

**GROUNDWATER MONITORING AND SAMPLING
REPORT**

**EMERYVILLE MAINTENANCE FACILITY
4525 HOLLIS STREET
EMERYVILLE, CALIFORNIA
FIRST QUARTER 1996**

Prepared for

Pacific Gas and Electric Company
Technical and Ecological Services

April 1996

Prepared by

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Project 0143-014.02

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1 INTRODUCTION

This report presents data collected during the first quarter 1996 monitoring period at the Pacific Gas and Electric Company (PG&E) Emeryville Maintenance facility at 4525 Hollis Street in Emeryville, California (see Figure 1).

2 GROUNDWATER GRADIENT AND DIRECTION

First quarter groundwater levels were measured at the PG&E Maintenance Facility in Emeryville, California, on March 15, 1996, using an electronic sounding device, and recorded on the historical monitoring well data form included in Appendix A. The groundwater elevations are summarized in Table 1. The March data were used in constructing a groundwater contour map (see Figure 2). March water levels ranged from a low of 11.87 feet above mean sea level (MSL) in well ESE-1 to a high of 20.02 feet above MSL in well MW-4. The groundwater gradient is 0.03 foot per foot (ft/ft) to the north between monitoring wells ESE-2 and MW-4 and 0.06 ft/ft to the south between monitoring wells ESE-4 and ESE-1.

3 SAMPLING, ANALYSIS, AND MONITORING PROGRAM RESULTS

Groundwater samples were collected from wells ESE-1 through ESE-4 on March 15, 1996, consistent with the protocol presented in Figure 3, and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) by U.S. Environmental Protection Agency (USEPA) Method 602/8020; polychlorinated biphenyls (PCBs) by USEPA Method 3510/608; and total extractable petroleum hydrocarbons (TEPH) as mineral oil, by USEPA Method 3510/8015M. Temperature, pH, and electrical conductivity were measured in the field and recorded on the water sample field data sheets (see Appendix A). Groundwater samples were not collected from well MW-4. Field readings from the first quarter 1996 monitoring event are summarized in Table 1.

The analytical results are discussed below. First quarter 1996 and historical analytical data are summarized in Table 2.

BTEX, MTBE, and PCBs were not detected at or above the method reporting limit (MRL) in any sample collected from ESE-1 through ESE-4.

Petroleum hydrocarbons were detected in the range in well ESE-1. Chromalab, Inc., compared the peak in the chromatogram from this event with the chromatogram for the mineral oil reference standard supplied by PG&E. The chromatogram peak in ESE-1 was similar to that of mineral oil, and the concentration was estimated to be 277 micrograms per liter ($\mu\text{g/L}$). TEPH was not detected at or above the MRL in samples collected from ESE-2, ESE-3, or ESE-4. Certified analytical reports and chain-of-custody records are included in Appendix B.

4 FIELD LABORATORY QUALITY CONTROL RESULTS

Analytical data were evaluated for accuracy and precision based on field and laboratory quality control (QC) sample performance. The field QC consisted of collecting one field blank (FB-1) and analyzing it for BTEX.

Field blanks are collected to assess the effect of field environments on the analytical results and to identify false positives. No parameters were detected above their respective MRLs in the field blank, indicating no adverse effects from sampling procedures.

The laboratory QC consisted of checking adherence to holding times and evaluating method blanks and matrix spike (MS) results.

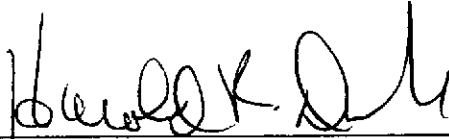
Holding times are established by the USEPA and refer to the maximum time allowed to pass between sample collection and analysis by the laboratory. These limits assist in determining data validity. The method blank results are used to assess the effect of the laboratory environment on the analytical results. The MS recoveries are used to assess accuracy.

All analyses were done within the holding times specified by the USEPA. No compounds were detected in the daily method blanks. Recoveries of MS results, were within the laboratory acceptance limits.

The field and laboratory QC results indicate that the analytical data are of acceptable quality.

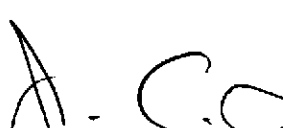
The material and data in this report were prepared under the supervision and direction of the undersigned.

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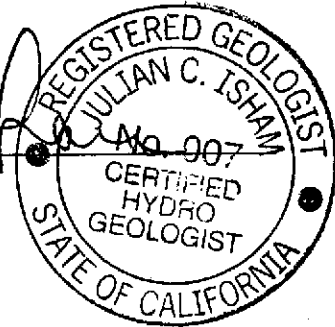


Table 1
Field Measurements
First Quarter 1996 and Historical Data
Pacific Gas and Electric Company
Emeryville, California

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) ¹	Depth to Water (feet)	Groundwater Elevation (ft/MSL)	Measured Well Depth (feet)	pH (units)	Temperature (°F)	Electrical Conductivity (umhos/cm)
ESE-1	03/28/94	23.66	10.06	13.60	20.8	8.48	73.1	600
ESE-1	04/07/94	23.66	10.22	13.44	NM ³	NS ⁴	NS	NS
ESE-1	12/12/94	23.66	9.18	14.48	30.6	7.26	63.4	588
ESE-1	03/13/95	23.66	8.20	15.46	30.6	7.33	63.3	548
ESE-1	06/15/95	23.66	9.50	14.16	30.6	6.90	64	505
ESE-1	09/15/95	23.66	10.13	13.53	30.6	6.80	65.1	505
ESE-1	12/15/95	23.66	10.55	13.11	33.8	7.04	65.1	511
ESE-1	03/15/96	23.66	11.79	11.87	33.6	6.94	64.9	540
ESE-2	03/28/94	27.80	10.13	17.67	34.2	7.67	67.5	580
ESE-2	04/07/94	27.80	14.37	13.43	NM	NS	NS	NS
ESE-2	12/12/94	27.80	13.05	14.75	34.3	7.05	64.6	610
ESE-2	03/13/95	27.80	12.48	15.32	34.3	7.19	62.5	596
ESE-2	06/15/95	27.80	13.85	13.95	34.3	7.02	65.1	601
ESE-2	09/15/95	27.80	14.22	13.58	34.3	6.91	65.6	627
ESE-2	12/15/95	27.80	11.65	16.15	34.1	7.12	64.7	591
ESE-2	03/15/96	27.80	12.87	14.93	34.1	7.01	65.8	669
ESE-3	03/28/94	23.91	11.23	12.68	30.9	7.47	68.7	610
ESE-3	04/07/94	23.91	11.29	12.62	NM	NS	NS	NS
ESE-3	12/12/94	23.91	10.62	13.29	31.0	7.19	63.9	600
ESE-3	03/13/95	23.91	9.45	14.46	31.0	6.99	62.5	600
ESE-3	06/15/95	23.91	10.27	13.64	31.0	7.10	64.9	556
ESE-3	09/15/95	23.91	10.87	13.04	31.0	6.96	65.5	559
ESE-3	12/19/95	23.91	9.40	14.51	31.0	7.28	64.2	556
ESE-3	03/15/96	23.91	10.02	13.89	30.9	7.01	65.0	583

Table 1
Field Measurements
First Quarter 1996 and Historical Data
Pacific Gas and Electric Company
Emeryville, California

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) ¹	Depth to Water (feet)	Groundwater Elevation (ft/MSL)	Measured Well Depth (feet)	pH (units)	Temperature (°F)	Electrical Conductivity (umhos/cm)
ESE-4	03/28/94	24.33	10.63	13.70	31.4	7.77	66.3	610
ESE-4	04/07/94	24.33	10.85	13.48	NM	NS	NS	NS
ESE-4	12/12/94	24.33	9.63	14.70	31.6	7.11	63.1	591
ESE-4	03/13/95	24.33	8.90	15.43	31.6	7.16	61.2	595
ESE-4	06/15/95	24.33	9.81	14.52	31.6	7.05	64.1	565
ESE-4	09/15/95	24.33	10.85	13.48	31.6	7.01	66.3	584
ESE-4	12/15/95	24.33	8.72	15.61	31.6	7.05	64.6	555
ESE-4	03/15/96	24.33	9.29	15.04	31.5	7.01	63.7	600
MW-4	03/13/95	28.14	9.84	18.30	14.7	NS	NS	NS
MW-4	06/15/95	28.14	10.74	17.40	14.7	NS	NS	NS
MW-4	09/15/95	28.14	10.90	17.24	14.7	NS	NS	NS
MW-4	12/15/95	28.14	6.53	21.61	14.7	NS	NS	NS
MW-4	03/15/96	28.14	8.12	20.02	14.7	NS	NS	NS

¹ ft/MSL = feet relative to mean sea level.
² umhos/cm = micromhos per centimeter at 77°F.
³ NM = not measured.
⁴ NS = not sampled.

Table 2
Analytical Data
First Quarter 1996 and Historical Data
Pacific Gas and Electric Company
Emeryville, California
(ug/l)¹

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH ²	Benzene	Toluene	Ethylbenzene	Xylenes	Methyl tert-butyl ether
ESE-1	03/28/94	<1	340	<0.3	<0.3	<0.3	<0.3	NA
ESE-1	12/12/94	<0.5	80	<0.5	<0.5	<0.5	<0.5	NA
ESE-1	03/13/95	1.3	500 ³	<0.5	<0.5	<0.5	<0.5	NA
ESE-1	06/15/95	<0.5	350 ³	<0.5	<0.5	<0.5	<0.5	NA
ESE-1	09/15/95	<0.5	470 ³	<0.5	<0.5	<0.5	<0.5	NA
ESE-1	12/15/95	<0.5	440 ³	<0.5	<0.5	<0.5	<0.5	NA
ESE-1	03/15/96	<0.5	277	<0.5	<0.5	<0.5	<0.5	<5
ESE-2	03/28/94	<1	250	0.8	1.5	<0.3	2.7	NA
ESE-2	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-2	03/13/95	<0.5	120 ⁴	<0.5	<0.5	<0.5	<0.5	NA
ESE-2	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-2	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-2	12/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-2	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5	<5
ESE-3	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3	NA
ESE-3	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-3	03/13/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-3	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-3	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-3	12/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-3	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5	<5

Table 2
Analytical Data
First Quarter 1996 and Historical Data
Pacific Gas and Electric Company
Emeryville, California
(ug/l)¹

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH ²	Benzene	Toluene	Ethylbenzene	Xylenes	Methyl tert-butyl ether
ESE-4	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3	NA
ESE-4	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-4	03/13/95	<0.5	56 ⁴	<0.5	<0.5	<0.5	<0.5	NA
ESE-4	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-4	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5	NA
ESE-4	12/15/95	<0.5	57 ⁴	<0.5	<0.5	<0.5	<0.5	NA
ESE-4	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5	<5
Trip Blank	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3	NA
Trip Blank	12/12/94	NA ⁵	NA	<0.5	<0.5	<0.5	<0.5	NA
Trip Blank	03/13/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Trip Blank	06/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Trip Blank	09/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Trip Blank	12/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	03/28/94	NA	NA	NA	NA	NA	NA	NA
Field Blank	12/12/94	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	03/13/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	06/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	09/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	12/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5	NA
Field Blank	03/15/96	NA	NA	<0.5	<0.5	<0.5	<0.5	<5

¹ ug/l = micrograms per liter.

² TEPH = total extractable petroleum hydrocarbons..

³ Compounds similar to client-supplied transformer oil were found.

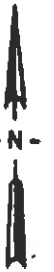
⁴ Compounds in diesel range not similar to laboratory standard for transformer oil.

⁵ NA = not analyzed.



Base map from USGS 7.5' Quad. Map:
Oakland West, California. (Photorevised 1980).

Scale : 0 2000 4000 Feet

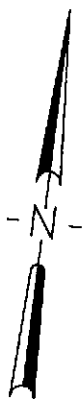


EMCON
Associates

PACIFIC GAS & ELECTRIC COMPANY
QUARTERLY MONITORING PROGRAM
EMERYVILLE, CALIFORNIA

SITE LOCATION

FIGURE
1
PROJECT NO.
143-014.02



CHIRON CORPORATION

53RD STREET

HOLLIS STREET

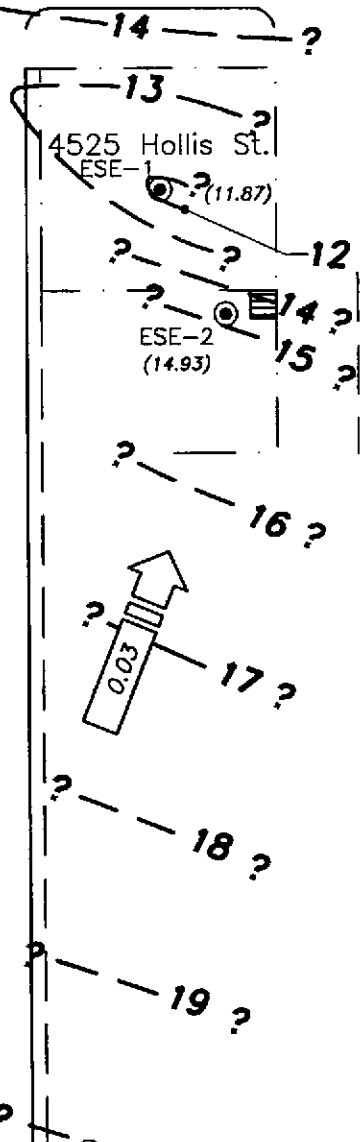
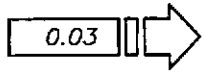
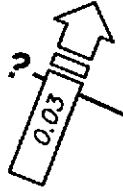
4525 Hollis St.
ESE-1
(11.87)

ESE-2
(14.93)

ESE-4
(15.04)

ESE-3
(13.89)

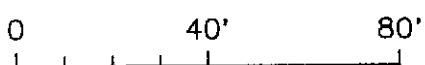
MW-4
(20.02)



EXPLANATION

- GROUNDWATER MONITORING WELL
- GROUNDWATER EXTRACTION WELL
- (11.87) GROUNDWATER ELEVATION (Ft-MSL) MEASURED 3/15/96
- - - - GROUNDWATER ELEVATION CONTOUR (Ft-MSL); 3/15/96
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW SHOWING GRADIENT

SCALE: 1" = 40'



DATE LAST REVISED: 3/22/96

I:\DWG\PG&E\014GWCM.DWG



PACIFIC GAS AND ELECTRIC
 EMERYVILLE MAINTENANCE FACILITY
 EMERYVILLE, CALIFORNIA
 QUARTERLY MONITORING REPORT
 GROUNDWATER CONTOUR MAP
 FIRST QUARTER 1996

FIGURE
2
 PROJECT NO.
 20143-014.02



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MONITORING WELL PURGING PROTOCOL

MEASURE AND RECORD DEPTH TO WATER AND WELL TOTAL DEPTH

CHECK FOR FLOATING PRODUCT

YES

MEASURE AND DOCUMENT FLOATING PRODUCT THICKNESS. DO NOT SAMPLE WELL FOR DISSOLVED CONSTITUENTS.

NO

CALCULATE PURGE VOLUME BY USING THE FOLLOWING EQUATION:

$$P = \pi r^2 h \times 7.48 \times 3$$

where:

- P = calculated purge volume (gallons)
- π = 3.14
- r = radius of well casing in feet
- h = height of water column in feet

WELL EVACUATED TO PRACTICAL LIMITS OF DRYNESS BEFORE REMOVING CALCULATED PURGE VOLUME

EVACUATE WATER FROM WELL EQUAL TO THE CALCULATED PURGE VOLUME WHILE MONITORING GROUND-WATER STABILIZATION INDICATOR PARAMETERS (pH, CONDUCTIVITY, TEMPERATURE) AND TURBIDITY AT INTERVALS OF ONE CASING VOLUME.

NO

YES

FINAL TWO SETS OF GROUND-WATER STABILIZATION INDICATOR PARAMETER MEASUREMENTS MEET THE FOLLOWING CRITERIA:

- pH = ± 0.05 pH units
- COND. = ± 3%
- TEMP. = ± 1.0 °F
- TURBIDITY = ± <5 NTU

YES

NO

WELL PURGING CRITERIA MET; PROCEED TO WELL SAMPLING

CONTINUE PURGING; EVACUATE ADDITIONAL CASING VOLUME OF WATER, MONITORING INDICATOR PARAMETERS FOR STABILITY.

WELL RECHARGES TO A LEVEL SUFFICIENT FOR SAMPLE COLLECTION WITHIN 24 HOURS OF EVACUATION TO DRYNESS.

YES

NO

FIELD TEST FIRST RECHARGE WATER FOR INDICATOR PARAMETERS AND TURBIDITY, THEN PROCEED TO WELL SAMPLING.

RECORD WELL AS DRY FOR PURPOSES OF SAMPLING.



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MONITORING WELL PURGING PROTOCOL

FIGURE

3

APPENDIX A

**HISTORICAL MONITORING WELL DATA FORM AND WATER SAMPLE
FIELD DATA SHEETS**

EMCON - Field Services
 1921 Ringwood Avenue
 San Jose, California

M. P. [Signature]
 Signature

Historical Monitoring Well Data
 PG&E Emeryville
 0143-014.002

Well ID	Date	Depth to Floating Product (feet)	First Depth to Water (feet)	Second Depth to Water (feet)	Floating Product Thickness (feet)	Well Total Depth (feet)	Comments
Depth to liquid : 0.01 foot							Total depth : 0.1 foot
ESE-1	06/15/95		9.50	9.50	ND	30.6	
	09/15/95		10.13	10.13	ND	30.6	
	12/15/95		10.55	10.55	ND	33.8	
	3/15/96	ND	11.79	11.79	ND	33.6	Time: 10/17 Lock: None
ESE-2	06/15/95		13.85	13.85	ND	34.3	Water in Box.
	09/15/95		14.22	14.22	ND	34.3	
	12/15/95		11.65	11.65	ND	34.1	
			12.87	12.87		34.1	Time: 10/21 Lock: Dolphin
ESE-3	06/15/95		10.27	10.27	ND	31.0	
	09/15/95		10.87	10.87	ND	31.0	
	12/15/95		9.40	9.40	ND	31.0	
			10.02	10.02		30.9	Time: 10/25 Lock: 3210
ESE-4	06/15/95		9.81	9.81	ND	31.6	
	09/15/95		10.85	10.85	ND	31.6	
	12/15/95		8.72	8.72	ND	31.6	
			9.29	9.29		31.5	Time: 10/30 Lock: 3210
MW-4	06/15/95		10.74	10.74	ND	14.7	Water in Box
	09/15/95		10.90	10.90	ND	14.7	
	12/15/95		6.53	6.53	ND	14.7	
		✓	✓	8.12	8.12	✓	14.7



WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 20143-014-002

SAMPLE ID: ESE-1

PURGED BY: M. Gallegos

CLIENT NAME: PRGE

SAMPLED BY: ↓

LOCATION: Emeryu. H., CA.

TYPE: Ground Water Surface Water Treatment Effluent Other

CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL):	<u>NR</u>	VOLUME IN CASING (gal.):	<u>3.56</u>
DEPTH TO WATER (feet):	<u>11.79</u>	CALCULATED PURGE (gal.):	<u>14.24</u>
DEPTH OF WELL (feet):	<u>33.6</u>	ACTUAL PURGE VOL. (gal.):	<u>14.5</u>

DATE PURGED: 3-15-96 Start (2400 Hr) 1058 End (2400 Hr) 1113
 DATE SAMPLED: ↓ Start (2400 Hr) 1123 End (2400 Hr) ---

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1102</u>	<u>3.5</u>	<u>6.85</u>	<u>533</u>	<u>64.7</u>	<u>BRN</u>	<u>Heavy</u>
<u>1106</u>	<u>7.0</u>	<u>6.96</u>	<u>543</u>	<u>64.9</u>	<u>↓</u>	<u>↓</u>
<u>1109</u>	<u>10.5</u>	<u>6.92</u>	<u>540</u>	<u>65.0</u>	<u>↓</u>	<u>↓</u>
<u>1113</u>	<u>14.5</u>	<u>6.94</u>	<u>540</u>	<u>64.9</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): NR ODOR: NONE NR NR
 (COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: NR Parameters field filtered at this well: NR

PURGING EQUIPMENT

- 2" Bladder Pump
- Centrifugal Pump
- Submersible Pump
- Well Wizard™
- Bailer (Teflon®)
- Bailer (PVC)
- Bailer (Stainless Steel)
- Dedicated

Other: _____

SAMPLING EQUIPMENT

- 2" Bladder Pump
- DDL Sampler
- Dipper
- Well Wizard™
- Bailer (Teflon®)
- Bailer (Stainless Steel)
- Submersible Pump
- Dedicated

Other: _____

WELL INTEGRITY: Good LOCK #: PRGE-REV

REMARKS: All samples for

Meter Calibration: Date: 3-15-96 Time: 1054 Meter Serial #: 9204 Temperature °F: 64.0
 (EC 1000 1007/1000) (DI ---) (pH 7.698/7.00) (pH 10 998/1009) (pH 4 400/410)

Location of previous calibration: _____

Signature: [Signature] Reviewed By: KR Page 1 of 4



WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 20143-014-002
 PURGED BY: M. Gallegos
 SAMPLED BY: ↓

SAMPLE ID: ESE-2
 CLIENT NAME: PG+E
 LOCATION: EMERYVILLE, CA

TYPE: Ground Water Surface Water Treatment Effluent Other
 CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.46
 DEPTH TO WATER (feet): 12.87 CALCULATED PURGE (gal.): 13.84
 DEPTH OF WELL (feet): 34.1 ACTUAL PURGE VOL. (gal.): 14.0

DATE PURGED: 3-15-94 Start (2400 Hr) 1139 End (2400 Hr) 1152
 DATE SAMPLED: ↓ Start (2400 Hr) 1201 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1143</u>	<u>3.5</u>	<u>7.02</u>	<u>680</u>	<u>65.4</u>	<u>NRH</u>	<u>NRH</u>
<u>1146</u>	<u>7.0</u>	<u>7.03</u>	<u>678</u>	<u>66.0</u>	<u>↓</u>	<u>↓</u>
<u>1149</u>	<u>10.5</u>	<u>7.04</u>	<u>672</u>	<u>65.7</u>	<u>↓</u>	<u>↓</u>
<u>1152</u>	<u>14.0</u>	<u>7.01</u>	<u>669</u>	<u>65.8</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): NR ODOR: None NR NR
 (COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)
 Field QC samples collected at this well: NR Parameters field filtered at this well: NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> 2' Bladder Pump	<input type="checkbox"/> Bailer (Teflon®)	<input type="checkbox"/> 2' Bladder Pump	<input checked="" type="checkbox"/> Bailer (Teflon®)
<input type="checkbox"/> Centrifugal Pump	<input checked="" type="checkbox"/> Bailer (PVC)	<input type="checkbox"/> DDL Sampler	<input type="checkbox"/> Bailer (Stainless Steel)
<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Bailer (Stainless Steel)	<input type="checkbox"/> Dipper	<input type="checkbox"/> Submersible Pump
<input type="checkbox"/> Well Wizard™	<input type="checkbox"/> Dedicated	<input type="checkbox"/> Well Wizard™	<input type="checkbox"/> Dedicated
Other: _____		Other: _____	

WELL INTEGRITY: Good LOCK #: Plaker

REMARKS: All samples taken

Meter Calibration: Date: 3-15-94 Time: _____ Meter Serial #: 9204 Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
 Location of previous calibration: ESE-1

Signature: M. Gallegos Reviewed By: KR Page 2 of 4



WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 20143.014.002

SAMPLE ID: ESE-3

PURGED BY: M. GALLEGO

CLIENT NAME: PG&E

SAMPLED BY: ✓

LOCATION: Emeryville, CA

TYPE: Ground Water Surface Water Treatment Effluent Other

CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL): <u>NR</u>	VOLUME IN CASING (gal.): <u>3.40</u>
DEPTH TO WATER (feet): <u>10.02</u>	CALCULATED PURGE (gal.): <u>13.63</u>
DEPTH OF WELL (feet): <u>30.9</u>	ACTUAL PURGE VOL. (gal.): <u>14.0</u>

DATE PURGED: <u>3-15-96</u>	Start (2400 Hr) <u>1217</u>	End (2400 Hr) <u>1229</u>
DATE SAMPLED: <u>✓</u>	Start (2400 Hr) <u>1235</u>	End (2400 Hr) <u>—</u>

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1220</u>	<u>3.5</u>	<u>7.07</u>	<u>580</u>	<u>65.5</u>	<u>BRN</u>	<u>HEAVY</u>
<u>1223</u>	<u>7.0</u>	<u>7.05</u>	<u>580</u>	<u>65.3</u>	<u>↓</u>	<u>↓</u>
<u>1226</u>	<u>10.5</u>	<u>7.09</u>	<u>581</u>	<u>65.1</u>	<u>↓</u>	<u>↓</u>
<u>1229</u>	<u>14.0</u>	<u>7.01</u>	<u>583</u>	<u>65.0</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): NR ODOR: None NR NR
(COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: NR Parameters field filtered at this well: NR

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> 2' Bladder Pump | <input type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2' Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input type="checkbox"/> Centrifugal Pump | <input checked="" type="checkbox"/> Bailer (PVC) | <input type="checkbox"/> DDL Sampler | <input type="checkbox"/> Bailer (Stainless Steel) |
| <input type="checkbox"/> Submersible Pump | <input type="checkbox"/> Bailer (Stainless Steel) | <input type="checkbox"/> Dipper | <input type="checkbox"/> Submersible Pump |
| <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated | <input type="checkbox"/> Well Wizard™ | <input type="checkbox"/> Dedicated |
- Other: _____ Other: _____

WELL INTEGRITY: Good LOCK #: PG&E Key

REMARKS: all samples taken

Meter Calibration: Date: 3-15-96 Time: _____ Meter Serial #: 9204 Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: ESE-1

Signature: [Signature] Reviewed By: KR Page 3 of 4



WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 20143-014-002

SAMPLE ID: ESE-4

PURGED BY: M. GALLEGOS

CLIENT NAME: PC&E

SAMPLED BY: ✓

LOCATION: Emeryville, CA

TYPE: Ground Water Surface Water Treatment Effluent Other

CASING DIAMETER (inches): 2 3 4 4.5 6 Other

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.62

DEPTH TO WATER (feet): 9.29 CALCULATED PURGE (gal.): 14.50

DEPTH OF WELL (feet): 31.5 ACTUAL PURGE VOL. (gal.): 15.0

DATE PURGED: 3-15-94 Start (2400 Hr) 1259 End (2400 Hr) 1312

DATE SAMPLED: ✓ Start (2400 Hr) 1320 End (2400 Hr) ---

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1302</u>	<u>3.5</u>	<u>6.99</u>	<u>611</u>	<u>64.3</u>	<u>BRN</u>	<u>Heavy</u>
<u>1305</u>	<u>7.0</u>	<u>7.03</u>	<u>606</u>	<u>64.0</u>	<u>↓</u>	<u>↓</u>
<u>1308</u>	<u>11.0</u>	<u>7.02</u>	<u>599</u>	<u>63.8</u>	<u>↓</u>	<u>↓</u>
<u>1312</u>	<u>15.0</u>	<u>7.01</u>	<u>600</u>	<u>63.7</u>	<u>✓</u>	<u>✓</u>

D. O. (ppm): NR ODOR: None NR NR

(COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well:

Parameters field filtered at this well:

FB-1(1324)

NR

PURGING EQUIPMENT

SAMPLING EQUIPMENT

- 2' Bladder Pump
- Centrifugal Pump
- Submersible Pump
- Well Wizard™
- Bailer (Teflon®)
- Bailer (PVC)
- Bailer (Stainless Steel)
- Dedicated

- 2' Bladder Pump
- DDL Sampler
- Dipper
- Well Wizard™
- Bailer (Teflon®)
- Bailer (Stainless Steel)
- Submersible Pump
- Dedicated

Other: _____

Other: _____

WELL INTEGRITY: Good LOCK #: PL04E-K04

REMARKS: all samples taken

Meter Calibration: Date: 3/15/94 Time: _____ Meter Serial #: 9204 Temperature °F: _____

(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: ESE-1

Signature: [Signature] Reviewed By: KR Page 4 of 4

EMCON - Drum Inventory Record

20143-014.002

Project No

Emeryville, CA

Location

3-15-94

Date

PG&E

Client

M. Gallegos

Sampler

Friday

Day of Week

DRUM NUMBER OR ID	WELL OR SOURCE ID(s)	TYPE OF MATERIAL	AMOUNT OF MATERIAL IN DRUM	DATE ACCUMULATED OR GENERATED
A	All wells	Groundwater	55.0(gal)	3-15-94

Sketch locations of drums, include drum ID's

COMMENTS:

Number of Drums From This Event

1

Total Number of Drums At Site

2

**EMCON
GROUNDWATER SAMPLING AND ANALYSIS REQUEST FORM**

PROJECT NAME: **PG&E-Emeryville**
4525 Hollis Street, Emeryville, CA

DATE SUBMITTED: **15-Mar-96**

SPECIAL INSTRUCTIONS / CONSIDERATIONS :
Quarterly Water Quality Monitoring - Third Month of the Quarter

Survey water levels prior to well purging and sampling.
Purge four casing volumes prior to sample collection
Purge and sample using bailers.
Drum purge water; use the drums supplied by PG&E
Chromalab will pick up the samples on Monday, March 18th; bring the samples back to the office.

Authorization: _____

Project No. : **20143-014.002**

Send Results To: **J. C. Isham**

Coordinator: **K Reichelderfer**

Well Locks:
PG&E

PG&E Project

Coordinator: Mr. Fred Flint

Phone No.: (510) 866-5808

Site Contact: Mr. Mel Byrd

Phone No.: (510) 450-5740

Well ID or Source	Casing Diameter (inches)	Casing Length (feet)	ANALYSES REQUESTED
ESE-1 ESE-2 ESE-3 ESE-4	2.0 2.0 2.0 2.0	30.6 34.3 31.0 31.6	PCBs by EPA 8080 BTEX by EPA 602 TEPH as mineral oil by EPA 3510/8015
FB-1	NA	NA	BTEX by EPA 602
MW-4	2.0	14.7	Water Level & Total Depth Only

Laboratory and Lab QC Instructions:
Tier I QC; all samples are to be analyzed by Chromalab

APPENDIX B
CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY
DOCUMENTATION

CHROMALAB, INC.

Environmental Services (SDB)

March 25, 1996

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E - EMERYVILLE

Received: March 18, 1996

Project#: 20143-014.002

re: One sample for 8080 MOD PCBs - WATER analysis.

Method: MOD. EPA 3510/8080

SampleID: ESE-1

Sample #: 120475

Sampled: March 15, 1996


Matrix: WATER

Run: 10797-D

Extracted: March 21, 1996

Analyzed: March 24, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	102
AROCLOR 1221	N.D.	0.5	N.D.	--
AROCLOR 1232	N.D.	0.5	N.D.	--
AROCLOR 1242	N.D.	0.5	N.D.	--
AROCLOR 1248	N.D.	0.5	N.D.	--
AROCLOR 1254	N.D.	0.5	N.D.	--
AROCLOR 1260	N.D.	0.5	N.D.	81


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

March 25, 1996

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002

RECEIVED
APR 01 1996
EMCON/SACRAMENTO

Submission #: 9603137

re: One sample for 8080 MOD PCBs - WATER analysis.
Method: MOD. EPA 3510/8080

SampleID: ESE-2

Sample #: 120476

Sampled: March 15, 1996

Matrix: WATER

Run: 10797-D

Extracted: March 21, 1996

Analyzed: March 24, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	102
AROCLOR 1221	N.D.	0.5	N.D.	--
AROCLOR 1232	N.D.	0.5	N.D.	--
AROCLOR 1242	N.D.	0.5	N.D.	--
AROCLOR 1248	N.D.	0.5	N.D.	--
AROCLOR 1254	N.D.	0.5	N.D.	--
AROCLOR 1260	N.D.	0.5	N.D.	81


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756

FAX TO FRED FLINT @ 510-866-5681 / BTEX & MTBE
916-928-3341 (for PGE) 03/25

(510) 484-1919 • Facsimile (510) 484-1096

Federal ID #68-0140157

1129
N:QC0225 DENNIS 10:24:09

CHROMALAB, INC.

Environmental Services (SDB)

March 25, 1996

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E - EMERYVILLE

Project#: 20143-014.002

Received: March 18, 1996

re: One sample for 8080 MOD PCBs - WATER analysis.

Method: MOD. EPA 3510/8080

SampleID: ESE-3

Sample #: 120477

Matrix: WATER

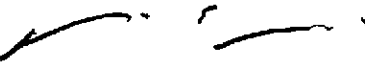
Extracted: March 21, 1996


Sampled: March 15, 1996

Run: 10797-D

Analyzed: March 24, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	102
AROCLOR 1221	N.D.	0.5	N.D.	--
AROCLOR 1232	N.D.	0.5	N.D.	--
AROCLOR 1242	N.D.	0.5	N.D.	--
AROCLOR 1248	N.D.	0.5	N.D.	--
AROCLOR 1254	N.D.	0.5	N.D.	--
AROCLOR 1260	N.D.	0.5	N.D.	81


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

March 25, 1996

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

RECEIVED
APR 01 1996
EMCON/SACRAMENTO

Submission #: 9603137

Project#: 20143-014.002

re: One sample for 8080 MOD PCBs - WATER analysis.
Method: MOD. EPA 3510/8080

SampleID: ESE-4

Sample #: 120478

Sampled: March 15, 1996

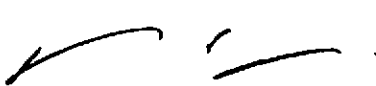
Matrix: WATER

Run: 10797-D

Extracted: March 21, 1996

Analyzed: March 24, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	102
AROCLOR 1221	N.D.	0.5	N.D.	--
AROCLOR 1232	N.D.	0.5	N.D.	--
AROCLOR 1242	N.D.	0.5	N.D.	--
AROCLOR 1248	N.D.	0.5	N.D.	--
AROCLOR 1254	N.D.	0.5	N.D.	--
AROCLOR 1260	N.D.	0.5	N.D.	81


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

1220 Quarry Lane • Pleasanton, California 94566-4756

(510) 484-1919 • Facsimile (510) 484-1096

Federal ID #68-0140157

FAX TO FRED FLINT @ 510-866-5681 / BTEX & MTBE
916-928-3341 (for PGE) 03/25

1129
N:QC0225 DENNIS 10:24:09

CHROMALAB, INC.

Environmental Services (SES)

April 9, 1996

Submission #: 9603137

EMCON ASSOCIATES, SACRAMENTO

Revised from report sent previously.

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002

re: One sample for BTEX with Methyl Tert-Butyl Ether analysis.
Method: EPA 5030/602/8020

Sample ID: ESE-1

Sample #: 120475

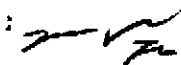
Sampled: March 15, 1996


Matrix: WATER

Run: 10807-5

Analyzed: March 20, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	N.D.	0.5	N.D.	106
TOLUENE	N.D.	0.5	N.D.	95
ETHYL BENZENE	N.D.	0.5	N.D.	101
XYLENES	N.D.	0.5	N.D.	102
MTBE	N.D.	5	N.D.	74


 June Zhao
 Chemist


 Marianne Alexander
 Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDS)

April 9, 1996

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Submission #: 9603137

Revised from report sent previously.

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002

re: One sample for BTEX with Methyl Tert-Butyl Ether analysis.
Method: EPA 5030/602/8020

Sample ID: ESE-2

Sample #: 120476

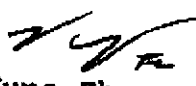
Sampled: March 15, 1996

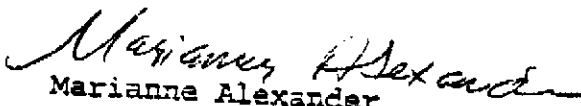
Matrix: WATER

Run: 10807-5

Analyzed: March 20, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	N.D.	0.5	N.D.	106
TOLUENE	N.D.	0.5	N.D.	95
ETHYL BENZENE	N.D.	0.5	N.D.	101
XYLENES	N.D.	0.5	N.D.	102
MTBE	N.D.	5	N.D.	74


 June Zhao
 Chemist


 Marianne Alexander
 Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDS)

April 9, 1996

Submission #: 9603137

EMCON ASSOCIATES, SACRAMENTO

Revised from report sent previously.

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002

re: One sample for BTEX with Methyl Tert-Butyl Ether analysis.
Method: EPA 5030/602/8020

Sample ID: ESE-3

Sample #: 120477


Sampled: March 15, 1996

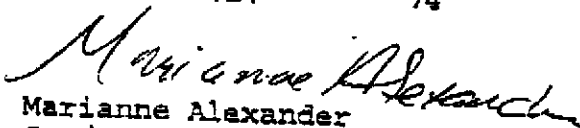
Matrix: WATER

Run: 10807-5

Analyzed: March 20, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	N.D.	0.5	N.D.	106
TOLUENE	N.D.	0.5	N.D.	95
ETHYL BENZENE	N.D.	0.5	N.D.	101
XYLENES	N.D.	0.5	N.D.	102
MTBE	N.D.	5	N.D.	74


June Zhao
Chemist


Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 9, 1996

Submission #: 9603137

EMCON ASSOCIATES, SACRAMENTO

Revised from report sent previously.

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002


re: One sample for BTEX with Methyl Tert-Butyl Ether analysis.
Method: EPA 5030/602/8020SampleID: ESE-4
Sample #: 120478
Sampled: March 15, 1996Matrix: WATER
Run: 10807-5

Analyzed: March 20, 1996

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
BENZENE	N.D.	0.5	N.D.	106
TOLUENE	N.D.	0.5	N.D.	95
ETHYL BENZENE	N.D.	0.5	N.D.	101
XYLENES	N.D.	5	N.D.	102
MTBE	N.D.		N.D.	74



June Zhao
Chemist



Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 9, 1996

Submission #: 9603137

EMCON ASSOCIATES, SACRAMENTO

Revised from report sent previously.

Atten: J.C. Isham

Project: PG&E - EMERYVILLE
Received: March 18, 1996

Project#: 20143-014.002

re: One sample for BTEX with Methyl Tert-Butyl Ether analysis.
Method: EPA 5030/602/8020

SampleID: FB-1

Sample #: 120479

Sampled: March 15, 1996

Matrix: WATER

Run: 10807-5

Analyzed: March 20, 1996

Analyte	RESULT	REPORTING	BLANK	BLANK SPIKE
	(ug/L)	LIMIT	RESULT	RESULT
		(ug/L)	(ug/L)	(%)
BENZENE	N.D.	0.5	N.D.	106
TOLUENE	N.D.	0.5	N.D.	95
ETHYL BENZENE	N.D.	0.5	N.D.	101
XYLENES	N.D.	0.5	N.D.	102
MTBE	N.D.	5	N.D.	74

June Zhao
June Zhao
Chemist

Marianne Alexander
Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 9, 1996

Submission # : 9603137

EMCON ASSOCIATES, SACRAMENTO

Revised from report
previously sent
March 25, 1996

Attn: J.C. Isham

Project: PG&E - EMERYVILLE

Project#: 20143-014.002

Received: March 18, 1996

re: Four samples for Mineral Oil Analysis

Method: EPA 3510 / 8015M

Sampled: March 15, 1996


Matrix: WATER
Run: 10759-DExtracted: March 19, 1996
Analysis: March 21, 1996

Spl #	Sample ID	MINERAL OIL RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
120475	ESE-1	277	56	N.D.	72
120477	ESE-3	N.D.	53	N.D.	72
120478	ESE-4	N.D.	54	N.D.	72

Sampled: March 15, 1996

Matrix: WATER
Run: 10759-DExtracted: March 19, 1996
Analysis: March 22, 1996

Spl #	Sample ID	MINERAL OIL RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
120476	ESE-2	N.D.	59	N.D.	72


 Dennis Mayugba
 Chemist


 Alex Tam
 Semivolatiles Supervisor

Diesel was used for spiking solution and to quantitate for Mineral Oil.
 Chromatographic profiles are similar to laboratory's mineral standard.

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name EMCON Date/Time Received 3/18/96 1043
Project _____ Received by B. Morrow / _____
Reference/Subm # 26958/960 3137 Carrier name _____
Checklist completed by: Chowley 3/19/96 Logged in by MP 3/19/96
Signature / Date Initials / Date
Matrix H₂O

Shipping container in good condition? NA _____ Yes _____ No _____
Custody seals present on shipping container? Intact _____ Broken _____ Yes _____ No _____
Custody seals on sample bottles? Intact _____ Broken _____ Yes _____ No _____
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 _____
Samples intact? Yes No _____
Sufficient sample volume for indicated test? Yes No _____
VOA vials have zero headspace? NA _____ Yes No _____
Trip Blank received? NA _____ Yes No _____
All samples received within holding time? Yes No _____
Container temperature? 7.6 °C
pH upon receipt 6 pH adjusted < 2 Check performed by: CR NA _____

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? _____ Date contacted? _____
Person contacted? _____ Contacted by? _____

Regarding? _____
Comments: pH adjusted for TEPH analysis

Corrective Action: _____

