GROUNDWATER MONITORING AND SAMPLING REPORT

MAINTENANCE FACILITY

EMERYVILLE, CALIFORNIA

Prepared for

Pacific Gas and Electric Company
Technical and Ecological Services

October 19, 1995

Prepared by

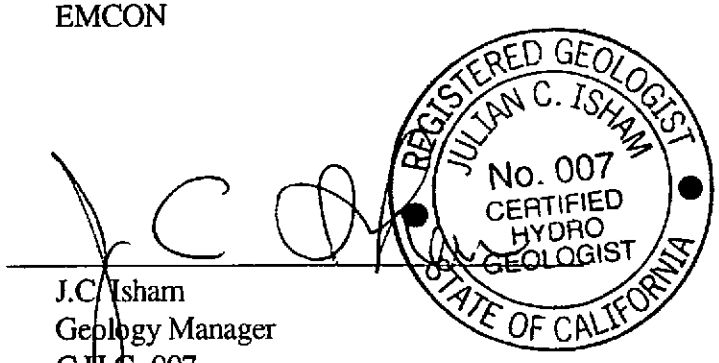
EMCON
1433 North Market Boulevard
Sacramento, California 95834

Project 0143-014.02

Groundwater Monitoring and Sampling Report
Maintenance Facility
Emeryville, California

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

EMCON



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Geology Manager
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1 INTRODUCTION

This report presents data collected during the third quarter 1995 monitoring period at the Pacific Gas and Electric Company (PG&E) Maintenance facility at 4525 Hollis Street in Emeryville, California (see Figure 1).

2 GROUNDWATER GRADIENT AND DIRECTION

Third quarter groundwater levels were measured at the PG&E Maintenance Facility in Emeryville, California, on September 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 September data were used in constructing a groundwater contour map (see Figure 2). September water levels ranged from a low of 13.04 feet above mean sea level (MSL) in well ESE-3 to a high of 17.24 feet above MSL in well MW-4. The groundwater gradient is 0.04 ft/ft to the northwest between monitoring wells ESE-2 and MW-4.

3 SAMPLING, ANALYSIS, AND MONITORING PROGRAM RESULTS

Groundwater samples were collected from wells ESE-1 through ESE-4 on September 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 third quarter 1995 monitoring event are summarized in Table 1.

The analytical results are discussed below. Third 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. 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 470 micrograms per liter. Transformer oil was not detected at or above the MRL in samples collected from ESE-2, ESE-3, or ESE-4. 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 method reporting limits 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.

Table 1
Field Measurements
Third 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-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-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-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-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

Table 1
Field Measurements
Third 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)
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

[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
Third 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-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-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-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
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

Table 2
Analytical Data
Third 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
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

[1] ug/l = micrigrams per liter.
[2] TEPH = total extractable petroleum hydrocarbons..
[3] Compounds similar to client-supplied transformer oil were found.
[4] Compounds in diesel range do not match laboratory standard for transformer oil.
[5] NA = not analyzed.

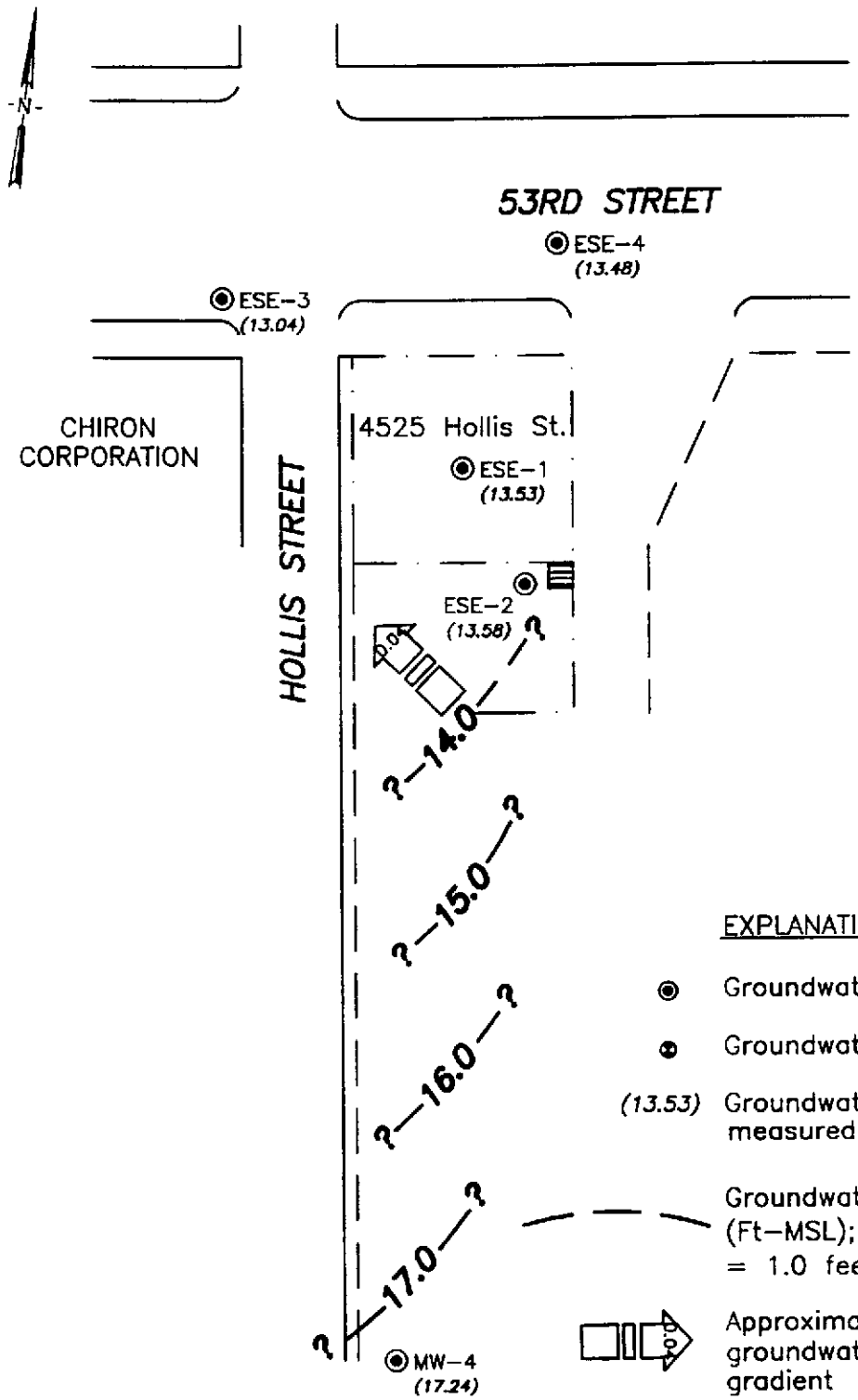
152753

EMCON Associates

PACIFIC GAS & ELECTRIC COMPANY
QUARTERLY MONITORING PROGRAM
EMERYVILLE, CALIFORNIA

SITE LOCATION

FIGURE
1
PROJECT NO.
143-014.02



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PACIFIC GAS & ELECTRIC COMPANY
QUARTERLY MONITORING PROGRAM
EMERYVILLE, CALIFORNIA

GROUNDWATER CONTOUR MAP
THIRD QUARTER 1995

FIGURE
2
PROJECT NO.
0143-014.02

MONITORING WELL PURGING PROTOCOL

EMCON

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

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.

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

NO

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

WELL PURGING CRITERIA MET; PROCEED TO WELL SAMPLING

NO

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

YES

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

YES

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

NO

RECORD WELL AS DRY FOR PURPOSES OF SAMPLING.

EMCON

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

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
	12/12/94		9.18	9.18	ND	30.6	
	03/13/95		8.26	8.26	ND	30.6	
	06/15/95		9.50	9.50	ND	30.6	
ESE-1	9/15/95		10.13	10.13	ND	30.6	Time: 0944 Lock: None
	12/12/94		13.05	13.05	ND	34.3	
	03/13/95		12.48	12.48	ND	34.3	
	06/15/95		13.85	13.85	ND	34.3	
ESE-2			14.22	14.22		34.3	Time: 0938 Lock: Dolphin
	12/12/94		10.62	10.62	ND	31.0	
	03/13/95		9.45	9.45	ND	31.0	
	06/15/95		10.27	10.27	ND	31.0	
ESE-3			10.87	10.87		31.0	Time: 0951 Lock: 3210
	12/12/94		9.63	9.63	ND	31.6	
	03/13/95		8.90	8.90	ND	31.6	
	06/15/95		9.81	9.81	ND	31.6	
ESE-4			10.85	10.85		31.6	Time: 0947 Lock: 3210
	03/13/95		9.84	9.84	ND	14.7	
	06/15/95		10.74	10.74	ND	14.7	
MW-4	✓		10.90	10.90	✓	14.7	Time: 0951 Lock: None

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0143-014-002 SAMPLE ID: FSE-1

PURGED BY: M. Gallegos CLIENT NAME: Phillips

SAMPLED BY: M. LOCATION: Emeryville, CA

TYPE: Ground Water Y Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 2.34

DEPTH TO WATER (feet): 10.17 CALCULATED PURGE (gal.): 13.36

DEPTH OF WELL (feet): 30.60 ACTUAL PURGE VOL. (gal.): 13.5

DATE PURGED: 9-15-95 Start (2400 Hr) 1026 End (2400 Hr) 1038

DATE SAMPLED: 9-15-95 Start (2400 Hr) 1050 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1029	3.5	6.70	501	65.2	Red	Heavy
1032	7.0	6.81	503	65.0	"	"
1035	10.5	6.85	504	65.1	"	"
1038	13.5	6.86	505	65.1	"	"

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

N/A (CCBALT 0 - 500) N/A (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: N/A

Parameters field filtered at this well: N/A

PURGING EQUIPMENT

___ 2" Bladder Pump ___ Bailer (Teflon®)

___ Centrifugal Pump Y Bailer (PVC)

___ Submersible Pump ___ Bailer (Stainless Steel)

___ Well Wizard™ ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump X Bailer (Teflon®)

___ DDL Sampler ___ Bailer (Stainless Steel)

___ Dipper ___ Submersible Pump

___ Well Wizard™ ___ Dedicated

Other: ___

WELL INTEGRITY: Good LOCK #: ___

REMARKS: all samples taken

Meter Calibration: Date: 9-15-95 Time: 1020 Meter Serial #: 5011 Temperature °F: 68.9

(EC 1000 1621 / 1602) (DI ___) (pH 7 7.01 / 7.00) (pH 10 10.05 / 10.00) (pH 4 4.01 / ___)

Location of previous calibration: ___

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

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0143-014.002 SAMPLE ID: ESE-3

PURGED BY: M. Gallegos CLIENT NAME: PG&E

SAMPLED BY: IV LOCATION: Emeryville, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 3.37

DEPTH TO WATER (feet): 14.22 CALCULATED PURGE (gal.): 13.11

DEPTH OF WELL (feet): 34.3 ACTUAL PURGE VOL. (gal.): 13.5

DATE PURGED: 9-15-95 Start (2400 Hr) 1101 End (2400 Hr) 1119

DATE SAMPLED: 9-15-95 Start (2400 Hr) 1125 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1110	3.5	6.80	632	65.9	Brwn	Heavy
1113	7.0	6.82	632	66.0		
1116	10.5	6.87	629	65.8		
1119	13.5	6.91	627	65.6	↓	↓

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

Color: N/A (CCBALT 0 - 500)

Turbidity: N/A (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: N/A

Parameters field filtered at this well: N/A

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: N/A

REMARKS: All Samples taken

Meter Calibration: Date: 9/15/95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

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

Location of previous calibration: ESE-1

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

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WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0143-014.002 SAMPLE ID: ESE-3

PURGED BY: M. Gallegos CLIENT NAME: Pace

SAMPLED BY: V LOCATION: Emeryville, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.25

DEPTH TO WATER (feet): 10.87 CALCULATED PURGE (gal.): 13.14

DEPTH OF WELL (feet): 31.0 ACTUAL PURGE VOL. (gal.): 13.5

DATE PURGED: 6-15-95 Start (2400 Hr) 1146 End (2400 Hr) 1157

DATE SAMPLED: V Start (2400 Hr) 1205 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1149	3.5	6.95	542	65.9	Gray	Heavy
1151	7.0	6.94	553	65.4		
1154	10.5	6.99	556	65.5		
1157	13.5	6.94	559	65.5	V	V

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

NR (COBALT 0 - 500)

NR (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 ___ Bailer (Teflon®)

___ Centrifugal Pump X Bailer (PVC)

___ Submersible Pump ___ Bailer (Stainless Steel)

___ Well Wizard™ ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

___ 2" Bladder Pump ✓ Bailer (Teflon®)

___ ODL Sampler ___ Bailer (Stainless Steel)

___ Dipper ___ Submersible Pump

___ Well Wizard™ ___ Dedicated

Other: ___

WELL INTEGRITY: Good LOCK #: 3210

REMARKS: All Samples taken

Meter Calibration: Date: 6/15/95 Time: ___ Meter Serial #: 3011 Temperature °F: ___

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

Location of previous calibration: ESE-2

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

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 0143-014.002 SAMPLE ID: FSE-4

PURGED BY: M. GRIEGOS CLIENT NAME: PG&E

SAMPLED BY: ✓ LOCATION: Emeryville, CA

TYPE: Ground Water ✓ Surface Water ___ Treatment Effluent ___ Other ___

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

CASING ELEVATION (feet/MSL):	N/R	VOLUME IN CASING (gal.):	3.38
DEPTH TO WATER (feet):	10.85	CALCULATED PURGE (gal.):	13.54
DEPTH OF WELL (feet):	31.6	ACTUAL PURGE VOL (gal.):	14.0

DATE PURGED: 9-15-95 Start (2400 Hr) 1218 End (2400 Hr) 1228

DATE SAMPLED: ✓ Start (2400 Hr) 1240 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1221	3.5	7.03	589	66.4	BRN	Heavy
1223	7.0	6.99	588	66.3		
1225	10.5	7.02	586	66.3		
1228	14.0	7.01	584	66.3	✓	✓

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

N/R (CCBALT 0 - 500) N/R (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: FR-1 (1250)

Parameters field filtered at this well: N/R

PURGING EQUIPMENT

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

SAMPLING EQUIPMENT

___ 2" Bladder Pump ✓ Bailer (Teflon®)
___ DDL Sampler ___ Bailer (Stainless Steel)
___ Dipper ___ Submersible Pump
___ Well Wizard™ ___ Dedicated
Other: ___

WELL INTEGRITY: Good LOCK #: 3210

REMARKS: All Samples taken

Meter Calibration: Date: 9-15-95 Time: ___ Meter Serial #: 5011 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

0143-014.002 Project No	Emeryville, CA Location	9-15-95 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
17	all wells	Groundwater	54.5 (gal.)	9-15-95

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-Sep-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

Authorization: _____

Project No. : **0143-014.002**
Task Code: _____

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

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	2.0	30.6	**PCBs by EPA 8080** **BTEX by EPA 602** **TEPH as dielectric by EPA 3510/8015**
ESE-2	2.0	34.3	
ESE-3	2.0	31.0	
ESE-4	2.0	31.6	
FB-1	NA	NA	**BTEX by EPA 602**
TB-1	NA	NA	
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)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham

Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995

re: 6 samples for BTEX analysis.
Method: EPA 602/8020

Sampled: September 15, 1995 *Matrix:* WATER
Run: 8561-1 *Analyzed:* September 21, 1995

Spl #	Sample ID	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
102882	ESE-1	N.D.	N.D.	N.D.	N.D.
102883	ESE-2	N.D.	N.D.	N.D.	N.D.
102884	ESE-3	N.D.	N.D.	N.D.	N.D.
102885	ESE-4	N.D.	N.D.	N.D.	N.D.
102886	FB-1	N.D.	N.D.	N.D.	N.D.
102887	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 (%)		97	97	96	97

Billy Thach
Chemist

Ali Khafrazi
Organic Manager

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

CHROMALAB, INC.

Environmental Services (SDB)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham

Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.
Method: MOD. EPA 3510/608

SampleID: **ESE-1**
Sample #: 102882 *Matrix:* WATER *Extracted:* September 18, 1995
Sampled: September 15, 1995 *Run:* 8510-D *Analyzed:* September 20, 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.	91

Dennis Mayugba
Chemist

Ali Kharrazi
Organic Manager

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CHROMALAB, INC.

Environmental Services (SDB)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham

Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.
Method: MOD. EPA 3510/608

SampleID: **ESE-2**
Sample #: 102883 *Matrix:* WATER *Extracted:* September 18, 1995
Sampled: September 15, 1995 *Run:* 8510-D *Analyzed:* September 20, 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.	91

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CHROMALAB, INC.

Environmental Services (SDB)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham

Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.
Method: MOD. EPA 3510/608

SampleID: **ESE-3**
Sample #: 102884 *Matrix:* WATER *Extracted:* September 18, 1995
Sampled: September 15, 1995 *Run:* 8510-D *Analyzed:* September 20, 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.	91

Dennis Mayugba
Chemist

Ali Kharrazi
Organic Manager

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham

Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.
Method: MOD. EPA 3510/608

SampleID: **ESE-4**
Sample #: 102885 *Matrix:* WATER *Extracted:* September 18, 1995
Sampled: September 15, 1995 *Run:* 8510-D *Analyzed:* September 20, 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.	91

Dennis Mayugba
Chemist

Ali Kharrazi
Organic Manager

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

September 22, 1995 *Submission #:* 9509173

EMCON ASSOCIATES

Atten: Orrin Childs/J.C. Isham
Project: PG&E EMERYVILLE *Project#:* 0143-014.002
Received: September 15, 1995
re: 4 samples for Total Extractable Petroleum Hydrocarbons (TEPH) analysis.
Method: EPA 3510/8015M
Sampled: September 15, 1995 *Matrix:* WATER *Extracted:* September 19, 1995
Run: 8535-K *Analyzed:* September 20, 1995

Spl #	Sample ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
102882	ESE-1	N.D.	N.D.	N.D.
	For above sample:	*Unknown hydrocarbons in the Diesel range, conc.= 470ug/L.*		
102883	ESE-2	N.D.	N.D.	N.D.
102884	ESE-3	N.D.	N.D.	N.D.
102885	ESE-4	N.D.	N.D.	N.D.
	Reporting Limits	50	50	500
	Blank Result	N.D.	N.D.	N.D.
	Blank Spike Result (%)	--	80	--

Kayvan Kimyai
Chemist

Ali Kharrazi
Organic Manager

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Federal ID #68-0140157

EMCON - San Jose

CHAIN OF CUSTODY /LABORATORY ANALYSIS REQUEST FORM

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

Date 9-15-95 Page ___ of ___

Project Name: Pacific Gas & Electric, Emeryville
Project Number: 0143-014.002
Project Manager: Orrin Childs/ J.C. Isham

Company/Address: EMCON
1921 Ringwood Avenue
San Jose, CA 95131
Phone: (408) 453-7300

Sampler's Signature:

SUBN #: 9509175 REF: 3C
CLIENT: EMCON
DUE: 09/22/95
REF #:23907

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	BTXE by EPA 602	PCBs by EPA 8080	TEPH as dielectric by EPA 3510/8015							REMARKS
						HCl	NP	NP							Preservations
ESE-1	9/15/95	1050		H_2O	6	X	X	X							
ESE-2		1128			6	X	X	X							
ESE-3		1205			6	X	X	X							
ESE-4		1240			6	X	X	X							
FB-1		1250			2	X									
TB-1	↓	—		↓	2	X									

Relinquished By	Received By
Signature	Signature
Printed Name: EMCON	Printed Name: CHROMALAB INC.
Firm	Firm
Date/Time: 9/15/95/1540	Date/Time

Relinquished By	Received By
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr
X Standard
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes DUP, MS MSD, as required, may be charged as samples)
___ 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: ___

Special Instructions/Comments:

Tier I QC

Send results to J.C. Isham Emcon-Sacramento

Use Dielectric standard previously supplied to Chromalab for TEPH Analysis