzed: June 13, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	103	1
ETHYL BENZENE	N.D.	0.50	N.D.	105	1
XYLENES	N.D.	0.50	N.D.	100	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O:BTEXQC0220  
ALEXANDM 18:33

# CHROMALAB, INC.

Environmental Services (SDB)

June 18, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod


Client Sample ID: MW3EB  
Spl#: 135286  
Sampled: June 10, 1997

Matrix: WATER  
Run#: 7257

Analyzed: June 13, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	81	1
BENZENE	N.D.	0.50	N.D.	103	1
TOLUENE	N.D.	0.50	N.D.	103	1
ETHYL BENZENE	N.D.	0.50	N.D.	105	1
XYLENES	N.D.	0.50	N.D.	100	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

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Federal ID #68-0140157

GC V132 O: BTEXQC0220  
ALEXANDM 19:33



# CHROMALAB, INC.

Environmental Services (SDB)

June 18, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW1-10C-15.5'

Spl#: 135287

Matrix: SOIL


Sampled: June 10, 1997


Run#: 7353

Analyzed: June 18, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	480	150	N.D.	--	500
BENZENE	1.4	0.59	N.D.	104	500
TOLUENE	0.71	0.59	N.D.	107	500
ETHYL BENZENE	11	0.59	N.D.	108	500
XYLENES	35	0.59	N.D.	107	500

Note: Surrogate Recoveries biased high due to Hydrocarbon co-elution.

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

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Federal ID #68-0140157

GC V132 O: BTEXQC0220  
ALEXANDM 18:33

# CHROMALAB, INC.

Environmental Services (SDB)

June 18, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW2-10C-15.5'

Spl#: 135288

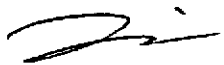
Matrix: SOIL

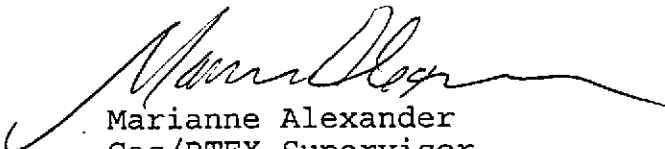
Sampled: June 10, 1997

Run#: 7358

Analyzed: June 18, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	114	1
BENZENE	N.D.	0.0050	N.D.	94	1
TOLUENE	N.D.	0.0050	N.D.	89	1
ETHYL BENZENE	N.D.	0.0050	N.D.	89	1
XYLENES	N.D.	0.0050	N.D.	83	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

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Federal ID #68-0140157

GC V132 O: BTEXQC0220  
ALEXANDM 19:33

# CHROMALAB, INC.

Environmental Services (SDB)

June 18, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

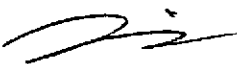
Client Sample ID: MW3-6C-9.5'

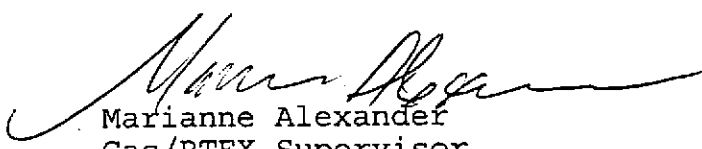
Spl#: 135289  
Sampled: June 10, 1997

Matrix: SOIL  
Run#: 7358

Analyzed: June 18, 1997

ANALYTE	RESULT (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	1.0	N.D.	114	1
BENZENE	N.D.	0.0050	N.D.	94	1
TOLUENE	N.D.	0.0050	N.D.	89	1
ETHYL BENZENE	N.D.	0.0050	N.D.	89	1
XYLENES	N.D.	0.0050	N.D.	83	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

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Federal ID #68-0140157

GC V132 O: BTEXQC0220  
ALEXANDM 19:33

# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON  
5820 Shellmound St., Suite 700  
Emeryville, CA 94608

Attn: Kim Jolitz

RE: Analysis for project PEM-OAKLAND, number 03-5991A.


## REPORTING INFORMATION


Samples were received cold and in good condition on June 11, 1997. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

Deviation from standard conditions was found in the following:

- Soil sample MW1-10C-15.5' had high surrogate recoveries due to hydrocarbon co-elution.
- For soil samples no MS/MSD due to matrix interference. BS/BSD used for batch QC.

<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date collected</u>	<u>Sample #</u>
MW1-10C-15.5'	SOIL	June 10, 1997	135287
MW1TB	WTR	June 10, 1997	135285
MW2-10C-15.5'	SOIL	June 10, 1997	135288
MW3-6C-9.5'	SOIL	June 10, 1997	135289
MW3EB	WTR	June 10, 1997	135286

  
Jill Thomas  
Quality Assurance Manager

  
Eric Tam  
Laboratory Director

# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Blank spike and duplicate** report for Gasoline BTEX analysis.

Method: SW846 8020A Nov 1990 / 8015Mod

Matrix: SOIL  
Lab Run#: 7353

Analyzed: June 17, 1997

Analyte	Spike Amount		Spike Amount Found		Spike Recov		Control % Limits RPD	% RPD Lim	
	BSP (mg/Kg)	Dup	BSP (mg/Kg)	Dup	BSP (%)	Dup (%)			
BENZENE	0.100	0.100	0.104	0.109	104	109	77-123	4.69	35
TOLUENE	0.100	0.100	0.107	0.110	107	110	78-122	2.76	35
ETHYL BENZENE	0.100	0.100	0.108	0.111	108	111	70-130	2.74	35
XYLENES	0.300	0.300	0.321	0.327	107	109	75-125	1.85	35

\* No MS/MSD due to methanol extraction.

# CHROMALAB, INC.

Environmental Services (SOB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Blank spike and duplicate** report for Gasoline BTEX analysis.

Method: SW846 8020A Nov 1990 / 8015Mod

Matrix: SOIL  
Lab Run#: 7358

Analyzed: June 17, 1997

Analyte	Spike Amount		Spike Amount Found		Spike Recov		Control Limits	% RPD	% Lim
	BSP (mg/Kg)	Dup	BSP (mg/Kg)	Dup	BSP (%)	Dup (%)			
GASOLINE	0.500	0.500	0.569	0.580	114	116	75-125	1.74	35
BENZENE	0.100	0.100	0.0943	0.101	94.3	101	77-123	6.86	35
TOLUENE	0.100	0.100	0.0888	0.0954	88.8	95.4	78-122	7.17	35
ETHYL BENZENE	0.100	0.100	0.0892	0.0953	89.2	95.3	70-130	6.61	35
XYLENES	0.300	0.300	0.250	0.269	83.3	89.7	75-125	7.40	35

\* No MS/MSD due to matrix interference.

# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Matrix spike** report for BTEX analysis.

Method: SW846 8020A Nov 1990

Matrix: WATER  
Lab Run#: 7257

Instrument: 3400-5

Analyzed: June 12, 1997

Analyte	Spiked		Amt Found		Spike Recov		Control Limits	% RPD	% RPD Lim	
	Sample Amount (ug/L)	Spike Amt MS MSD (ug/L)	MS MSD (ug/L)	MS MSD (%)	MS MSD (%)					
BENZENE	N.D.	100	100	132	134	132	134	65-135	1.50	20
TOLUENE	N.D.	100	100	130	131	130	131	65-135	0.76	20
ETHYL BENZENE	N.D.	100	100	132	134	132	134	65-135	1.50	20
XYLENES	N.D.	300	300	378	380	126	127	65-135	0.79	20

Sample Spiked: 134707  
Submission #: 9706060  
Client Sample ID: WCC-2A

# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Surrogate** report for 1 sample for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod  
Lab Run#: 7353  
Matrix: SOIL

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
135287-1	MW1-10C-15.5'	TRIFLUOROTOLUENE	197*	65-135
135287-1	MW1-10C-15.5'	4-BROMOFLUOROBENZENE	170*	65-135

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
136147-1	Reagent blank (MDB)	TRIFLUOROTOLUENE	85.6	65-135
136147-1	Reagent blank (MDB)	4-BROMOFLUOROBENZENE	118	65-135
136148-1	Spiked blank (BSP)	TRIFLUOROTOLUENE	104	65-135
136148-1	Spiked blank (BSP)	4-BROMOFLUOROBENZENE	123	65-135
136149-1	Spiked blank duplicate (BSD)	TRIFLUOROTOLUENE	110	65-135
136149-1	Spiked blank duplicate (BSD)	4-BROMOFLUOROBENZENE	122	65-135

\* Surrogate recoveries exceed QC limits due to hydrocarbon co-elution.

V132  
QCSURR1229 RU00 09-Jul-97 13:32



# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Surrogate** report for 2 samples for Gasoline BTEX analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod  
Lab Run#: 7358  
Matrix: SOIL

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
135288-1	MW2-10C-15.5'	TRIFLUOROTOLUENE	102	65-135
135288-1	MW2-10C-15.5'	4-BROMOFLUOROBENZENE	108	65-135
135289-1	MW3-6C-9.5'	TRIFLUOROTOLUENE	107	65-135
135289-1	MW3-6C-9.5'	4-BROMOFLUOROBENZENE	105	65-135

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
136182-1	Reagent blank (MDB)	TRIFLUOROTOLUENE	110	65-135
136182-1	Reagent blank (MDB)	4-BROMOFLUOROBENZENE	124	65-135
136183-1	Spiked blank (BSP)	TRIFLUOROTOLUENE	102	65-135
136183-1	Spiked blank (BSP)	4-BROMOFLUOROBENZENE	126	65-135
136184-1	Spiked blank duplicate (BSD)	TRIFLUOROTOLUENE	106	65-135
136184-1	Spiked blank duplicate (BSD)	4-BROMOFLUOROBENZENE	127	65-135

V132  
QCSURR1229 RUDO 09-Jul-97 13:32

# CHROMALAB, INC.

Environmental Services (SDB)

July 9, 1997

Submission #: 9706106

ENVIRON

Atten: Kim Jolitz

Project: PEM-OAKLAND  
Received: June 11, 1997

Project#: 03-5991A

re: **Surrogate** report for 2 samples for BTEX analysis.  
Method: SW846 8020A Nov 1990  
Lab Run#: 7257  
Matrix: WATER

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
135285-1	MW1TB	TRIFLUOROTOLUENE	111	65-135
135286-1	MW3EB	TRIFLUOROTOLUENE	108	65-135
135286-1	MW3EB	4-BROMOFLUOROBENZENE	85.4	65-135

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
135436-1	Reagent blank (MDB)	TRIFLUOROTOLUENE	95.0	65-135
135436-1	Reagent blank (MDB)	4-BROMOFLUOROBENZENE	71.4	65-135
135437-1	Spiked blank (BSP)	TRIFLUOROTOLUENE	101	65-135
135437-1	Spiked blank (BSP)	4-BROMOFLUOROBENZENE	90.1	65-135
135438-1	Matrix spike (MS)	TRIFLUOROTOLUENE	113	65-135
135438-1	Matrix spike (MS)	4-BROMOFLUOROBENZENE	106	65-135
135439-1	Matrix spike duplicate (MSD)	TRIFLUOROTOLUENE	111	65-135
135439-1	Matrix spike duplicate (MSD)	4-BROMOFLUOROBENZENE	105	65-135

V132  
QCSURR1229 RUDO 09-Jul-97 13:32

06/10/97 / 135285 - 135287

34115

# ENVIRON

Counsel in Health and Environmental Science

## CHAIN-of-CUSTODY FORM

Sheet 1 of 1  
5820 Shellmound St., Suite 700  
Emeryville, California 94608  
(510) 655-7400

**PROJECT NAME:**  
PEM - Oakland

**CASE NO.:** 03-5991A

DEM #: 9706106 REP: GCLEVE  
CLIENT: ENVIRON  
DE: 06/10/97  
EF #: 34115

ENVIRON SAMPLE ID.	COLLECTION DATE	COLLECTED BY (Initials)	MATRIX	TOTAL NO. OF CONTAINERS	ANALYSES:										COMMENTS		
					BTEX (EPA 8020)	TPH. 2 (EPA 8015)											
MW1TB	6/10	EME	water	2	X												<del>SEND</del> Results
MW1 - 10C - 15.5'	6/10	EME	soil	1	X	X											to KIM JOLITZ
MW2 - 10C - 15.5'	6/10	EME	soil	1	X	X											
MW3EB	6/10	EME	water	4	X	X											
MW3 - 6C - 9.5'	6/10	EME	soil	1	X	X											
TOTAL	X	X	X														

Relinquished by:  
[Signature]

Date:  
6/11/97

Time:  
1105

Received by:  
[Signature]  
Chris Kowaly

Company:  
Chronalabs

Date:  
6/11/97

Time:  
1165  
1202

# CHROMALAB, INC.

Environmental Service (SDB)

## Sample Receipt Checklist

Client Name: ENVIRON

Date/Time Received: 06/11/97 | 1202

Reference/Submis: 34115 | 9706106

Received by: CR

Checklist completed by: [Signature]

6/11/97  
Date

Reviewed by: [Signature]

CR 6/11/97  
Initials | Date

Matrix: SOIL/WATER

Carrier name: Client - C/L

- Shipping container/cooler in good condition? Yes \_\_\_ No \_\_\_ Not Present
- Custody seals intact on shipping container/cooler? Yes \_\_\_ No \_\_\_ Not Present
- Custody seals intact on sample bottles? 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? Yes  No \_\_\_
- Water - VOA vials have zero headspace? Yes  No \_\_\_
- No VOA vials submitted \_\_\_ Yes  No \_\_\_

Temp: 5.0°C

Water - pH acceptable upon receipt: yes Adjusted? \_\_\_ Checked by chemist for VOAs

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Corrective Action: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**APPENDIX E**

**GROUND WATER ANALYTICAL RESULTS**

# CHROMALAB, INC.

Environmental Services (SDB)

July 1, 1997

Submission #: 9706268

ENVIRON  
5820 Shellmound St., Suite 700  
Emeryville, CA 94608

Attn: Kim Jolitz


RE: Analysis for project PACIFIC ELECTRIC MOTORS, number 03-5991A.


## REPORTING INFORMATION

Samples were received cold and in good condition on June 20, 1997. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date collected</u>	<u>Sample #</u>
MW-1	WTR	June 19, 1997	136684
MW-1TB	WTR	June 19, 1997	136689
MW-2	WTR	June 19, 1997	136685
MW-3	WTR	June 19, 1997	136686
WAC-1	WTR	June 19, 1997	136687
WAC-1EB	WTR	June 19, 1997	136688

  
Jill Thomas  
Quality Assurance Manager

  
Eric Tam  
Laboratory Director

# CHROMALAB, INC.

Environmental Services (SDB)

June 28, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-1

Spl#: 136684

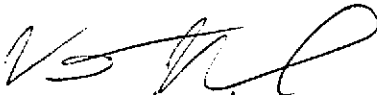
Matrix: WATER

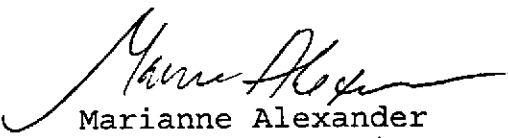
Sampled: June 19, 1997

Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	18000	2500	N.D.	84	50
MTBE	N.D.	250	N.D.	87	50
BENZENE	3300	25	N.D.	97	50
TOLUENE	200	25	N.D.	95	50
ETHYL BENZENE	1100	25	N.D.	98	50
XYLENES	4900	25	N.D.	95	50

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220

VINCE 12:55

# CHROMALAB, INC.

Environmental Services (SDB)

June 28, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-2

Spl#: 136685

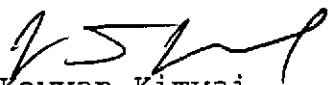
Matrix: WATER


Sampled: June 19, 1997

Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	84	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	98	1
XYLENES	N.D.	0.50	N.D.	95	1
MTBE	N.D.	5.0	N.D.	87	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O:BTEXQC0220

VINCE 11:14



# CHROMALAB, INC.

Environmental Services (SDB)

June 28, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-3

Spl#: 136686


Matrix: WATER


Sampled: June 19, 1997

Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	84	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	98	1
XYLENES	N.D.	0.50	N.D.	95	1
MTBE	N.D.	5.0	N.D.	87	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

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(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220

VINCE 11:14

# CHROMALAB, INC.

Environmental Services (SDB)

July 17, 1997

Submission #: 9706268  
REISSUED

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod


Client Sample ID: WAC-1  
Spl#: 136687  
Sampled: June 19, 1997

Matrix: WATER  
Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	84	1
MTBE	430	25	N.D.	87	5
BENZENE	N.D.	2.5	N.D.	97	5
TOLUENE	N.D.	2.5	N.D.	95	5
ETHYL BENZENE	N.D.	2.5	N.D.	98	5
XYLENES	N.D.	2.5	N.D.	95	5

Note: Hydrocarbon found in Gasoline Range is composed of a single peak identified as MTBE. If quantified using Gasoline's response factor, concentration would equal 260 ug/L.

  
Marianne Alexander  
Gas/BTEX Supervisor

  
Chip Poalinelli  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

June 28, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: WAC-1EB

Spl#: 136688

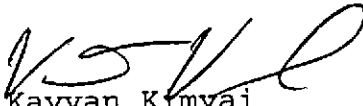
Sampled: June 19, 1997


Matrix: WATER

Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	84	1
MTBE	N.D.	5.0	N.D.	87	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	98	1
XYLENES	N.D.	0.50	N.D.	95	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220

VINCE 11:14

# CHROMALAB, INC.

Environmental Services (SDB)

June 28, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Gasoline BTEX MTBE analysis.  
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-1TB

Spl#: 136689


Sampled: June 19, 1997


Matrix: WATER

Run#: 7502

Analyzed: June 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	84	1
MTBE	N.D.	5.0	N.D.	87	1
BENZENE	N.D.	0.50	N.D.	97	1
TOLUENE	N.D.	0.50	N.D.	95	1
ETHYL BENZENE	N.D.	0.50	N.D.	98	1
XYLENES	N.D.	0.50	N.D.	95	1

  
Kayvan Kimyai  
Chemist

  
Marianne Alexander  
Gas/BTEX Supervisor

510-655-9517

1220 Quarry Lane • Pleasanton, California 94566-4756  
(510) 484-1919 • Facsimile (510) 484-1096  
Federal ID #68-0140157

GC V132 O: BTEXQC0220

VINCE 11:14

# CHROMALAB, INC.

Environmental Services (SDB)

July 1, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: Matrix spike report for Gasoline BTEX MTBE analysis.

Method: SW846 8020A Nov 1990 / 8015Mod

Matrix: WATER

Analyzed: June 26, 1997

Lab Run#: 7502

Instrument: 3400-5

Analyte	Spiked		Amt Found		Spike Recov		Control Limits	% RPD	% Lim	
	Sample Amount (ug/L)	Spike Amt MS MSD (ug/L)	MS	MSD	MS (%)	MSD (%)				
BENZENE	N.D.	100	100	108	120	108	120	65-135	10.5	20
TOLUENE	N.D.	100	100	106	118	106	118	65-135	10.7	20
ETHYL BENZENE	N.D.	100	100	112	123	112	123	65-135	9.36	20
XYLENES	N.D.	300	300	329	357	110	119	65-135	7.86	20

Sample Spiked: 136803

Submission #: 9706281

Client Sample ID: SCCTA-JUN 97

# CHROMALAB, INC.

Environmental Services (SDB)

July 1, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: **Surrogate** report for 6 samples for Purgeable Volatile Aromatic  
Method: SW846 8020A Nov 1990 / 8015Mod  
Lab Run#: 7502  
Matrix: WATER

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
136684-4	MW-1	TRIFLUOROTOLUENE	101	65-135
136684-4	MW-1	4-BROMOFLUOROBENZENE	116	65-135
136685-1	MW-2	TRIFLUOROTOLUENE	91.8	65-135
136685-1	MW-2	4-BROMOFLUOROBENZENE	108	65-135
136686-1	MW-3	TRIFLUOROTOLUENE	89.3	65-135
136686-1	MW-3	4-BROMOFLUOROBENZENE	107	65-135
136687-1	WAC-1	TRIFLUOROTOLUENE	103	65-135
136687-1	WAC-1	4-BROMOFLUOROBENZENE	103	65-135
136687-2	WAC-1	TRIFLUOROTOLUENE	103	65-135
136687-2	WAC-1	4-BROMOFLUOROBENZENE	112	65-135
136688-1	WAC-1EB	TRIFLUOROTOLUENE	99.6	65-135
136688-1	WAC-1EB	4-BROMOFLUOROBENZENE	104	65-135
136688-2	WAC-1EB	TRIFLUOROTOLUENE	94.0	65-135
136688-2	WAC-1EB	4-BROMOFLUOROBENZENE	113	65-135
136689-1	MW-1TB	TRIFLUOROTOLUENE	100	65-135
136689-1	MW-1TB	4-BROMOFLUOROBENZENE	103	65-135
136689-2	MW-1TB	TRIFLUOROTOLUENE	108	65-135
136689-2	MW-1TB	4-BROMOFLUOROBENZENE	110	65-135

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
137319-1	Reagent blank (MDB)	TRIFLUOROTOLUENE	107	65-135
137319-1	Reagent blank (MDB)	4-BROMOFLUOROBENZENE	113	65-135
137320-1	Spiked blank (BSP)	TRIFLUOROTOLUENE	102	65-135
137320-1	Spiked blank (BSP)	4-BROMOFLUOROBENZENE	113	65-135
137358-1	Matrix spike (MS)	TRIFLUOROTOLUENE	112	65-135
137358-1	Matrix spike (MS)	4-BROMOFLUOROBENZENE	130	65-135
137359-1	Matrix spike duplicate (MSD)	TRIFLUOROTOLUENE	118	65-135
137359-1	Matrix spike duplicate (MSD)	4-BROMOFLUOROBENZENE	134	65-135

V132  
QCSURR1229 RUDO 01-Jul-97 10:35

# CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Miscellaneous Metals analysis.  
Method: EPA 3010A/6010A Nov 1990

Client Sample ID: MW-1

Spl#: 136684

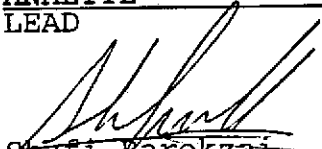
Matrix: WATER

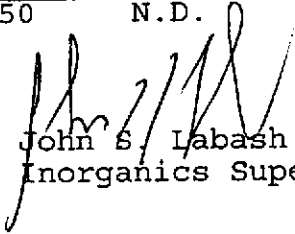
Sampled: June 19, 1997

Run#: 7424

Analyzed: June 23, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	0.0051	0.0050	N.D.	106	1

  
Shafi Barezkai  
Chemist

  
John S. Labash  
Inorganics Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Miscellaneous Metals analysis.  
Method: EPA 3010A/6010A Nov 1990

Client Sample ID: MW-2

Spl#: 136685

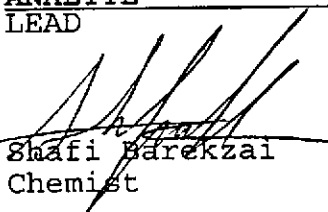
Matrix: WATER

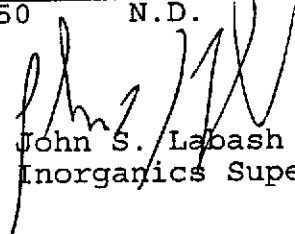
Sampled: June 19, 1997

Run#: 7424

Analyzed: June 23, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	0.0052	0.0050	N.D.	106	1

  
Shafi Barezai  
Chemist

  
John S. Labash  
Inorganics Supervisor



# CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Miscellaneous Metals analysis.  
Method: EPA 3010A/6010A Nov 1990

Client Sample ID: MW-3

Spl#: 136686

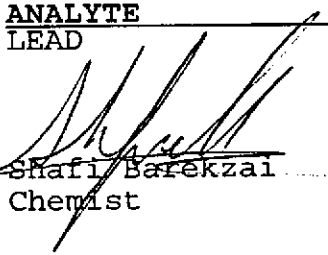
Matrix: WATER

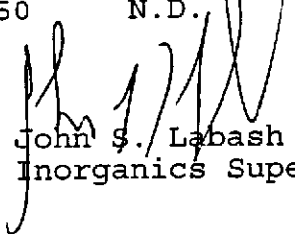
Sampled: June 19, 1997

Run#: 7424

Analyzed: June 23, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE SPIKE (%)	DILUTION FACTOR
LEAD	N.D.	0.0050	N.D.	106	1

  
Shafi Barezai  
Chemist

  
John S. Labash  
Inorganics Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

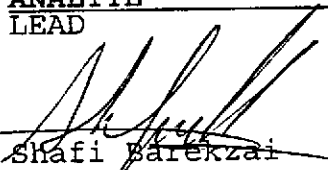
re: One sample for Miscellaneous Metals analysis.  
Method: EPA 3010A/6010A Nov 1990

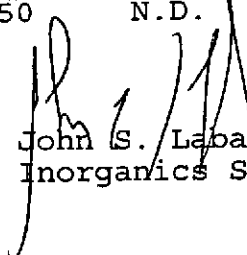
Client Sample ID: WAC-1  
Spl#: 136687  
Sampled: June 19, 1997

Matrix: WATER  
Run#: 7424

Analyzed: June 23, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE SPIKE (%)	DILUTION FACTOR
LEAD	N.D.	0.0050	N.D.	106	1

  
Shafi Barezai  
Chemist

  
John S. Labash  
Inorganics Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

June 24, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: One sample for Miscellaneous Metals analysis.  
Method: EPA 3010A/6010A Nov 1990

Client Sample ID: WAC-1EB

Spl#: 136688

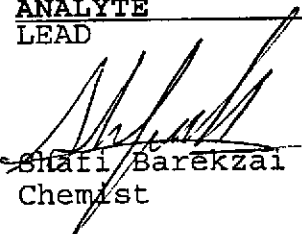
Matrix: WATER

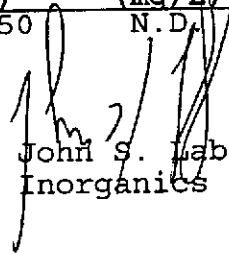
Sampled: June 19, 1997

Run#: 7424

Analyzed: June 23, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
LEAD	N.D.	0.0050	N.D.	106	1

  
Shari Barekzai  
Chemist

  
John S. Labash  
Inorganics Supervisor

# CHROMALAB, INC.

Environmental Services (SDB)

July 1, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: **Blank spike and duplicate** report for Miscellaneous Metals analysis.

Method: EPA 3010A/6010A Nov 1990

Matrix: WATER  
Lab Run#: 7424

Analyzed: June 23, 1997

Analyte	Spike Amount		Spike Amount Found		Spike Recov		Control % Limits RPD	% RPD Lim
	BSP (mg/L)	Dup	BSP (mg/L)	Dup	BSP (%)	Dup (%)		
LEAD	0.500	0.500	0.531	0.528	106	106	80-120 0	20

# CHROMALAB, INC.

Environmental Services (SDB)

July 1, 1997

Submission #: 9706268

ENVIRON

Atten: Kim Jolitz

Project: PACIFIC ELECTRIC MOTORS  
Received: June 20, 1997

Project#: 03-5991A

re: **Matrix spike** report for Miscellaneous Metals analysis.

Method: EPA 3010A/6010A Nov 1990

Matrix: WATER  
Lab Run#: 7424

Instrument:

Analyzed: June 23, 1997

Analyte	Spiked		Amt Found		Spike Recov		Control Limits	% RPD	% RPD Lim	
	Sample Amount (mg/L)	Spike Amt MS (mg/L)	MS (mg/L)	MSD (mg/L)	MS (%)	MSD (%)				
LEAD	0.0063	0.500	0.500	0.522	0.538	103	106	80-120	2.87	20

Sample Spiked: 135953

Submission #: 9706190

Client Sample ID: CH-1

06/20/97/1306084 - Block 89

34313

# ENVIRON

## CHAIN-of-CUSTODY FORM

Counsel in Health and Environmental Science

**PROJECT NAME:**  
Pacific Electric Motors

**CASE NO.:** 03-5991A

IBM #: 9706268 REP: GCLEVE2  
CLIENT: ENVIRON  
JE: 06/27/97  
EF #: 34313

ENVIRON SAMPLE ID.	COLLECTION DATE	COLLECTED BY (initials)	MATRIX	TOTAL NO. OF CONTAINERS	ANALYSES:										COMMENTS		
					TVH	305	BTEX	MTBE	TOTAL Lead								
MW-1	6/19	MM	wkr	4	X	X											std TAT
MW-1TB				3	X												
MW-2				4	X	X											send results
MW-3				4	X	X											ATTN:
WAC-1				4	X	X											Kim Jolitz
WAC-1TB				4	X	X											
<b>TOTAL</b>				20	18	5											

Relinquished by:	Date:	Time:	Received by:	Company:	Date:	Time:
<u>[Signature]</u>	<u>6/20/97</u>	<u>13:15</u>	<u>Musa ATiffi</u>	<u>Chromalab</u>	<u>6-20-97</u>	<u>13:15</u>
<u>[Signature]</u>	<u>6/20/97</u>	<u>Lead</u>	<u>[Signature]</u>	<u>Chromalab</u>	<u>6-20-97</u>	<u>1800</u>

# CHROMALAB, INC.

Environmental Service (SDB)

## Sample Receipt Checklist

Client Name: ENVIRON

Date/Time Received: 06/20/97 | 1315

Reference/Submis: 34313 | 9706268

Received by: MA

Checklist completed by: [Signature]

6-23-97

Date

Reviewed by: [Signature]

CR 6/23/97

Initials | Date

Matrix: WATER

Carrier name: Client C/L

Shipping container/cooler in good condition?

Yes \_\_\_ No \_\_\_

Not Present

Custody seals intact on shipping container/cooler?

Yes \_\_\_ No \_\_\_

Not Present

Custody seals intact on sample bottles?

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 \_\_\_

Efficient sample volume for indicated test?

Yes  No \_\_\_

All samples received within holding time?

Yes  No \_\_\_

Container/Temp Blank temperature in compliance?

Temp: 6.0°C

Yes  No \_\_\_

Water - VOA vials have zero headspace?

No VOA vials submitted \_\_\_

Yes  No \_\_\_

Water - pH acceptable upon receipt? yes

Adjusted? \_\_\_ Checked by

chemist for VOAs

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted: \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted: \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments: \_\_\_\_\_

Corrective Action: \_\_\_\_\_