

Pacific Gas and Electric Company

March 8, 1996

Environmental Compliance Unit
4525 Hollis Street
Emeryville, CA 94608-2999
510/450-5710

Michelle Boscoe
Senior Environmental Coordinator



Ms. Susan Hugo
Senior Hazardous Materials Specialist
Alameda County Environmental Health Dept.
1131 Harbor Bay Parkway #250
Alameda, CA 94502-6577

Dear Ms. Hugo:

Re: PG&E's Groundwater Monitoring and Sampling Report, Pacific Gas & Electric's Emeryville Materials Facility, Emeryville, California

Enclosed are two copies of the above-referenced report, performed for the fourth quarter of 1995 ending in December. The report was prepared by EMCON, and summarizes groundwater flow direction, hydraulic gradient, and the results of laboratory chemical analyses of groundwater samples collected in December of 1995.

Findings of the report include:

- The depth to ground water ranges from 10.13 to 14.22 feet below the surface. Ground water flow was to the north with a gradient magnitude of 0.03 ft/ft between wells ESE-2 and MW-4 and toward the south with a gradient magnitude of to 0.05 ft/ft between wells ESE-1 and ESE-4.
- TEPH which matches a transformer oil standard is present in well ESE-1 (440 ug/l). Unknown hydrocarbons in the diesel range were present in well ESE-4 at a concentration of 57 ug/l. All other compounds were below the method detection limit.

If you have any questions about this report, or the workplan on the same site submitted previously, please call me at (510) 450-5710.

Sincerely,

A handwritten signature in black ink, appearing to read 'Michelle Boscoe', written in a cursive style.

Michelle E. Boscoe
Senior Environmental Coordinator

Enclosures

cc: Rafat A. Shahid, Environmental Health
Gil Jensen, Alameda County District Attorney's Office
Gordon Coleman, Acting Chief, Environmental Protection Division
Kevin Graves, San Francisco Bay RWQCB
Sum Arigala, San Francisco Bay RWQCB

ENVIRONMENTAL PROTECTION
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**GROUNDWATER MONITORING AND SAMPLING
REPORT**

**EMERYVILLE MAINTENANCE FACILITY
4525 HOLLIS STREET
EMERYVILLE, CALIFORNIA
FOURTH QUARTER 1995**

Prepared for

Pacific Gas and Electric Company
Technical and Ecological Services

January 1996

Prepared by

EMCON
1433 North Market Boulevard
Sacramento, California 95834

Project 0143-014.02

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1 INTRODUCTION

This report presents data collected during the fourth quarter 1995 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

Fourth quarter groundwater levels were measured at the PG&E Maintenance Facility in Emeryville, California, on December 15, 1995, 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 December data were used in constructing a groundwater contour map (see Figure 2). December water levels ranged from a low of 13.11 feet above mean sea level (MSL) in well ESE-1 to a high of 21.61 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 0.05 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 December 15, 1995, consistent with the protocol presented in Figure 3, and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) 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 diesel, and dielectric/transformer 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 fourth quarter 1995 monitoring event are summarized in Table 1.

The analytical results are discussed below. Fourth quarter 1995 and historical analytical data are summarized in Table 2.

BTEX 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 diesel range in well ESE-1 and ESE-4. Chromalab, Inc., compared the peak in the chromatogram from this event with the chromatogram for the reference standard supplied by PG&E. The chromatogram peak in ESE-1 was similar to that of transformer oil, and the concentration was estimated to be 440 micrograms per liter ($\mu\text{g/L}$). The chromatogram peak in ESE-4 was not similar to that of transformer oil; the concentration was estimated to be 57 $\mu\text{g/L}$. Transformer oil was not detected at or above the MRL in samples collected from ESE-2 or ESE-3. TEPH as diesel was not detected in the samples collected from

wells ESE-1 through 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 trip blank (TB-1) and one field blank (FB-1) and analyzing them for BTEX.

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

The laboratory QC consisted of checking adherence to holding times and evaluating method blanks and matrix spike (MS) and matrix spike duplicate (MSD) 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 and MSD recoveries are used to assess accuracy, and the relative percent difference (RPD) between the MS and MSD is used to assess the precision of the analytical results.

All analyses were done within the holding times specified by the USEPA. No compounds were detected in the daily method blanks. Recoveries of MS and MSD, and the RPDs between the duplicate 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.

EMCON

J. C. Isham
Geology manager
C.H.G. 007

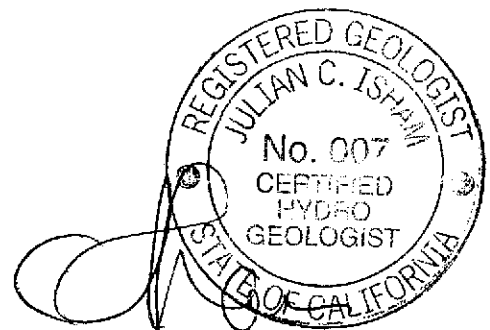


Table 1
Field Measurements
Fourth Quarter 1995 and Historical Data
Pacific Gas and Electric Company
Emeryville, California

Sample Designation	Date	Top-of-Casing		Groundwater		Measured Well		Electrical Conductivity (umhos/cm)
		Elevation (ft/MSL) ¹	Depth to Water (feet)	Elevation (ft/MSL)	Depth (feet)	pH (units)	Temperature (°F)	
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-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-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

Table 1
Field Measurements
Fourth Quarter 1995 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
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

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.

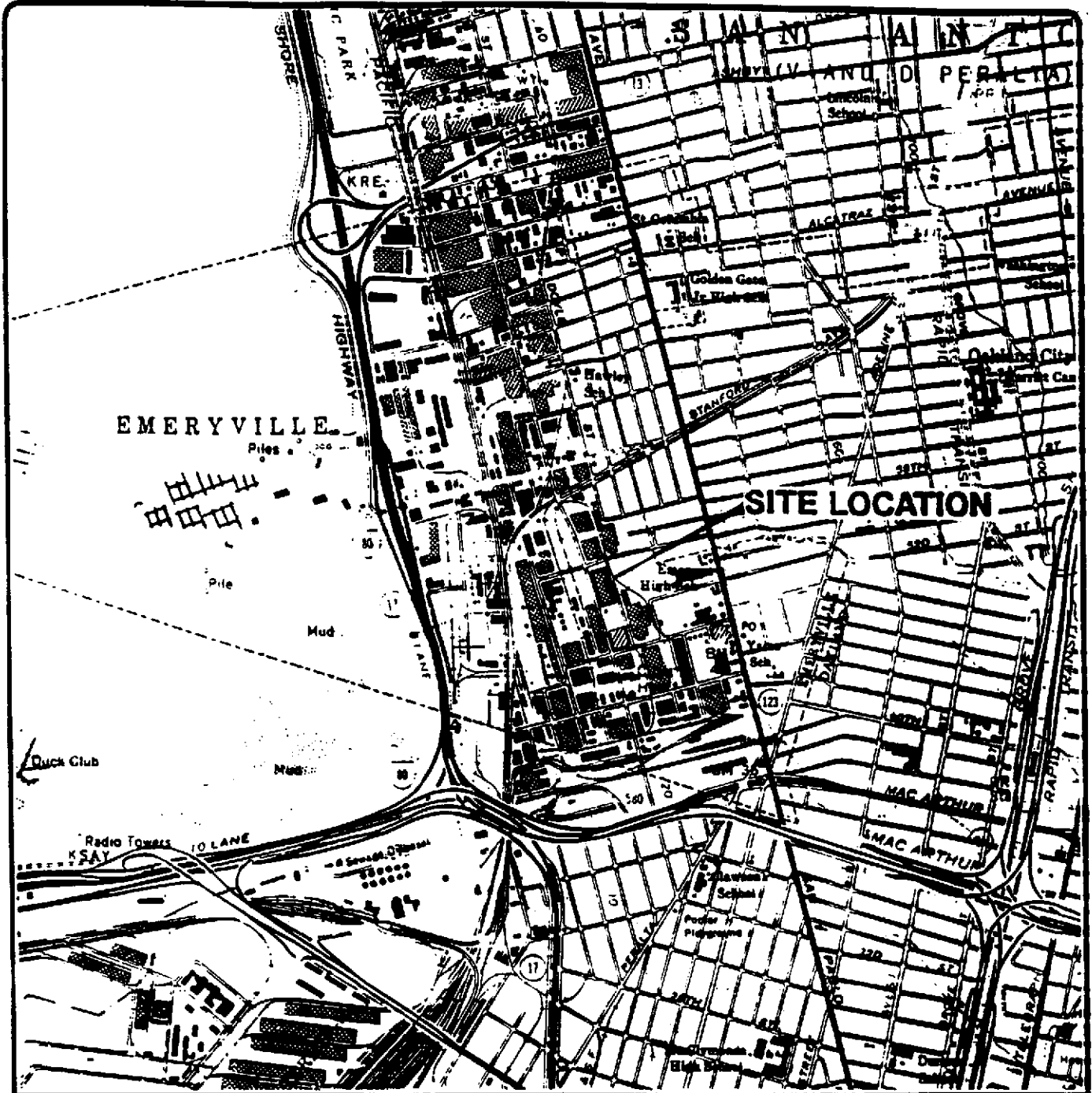
Table 2
Analytical Data
Fourth Quarter 1995 and Historical Data
Pacific Gas and Electric Company
Emeryville, California
(ug/l)¹

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH ²	Benzene	Toluene	Ethylbenzene	Xylenes
ESE-1	03/28/94	<1	340	<0.3	<0.3	<0.3	<0.3
ESE-1	12/12/94	<0.5	80	<0.5	<0.5	<0.5	<0.5
ESE-1	03/13/95	1.3	500 ³	<0.5	<0.5	<0.5	<0.5
ESE-1	06/15/95	<0.5	350 ³	<0.5	<0.5	<0.5	<0.5
ESE-1	09/15/95	<0.5	470 ³	<0.5	<0.5	<0.5	<0.5
ESE-1	12/15/95	<0.5	440 ³	<0.5	<0.5	<0.5	<0.5
ESE-2	03/28/94	<1	250	0.8	1.5	<0.3	2.7
ESE-2	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-2	03/13/95	<0.5	120 ⁴	<0.5	<0.5	<0.5	<0.5
ESE-2	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-2	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-2	12/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-3	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3
ESE-3	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-3	03/13/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-3	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-3	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-3	12/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-4	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3
ESE-4	12/12/94	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-4	03/13/95	<0.5	56 ⁴	<0.5	<0.5	<0.5	<0.5
ESE-4	06/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-4	09/15/95	<0.5	<50	<0.5	<0.5	<0.5	<0.5
ESE-4	12/15/95	<0.5	57 ⁴	<0.5	<0.5	<0.5	<0.5

Table 2
Analytical Data
Fourth Quarter 1995 and Historical Data
Pacific Gas and Electric Company
Emeryville, California
(ug/l)¹

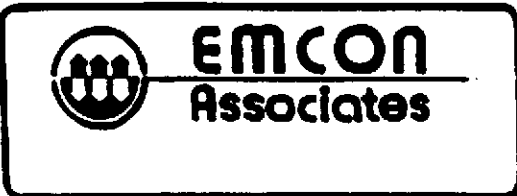
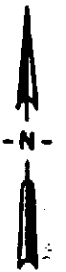
Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH ²	Benzene	Toluene	Ethylbenzene	Xylenes
Trip Blank	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3
Trip Blank	12/12/94	NA ⁵	NA	<0.5	<0.5	<0.5	<0.5
Trip Blank	03/13/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Trip Blank	06/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Trip Blank	09/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Trip Blank	12/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	03/28/94	NA	NA	NA	NA	NA	NA
Field Blank	12/12/94	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	03/13/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	06/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	09/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	12/15/95	NA	NA	<0.5	<0.5	<0.5	<0.5

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).

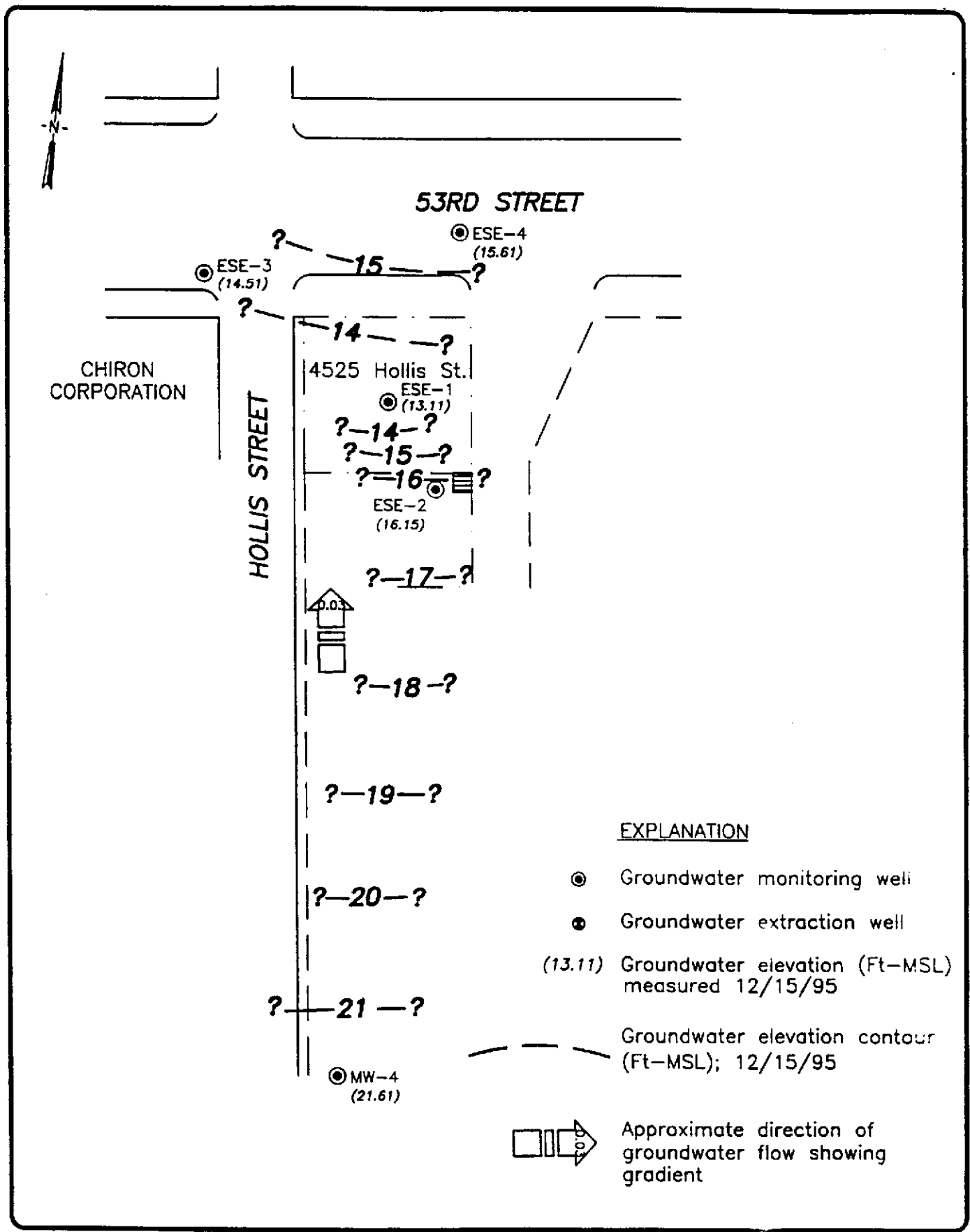
Scale : 0 2000 4000 Feet



PACIFIC GAS & ELECTRIC COMPANY
QUARTERLY MONITORING PROGRAM
EMERYVILLE, CALIFORNIA

SITE LOCATION

FIGURE
1
PROJECT NO.
143-014.02

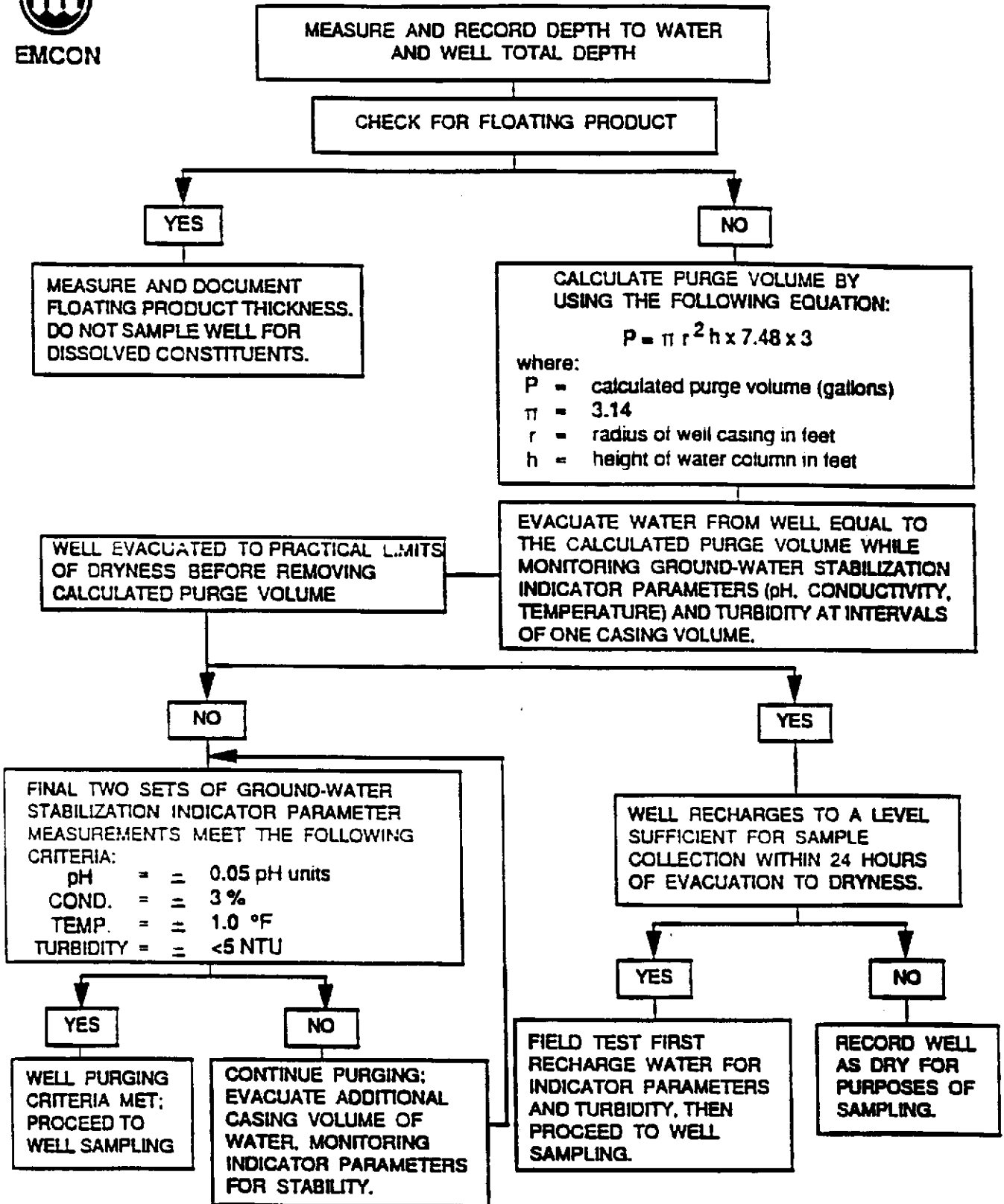


PACIFIC GAS & ELECTRIC COMPANY
 QUARTERLY MONITORING PROGRAM
 EMERYVILLE, CALIFORNIA
 GROUNDWATER CONTOUR MAP
 FOURTH QUARTER 1995

FIGURE
2
 PROJECT NO.
 0143-014.02



MONITORING WELL PURGING PROTOCOL



EMCON

MONITORING WELL PURGING PROTOCOL

FIGURE

3

APPENDIX A

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

[Handwritten Signature]
 Signature

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	03/13/95		8.26	8.26	ND	30.6	
	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	NA	33.8	
ESE-2	03/18/95		12.48	12.48	ND	34.3	
	06/15/95		13.85	13.85	ND	34.3	
	09/15/95		14.22	14.22	ND	34.3	
			11.65	11.65	NA	34.1	
ESE-3	03/13/95		9.45	9.45	ND	31.0	
	06/15/95		10.27	10.27	ND	31.0	
	09/15/95		10.87	10.87	ND	31.0	
			9.40	9.40	NA	31.0	
ESE-4	03/13/95		8.90	8.90	ND	31.6	
	06/15/95		9.81	9.81	ND	31.6	
	09/15/95		10.85	10.85	ND	31.6	
			8.72	8.72	NA	31.6	
MW-4	03/13/95		9.84	9.84	ND	14.7	
	06/15/95		10.74	10.74	ND	14.7	
	09/15/95		10.90	10.90	ND	14.7	
	✓		6.53	6.53	NA	14.7	



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 2043-014-002
 PURGED BY: M. Colletti
 SAMPLED BY: [Signature]

SAMPLE ID: ESF-1
 CLIENT NAME: FG&E
 LOCATION: Emergence, CA

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

CASING ELEVATION (feet/MSL): 112 VOLUME IN CASING (gal.): 3.79
 DEPTH TO WATER (feet): 10.55 CALCULATED PURGE (gal.): 15.18
 DEPTH OF WELL (feet): 33.8 ACTUAL PURGE VOL. (gal.): 15.5

DATE PURGED: 12-15-95 Start (2400 Hr) 0927 End (2400 Hr) 0943
 DATE SAMPLED: 12-15-95 Start (2400 Hr) 0950 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>0931</u>	<u>4.0</u>	<u>6.68</u>	<u>495</u>	<u>64.0</u>	<u>BRN</u>	<u>Hazy</u>
<u>0935</u>	<u>8.0</u>	<u>6.97</u>	<u>509</u>	<u>64.9</u>	<u> </u>	<u> </u>
<u>0939</u>	<u>12.0</u>	<u>7.03</u>	<u>506</u>	<u>64.9</u>	<u> </u>	<u> </u>
<u>0943</u>	<u>15.5</u>	<u>7.04</u>	<u>511</u>	<u>65.1</u>	<u>✓</u>	<u>✓</u>

D. O. (ppm): N/A ODOR: None N/A N/A

Field QC samples collected at this well: N/A Parameters field filtered at this well: N/A
 (COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

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 #: Slit cap

REMARKS: 1.11 sample taken

Meter Calibration: Date: 12/15/95 Time: 0925 Meter Serial #: 9017 Temperature °F: 63.6
 (EC 1000 1146 / 1000) (DI —) (pH 7.67 / —) (pH 10 1009 / —) (pH 4 397 / —)
 Location of previous calibration: _____

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



WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 2014-014-001

SAMPLE ID: ESF-2

PURGED BY: M. Collins

CLIENT NAME: PG&E

SAMPLED BY: ✓

LOCATION: Essexville, Mo, Co

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): 112 VOLUME IN CASING (gal.): 3.6
 DEPTH TO WATER (feet): 11.65 CALCULATED PURGE (gal.): 19.65
 DEPTH OF WELL (feet): 34.1 ACTUAL PURGE VOL (gal.): 15.0

DATE PURGED: 12-15-95 Start (2400 Hr) 1008 End (2400 Hr) 1023
 DATE SAMPLED: ✓ Start (2400 Hr) 1030 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	EC. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1012</u>	<u>3.5</u>	<u>7.19</u>	<u>586</u>	<u>64.0</u>	<u>BRN</u>	<u>HEAVY</u>
<u>1015</u>	<u>7.0</u>	<u>7.16</u>	<u>585</u>	<u>64.5</u>	<u> </u>	<u> </u>
<u>1019</u>	<u>11.0</u>	<u>7.17</u>	<u>588</u>	<u>64.6</u>	<u> </u>	<u> </u>
<u>1023</u>	<u>15.00</u>	<u>7.12</u>	<u>591</u>	<u>64.7</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): 2.11 ODOR: None N/A N/A
 (COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)
 Field QC samples collected at this well: 2/12 Parameters field filtered at this well: 2/12

PURGING EQUIPMENT

SAMPLING EQUIPMENT

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

WELL INTEGRITY: Good LOCK #: 1016

REMARKS: All samples taken

Meter Calibration: Date: 12-15-95 Time: _____ Meter Serial #: 9017 Temperature °F: _____
 (EC 1000 1) (DI 1) (pH 7 1) (pH 10 1) (pH 4 1)
 Location of previous calibration: ESF-11

Signature: [Signature] Reviewed By: KR Page 2 of 4



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 2-143-214-002

SAMPLE ID: FSE-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): 112 VOLUME IN CASING (gal.): 3.46

DEPTH TO WATER (feet): 4.80 CALCULATED PURGE (gal.): 13.84

DEPTH OF WELL (feet): 31.0 ACTUAL PURGE VOL. (gal.): 14.0

DATE PURGED: 12-15-95

Start (2400 Hr) 1221

End (2400 Hr) 1234

DATE SAMPLED: 12-15-95

Start (2400 Hr) 1245

End (2400 Hr) 1250

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1224</u>	<u>3.5</u>	<u>7.39</u>	<u>540</u>	<u>63.7</u>	<u>None</u>	<u>Heavy</u>
<u>1227</u>	<u>7.0</u>	<u>7.22</u>	<u>553</u>	<u>64.1</u>	<u>1</u>	<u>1</u>
<u>1231</u>	<u>10.5</u>	<u>7.25</u>	<u>555</u>	<u>64.0</u>	<u>1</u>	<u>1</u>
<u>1234</u>	<u>14.0</u>	<u>7.28</u>	<u>556</u>	<u>64.2</u>	<u>✓</u>	<u>✓</u>

D. O. (ppm): NA

ODOR: None

NA
(COBALT 0 - 500)

NA
(NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: FR-2 (1250)

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
- Bailer (Teflon®)
- Bailer (Stainless Steel)
- Submersible Pump
- Dedicated
- DOL Sampler
- Dipper
- Well Wizard™

Other: _____

WELL INTEGRITY: Good LOCK #: 3210

REMARKS: all samples taken
Watt Car parked on well on 12-15-95; unable to
sample on that day

Meter Calibration: Date: 12-15-95 Time: 12:15 Meter Serial #: 8017 Temperature °F: 62.6
(EC 1000 1041/1000) (DI) (pH 7.639/1000) (pH 10 1000/1000) (pH 4 100/1000)

Location of previous calibration: _____

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



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 20143-014002

SAMPLE ID: FSE-4

PURGED BY: A. Gallages

CLIENT NAME: PG&F

SAMPLED BY: [Signature]

LOCATION: Emeryville, CA

TYPE: Ground Water Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/VMSL): NR VOLUME IN CASING (gal.): 3.73

DEPTH TO WATER (feet): 8.72 CALCULATED PURGE (gal.): 14.94

DEPTH OF WELL (feet): 31.6 ACTUAL PURGE VOL. (gal.): 15.0

DATE PURGED: 12-15-95 Start (2400 Hr) 1054 End (2400 Hr) 1108

DATE SAMPLED: 12-15-95 Start (2400 Hr) 1115 End (2400 Hr) ---

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1057</u>	<u>3.5</u>	<u>7.08</u>	<u>556</u>	<u>64.1</u>	<u>B2M</u>	<u>Heavy</u>
<u>1100</u>	<u>7.0</u>	<u>7.07</u>	<u>556</u>	<u>64.4</u>	<u> </u>	<u> </u>
<u>1104</u>	<u>11.0</u>	<u>7.07</u>	<u>552</u>	<u>64.6</u>	<u> </u>	<u> </u>
<u>1108</u>	<u>15.0</u>	<u>7.05</u>	<u>55.5</u>	<u>64.6</u>	<u>✓</u>	<u>✓</u>

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

Field QC samples collected at this well: FR-1 (1125) 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 #: 3210

REMARKS: All samples taken

Meter Calibration: Date: 12/15/95 Time: _____ Meter Serial #: 9017 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: FSE-1

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

EMCON - Drum Inventory Record

20143-014.002

Project No

Emeryville, CA

Location

12-15-95

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	ESE-1 ESE-2 ESE-4	Groundwater	45.0 gallons	12-15-95
B	ESE-3	↓	15.0	12-19-95

Sketch locations of drums, include drum ID's

COMMENTS:

Number of Drums From This Event 2

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: **14-Dec-95**

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
- Deliver the samples to Chromalab when finished.

*Bring samples back to the office;
Chromalab will pick Monday 12-18*

CR

Authorization: _____

Project No. : **20143-014.002**

Task Code: _____

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

KR Coordinator: **K Reichelderfer**

Well Locks:

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 dielectric by EPA 3510/8015
FB-1 TB-1	NA NA	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**

JAN 15 1996

CHROMALAB, INC.

Environmental Services (SDB)

RECEIVED

JAN 15 1996

EMCON/SACRAMENTO

Submission #: 9512313

December 26, 1995

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E-EMERYVILLE
Received: December 21, 1995

Project#: 20143-014.002

re: 1 sample for BTEX analysis.
Method: EPA 602/8020

Sampled: December 19, 1995 Matrix: WATER
Run: 9874-2 Analyzed: December 22, 1995

Spl #	Sample ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
114688	ESE-3	N.D.	N.D.	N.D.	N.D.
Reporting Limits		0.5	0.5	0.5	0.5
Blank Result		N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)		104	101	103	47

June Zhao
June Zhao
Chemist

Marianne Alexander
Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 27, 1995

Submission #: 9512313

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E-EMERYVILLE
Received: December 21, 1995

Project#: 20143-014.002

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

SampleID: ESE-3

Sample #: 114688

Matrix: WATER

Extracted: December 26, 1995

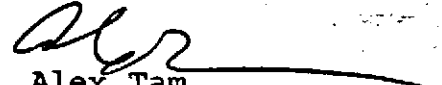
Sampled: December 19, 1995

Run: 9901-D

Analyzed: December 26, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	100
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.	115


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 29, 1995

Submission #: 9512313

EMCON ASSOCIATES, SACRAMENTO

Atten: J.C. Isham

Project: PG&E-EMERYVILLE

Project#: 20143-014.002

Received: December 21, 1995

re: 1 sample for Total Extractable Petroleum Hydrocarbons (TEPH) analysis.

Method: EPA 3510/8015M

Sampled: December 19, 1995

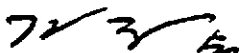
Matrix: WATER

Extracted: December 26, 1995

Run: 9891-K

Analyzed: December 26, 1995

Spl #	Sample ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
114688	ESE-3	N.D.	N.D.	N.D.
Reporting Limits		50	50	500
Blank Result		N.D.	N.D.	N.D.
Blank Spike Result (%)		--	80	--


Michael Verona
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

RECEIVED

JAN 02 1996

EMCON/SACRAMENTO

December 23, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

re: 5 samples for BTEX analysis.
Method: EPA 602/8020

Sampled: December 15, 1995 Matrix: WATER
Run: 9842-2 Analyzed: December 20, 1995

Spl #	Sample ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
114246	ESE-1	N.D.	N.D.	N.D.	N.D.
114247	ESE-2	N.D.	N.D.	N.D.	N.D.
114248	ESE-4	N.D.	N.D.	N.D.	N.D.
114249	FB-1	N.D.	N.D.	N.D.	N.D.
114250	TB-1	N.D.	N.D.	N.D.	N.D.

Reporting Limits	0.5	0.5	0.5	0.5
Blank Result	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	105	104	106	49

June Zhao

June Zhao
Chemist

Marianne Alexander
Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 26, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

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

SampleID: ESE-1

Sample #: 114246

Matrix: WATER

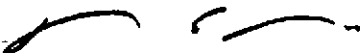
Extracted: December 21, 1995

Sampled: December 15, 1995

Run: 9879-D

Analyzed: December 22, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	--
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.	107


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 26, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

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

SampleID: ESE-2

Sample #: 114247

Matrix: WATER

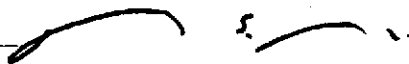
Extracted: December 21, 1995

Sampled: December 15, 1995

Run: 9879-D

Analyzed: December 22, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	--
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.	107


Dennis Mayugba
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 26, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

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

SampleID: ESE-4

Sample #: 114248

Matrix: WATER

Extracted: December 21, 1995

Sampled: December 15, 1995

Run: 9879-D

Analyzed: December 22, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
AROCLOR 1016	N.D.	0.5	N.D.	--
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.	107


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 J.C. ISHAM (EMCON-SAC) 916-928-3341
408-437-9526 12/26

1129
N:QC1201 DENNIS 10:39:05

CHROMALAB, INC.

Environmental Services (SDB)

January 18, 1996

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Revised from report sent previously.

Atten: J.C. Isham

Project: PG&E, EMERYVILLE

Project#: 20143-014.002

Received: December 18, 1995

re: 3 samples for Total Extractable Petroleum Hydrocarbons (TEPH) analysis.

Method: EPA 3510/8015M

Sampled: December 15, 1995

Matrix: WATER

Extracted: December 21, 1995

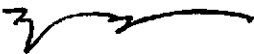
Run: 9852-K

Analyzed: December 21, 1995

Spl #	Sample ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
114246	ESE-1	N.D.	N.D.	N.D.
	For above sample: Sample profile is similiar to that of Transformer OIL reference standard supplied by the client for submission 9506206, conc. = 440ug/L, compared to Diesel calibration.			
114247	ESE-2	N.D.	N.D.	N.D.
114248	ESE-4	N.D.	N.D.	N.D.
	For above sample: Hydrocarbons in the Diesel range, conc. = 57ug/L.			

Reporting Limits
Blank Result
Blank Spike Result (%)

50	50	500
N.D.	N.D.	N.D.
--	73	--


Kayvan Kimyai
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 26, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

re: **Surrogate** report for 3 samples for Total Extractable Petroleum Hydrocarbons (TEPH) analysis.

Matrix: WATER
Lab Run#: 9852
Method: EPA 3510/8015M

Extracted: December 21, 1995
Analyzed: December 21, 1995

<u>Sample#</u>	<u>Client Sample ID</u>	<u>Surrogate</u>	<u>% Recovered</u>	<u>% Limits</u>
114246	ESE-1	O-TERPHENYL	98	60-120
114247	ESE-2	O-TERPHENYL	86	60-120
114248	ESE-4	O-TERPHENYL	86	60-120

<u>Sample#</u>	<u>QC Sample Type</u>	<u>Surrogate</u>	<u>% Recovered</u>	<u>% Limits</u>
114615	Method blank (MDB)	O-TERPHENYL	88	60-120
114616	Blank Spike (BSP)	O-TERPHENYL	82	60-120
114617	Blank Spike Duplicate (BSD)	O-TERPHENYL	93	60-120

CHROMALAB, INC.

Environmental Services (SDB)

December 26, 1995

Submission #: 9512249

EMCON ASSOCIATES, SAN JOSE

Atten: J.C. Isham

Project: PG&E, EMERYVILLE
Received: December 18, 1995

Project#: 20143-014.002

re: **Blank spike and duplicate** report for 3 samples for Total Extractable Petroleum Hydrocarbons (TEPH) analysis.

Matrix: WATER
Lab Run#: 9852
Method: EPA 3510/8015M

Extracted: December 21, 1995
Analyzed: December 21, 1995

Analyte	Spike Amt	% Dup		Control Limits	% RPD	RPD Lim
		Spike Rec	Spike Rec			
DIESEL	200 ug/L	73.0	86	60-130	16	25

Reagent spike sample#: 114616
Duplicate spike sample#: 114617



EMCON 313/114688

1921 Ringwood Avenue, San Jose, CA 95131 (408) 453-7300 FAX (408) 437-9526

Date 12-19-95 Page of

Project Name: Pacific Gas & Electric - Emeryville
 Project Number: 20143-014.002
 Project Manager: J.C. Isham

Company/Address: EMCON
 1433 North Market Boulevard
 Sacramento, CA 95834-1943
 Phone: (916) 928-3300
 (916) 928-3341 (fax)

Sampler's Signature:

					Analysis Requested										REMARKS						
					Number of Containers	BTXE by EPA 602	PCBs by EPA 8080	TEPH as dielectric by EPA 3510/8015													
Sample I.D.	Date	Time	LAB I.D.	Sample Matrix		HCl	NP	NP												Preservations	
ESE-3	12/19/95	1745		H ₂ O	6	X	X	X													

SUBN #: 9512313 REP: GC
 CLIENT: EMCON
 DUE: 12/29/95
 REF #: 25677

Relinquished By <i>[Signature]</i> Signature MANUEL COLLEGA Printed Name EMCON Firm 12/19/95 Date/Time	Received By <i>[Signature]</i> Signature Steve Horton Printed Name EMCON Firm 12/19/95 Date/Time	TURNAROUND REQUIREMENTS 24 hr _____ 48 hr <input checked="" type="checkbox"/> Standard Provide Verbal Preliminary Results <input checked="" type="checkbox"/> Provide FAX Preliminary Results Requested Report Date _____	REPORT REQUIREMENTS <input checked="" type="checkbox"/> I. Routine Report <input type="checkbox"/> II. Report (includes DUP, MS MSD, as required, may be charged as samples) <input type="checkbox"/> III. Data Validation Report (includes All Raw Data) RWQCB (MDLs/PQLs/TRACE#)	INVOICE INFORMATION P.O. # _____ Bill to: _____	SAMPLE RECEIPT Shipping VIA: _____ Shipping #: _____ Condition: _____ Lab No: _____
--	--	--	--	---	---

Relinquished By <i>[Signature]</i> Signature Steve Horton Printed Name EMCON Firm 12/21/95 Date/Time	Received By <i>[Signature]</i> Signature <i>[Signature]</i> Printed Name <i>[Signature]</i> Firm 12-21-95 MOC Date/Time	Special Instructions/Comments: Tier I QC Send results to J.C. Isham at Emcon-Sacramento (please FAX preliminary results) Use Dielectric standard previously supplied to Chromalab for TEPH Analysis
--	---	--

Relinquished by: M. Miral, Chromalab Rec'd by: Mimi Oak 12/21/95 1900