

**GROUNDWATER MONITORING AND SAMPLING  
REPORT**

**EMERYVILLE MAINTENANCE FACILITY  
4525 HOLLIS STREET  
EMERYVILLE, CALIFORNIA  
FIRST QUARTER 1998**

Prepared for

Pacific Gas and Electric Company  
Technical and Ecological Services

March, 1998

Prepared by

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Project 0143-014.03

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## 1 INTRODUCTION

This report presents data collected during the first quarter 1998 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 February 13, 1998, 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. Well ESE-4 was not measured as it was unable to be located due to construction in the street covering the well with mud and crushed rock. The February data were used in constructing a groundwater contour map (see Figure 2). February water levels ranged from a low of 13.05 feet above mean sea level (MSL) in well ESE-1 to a high of 18.39 feet above MSL in well MW-4. The groundwater gradient is 0.02 foot per foot (ft/ft) to the northwest between monitoring wells ESE-2 and MW-4, and 0.1 ft/ft to the north-northeast between monitoring wells ESE-2 and ESE-1.

## 3 SAMPLING, ANALYSIS, AND MONITORING PROGRAM RESULTS

Groundwater samples were collected from wells ESE-1 through ESE-3 on February 13, 1998, 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 mineral oil, by USEPA Method 3510/8015M. Well ESE-4 was not sampled due to construction in the street covering the well with mud and crushed rock. Temperature, pH, and electrical conductivity were measured in the field and recorded on the water sample field data sheets (see Appendix A). Field readings from the first quarter 1998 monitoring event are summarized in Table 1.

The analytical results are discussed below. First quarter 1998 and historical analytical data are summarized in Table 2. Certified analytical reports and chain-of-custody records are included in Appendix B.

BTEX, PCBs, and mineral oil were not detected at or above the method reporting limit (MRL) in any sample collected from ESE-1 through ESE-3. Quantification for mineral oil is based on the response factor of diesel.

#### 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.

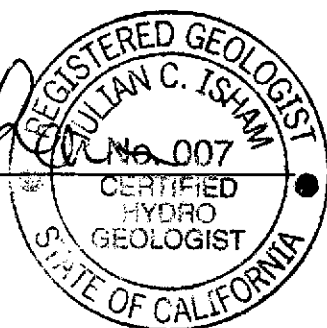
The field and laboratory QC results indicate that the analytical data are of acceptable quality.


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 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) <sup>1</sup>	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 <sup>3</sup>	NS <sup>4</sup>	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-1	06/14/96	23.66	12.68	10.98	33.6	6.93	67.4	517
ESE-1	10/07/96	23.66	12.56	11.10	34.0	6.94	73.3	494
ESE-1	12/04/96	23.66	12.67	10.99	34.2	6.80	64.4	507
ESE-1	02/14/97	23.66	12.62	11.04	34.2	6.96	67.5	509
ESE-1	05/16/97	23.66	13.05	10.61	34.2	7.07	69.0	534
ESE-1	08/22/97	23.66	12.60	11.06	34.0	6.32	67.4	597
ESE-1	11/14/97	23.66	12.32	11.34	33.7	7.35	65.9	600
ESE-1	02/13/98	23.66	10.61	13.05	33.7	7.21	61.8	621
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-2	06/14/96	27.80	13.94	13.86	34.1	7.08	67.1	607

**Table 1**  
**Field Measurements**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) <sup>1</sup>	Depth to Water (feet)	Groundwater Elevation (ft/MSL)	Measured Well Depth (feet)	pH (units)	Temperature (°F)	Electrical Conductivity (umhos/cm)
ESE-2	10/07/96	27.80	13.58	14.22	34.0	7.10	74.6	558
ESE-2	12/04/96	27.80	14.20	13.60	34.4	6.89	65.0	618
ESE-2	02/14/97	27.80	13.80	14.00	34.4	7.02	66.3	578
ESE-2	05/16/97	27.80	14.07	13.73	34.4	7.00	69.9	580
ESE-2	08/22/97	27.80	14.35	13.45	34.4	6.49	66.1	623
ESE-2	11/14/97	27.80	13.80	14.00	34.4	7.23	66.8	649
ESE-2	02/13/98	27.80	11.52	16.28	34.4	7.15	62.4	646
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
ESE-3	06/14/96	23.91	10.63	13.28	30.9	7.09	67.0	546
ESE-3	10/07/96	23.91	10.85	13.06	31.0	6.87	68.8	514
ESE-3	12/04/96 <sup>5</sup>	23.91	10.67	13.24	30.9	NM	NM	NM
ESE-3	02/14/97	23.91	10.75	13.16	30.9	7.01	65.9	506
ESE-3	05/16/97	23.91	10.99	12.92	31.0	7.40	69.9	539
ESE-3	08/22/97	23.91	10.65	13.26	31.0	6.86	66.6	563
ESE-3	11/14/97	23.91	10.50	13.41	31.0	7.47	65.8	583
ESE-3	02/13/98	23.91	9.32	14.59	31.0	7.04	63.7	602

**Table 1**  
**Field Measurements**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) <sup>1</sup>	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
ESE-4	06/14/96	24.33	10.23	14.10	31.5	7.04	66.0	591
ESE-4	10/07/96	24.33	10.44	13.89	31.5	6.89	70.1	541
ESE-4	12/04/96 <sup>5</sup>	24.33	10.31	14.02	31.5	NM	NM	NM
ESE-4	02/14/97	24.33	10.12	14.21	31.5	7.11	65.3	511
ESE-4	05/16/97	24.33	10.56	13.77	31.6	7.40	69.1	559
ESE-4	08/22/97 <sup>5</sup>	24.33	NM	NM	NM	NM	NM	NM
ESE-4	11/14/97	24.33	10.20	14.13	31.5	7.52	65.5	576
ESE-4	02/13/98 <sup>6</sup>	24.33	NM	NM	NM	NM	NM	NM
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
MW-4	06/14/96	28.14	10.78	17.36	14.7	NS	NS	NS
MW-4	10/07/96	28.14	10.81	17.33	14.7	NS	NS	NS
MW-4	12/04/96	28.14	10.44	17.70	14.7	NS	NS	NS
MW-4	02/14/97	28.14	10.41	17.73	14.7	NS	NS	NS

**Table 1**  
**Field Measurements**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**

Sample Designation	Date	Top-of-Casing Elevation (ft/MSL) <sup>1</sup>	Depth to Water (feet)	Groundwater Elevation (ft/MSL)	Measured Well Depth (feet)	pH (units)	Temperature (°F)	Electrical Conductivity (umhos/cm)
MW-4	05/16/97	28.14	10.78	17.36	14.7	NS	NS	NS
MW-4	08/22/97	28.14	10.55	17.59	14.7	NS	NS	NS
MW-4	11/14/97	28.14	10.15	17.99	14.7	NS	NS	NS
MW-4	02/13/98	28.14	9.75	18.39	14.7	NS	NS	NS

<sup>1</sup> ft/MSL = feet relative to mean sea level.  
<sup>2</sup> umhos/cm = micromhos per centimeter at 77°F.  
<sup>3</sup> NM = not measured.  
<sup>4</sup> NS = not sampled.  
<sup>5</sup> Wells not sampled due to construction in the area resulting in heavy traffic.  
<sup>6</sup> Unable to locate well. Well area covered with mud and crushed rock from road construction.



**Table 2**  
**Analytical Data**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**  
**(ug/l)<sup>1</sup>**

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH <sup>2</sup>	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 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	06/15/95	<0.5	350 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	09/15/95	<0.5	470 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	12/15/95	<0.5	440 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	03/15/96	<0.5	277	<0.5	<0.5	<0.5	<0.5
ESE-1	06/14/96	<0.5	<500	<0.5	<0.5	<0.5	<0.5
ESE-1	10/07/96	<0.5	110 <sup>4</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	12/04/96	<0.5	430 <sup>4</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	02/14/97	<0.5	1,600	<0.5	<0.5	<0.5	<0.5
ESE-1	05/16/97	<0.5	510 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	08/22/97	<0.5	740 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	11/14/97	<0.5	410 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-1	02/13/98	<0.5	<100 <sup>8</sup>	<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 <sup>5</sup>	<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-2	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5
ESE-2	06/14/96	<0.5	<500	<0.5	<0.5	<0.5	<0.5
ESE-2	10/07/96	<0.5	150 <sup>4</sup>	<0.5	<0.5	<0.5	<0.5

**Table 2**  
**Analytical Data**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**  
**(ug/l)<sup>1</sup>**

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH <sup>2</sup>	Benzene	Toluene	Ethylbenzene	Xylenes
ESE-2	12/04/96	<0.5	380 <sup>4</sup>	<0.5	<0.5	<0.5	<0.5
ESE-2	02/14/97	<0.5	510	<0.5	<0.5	<0.5	<0.5
ESE-2	05/16/97	<0.5	190 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-2	08/22/97	<0.5	<100 <sup>8</sup>	<0.5	<0.5	0.51	<0.5
ESE-2	11/14/97	<0.52	<100 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-2	02/13/98	<0.5	<100 <sup>8</sup>	<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-3	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5
ESE-3	06/14/96	<0.5	<500	<0.5	<0.5	<0.5	<0.5
ESE-3	10/07/96	<0.5	<100	<0.5	<0.5	<0.5	<0.5
ESE-3	12/04/96 <sup>6</sup>	NA <sup>7</sup>	NA	NA	NA	NA	NA
ESE-3	02/14/97	<0.5	<100	<0.5	<0.5	<0.5	<0.5
ESE-3	05/16/97	<0.5	<110 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-3	08/22/97	<0.5	<100 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-3	11/14/97	<0.5	<100 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-3	02/13/98	<0.5	<100 <sup>8</sup>	<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 <sup>5</sup>	<0.5	<0.5	<0.5	<0.5

**Table 2**  
**Analytical Data**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**  
**(ug/l)<sup>1</sup>**

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH <sup>2</sup>	Benzene	Toluene	Ethylbenzene	Xylenes
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 <sup>5</sup>	<0.5	<0.5	<0.5	<0.5
ESE-4	03/15/96	<0.5	<59	<0.5	<0.5	<0.5	<0.5
ESE-4	06/14/96	<0.5	<500	<0.5	<0.5	<0.5	<0.5
ESE-4	10/07/96	<0.5	<100	<0.5	<0.5	<0.5	<0.5
ESE-4	12/04/96 <sup>6</sup>	NA	NA	NA	NA	NA	NA
ESE-4	02/14/97	<0.5	270 <sup>4</sup>	<0.5	<0.5	<0.5	<0.5
ESE-4	05/16/97	<0.5	<110 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-4	08/22/97 <sup>6</sup>	NA	NA	NA	NA	NA	NA
ESE-4	11/14/97	<0.5	<100 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5
ESE-4	02/13/98 <sup>9</sup>	NA	NA	NA	NA	NA	NA
Trip Blank	03/28/94	<1	<50	<0.3	<0.3	<0.3	<0.3
Trip Blank	12/12/94	NA	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

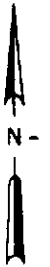
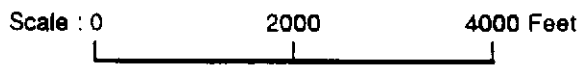
**Table 2**  
**Analytical Data**  
**First Quarter 1998 and Historical Data**  
**Pacific Gas and Electric Company**  
**Emeryville, California**  
**(ug/l)<sup>1</sup>**

Sample Designation	Sampling Date	Polychlorinated Biphenols	TEPH <sup>2</sup>	Benzene	Toluene	Ethylbenzene	Xylenes
Field Blank	03/15/96	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	06/14/96	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	10/07/96	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	12/04/96	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	02/14/97	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	05/16/97	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	08/22/97	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	11/14/97	NA	NA	<0.5	<0.5	<0.5	<0.5
Field Blank	02/13/98	NA	NA	<0.5	<0.5	<0.5	<0.5

ug/l = micrograms per liter.  
<sup>2</sup> TEPH = total extractable petroleum hydrocarbons.  
<sup>3</sup> Compounds similar to client-supplied transformer oil were found.  
<sup>4</sup> Hydrocarbon reported does not match the pattern of laboratory standard for mineral oil.  
<sup>5</sup> Compounds in diesel range not similar to laboratory standard for transformer oil.  
<sup>6</sup> Wells not sampled due to construction in the area resulting in heavy traffic.  
<sup>7</sup> NA = not analyzed.  
<sup>8</sup> Quantitation for mineral oil is based on the response factor of diesel.  
<sup>9</sup> Unable to locate well. Well area covered with mud and crushed rock from road construction.



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

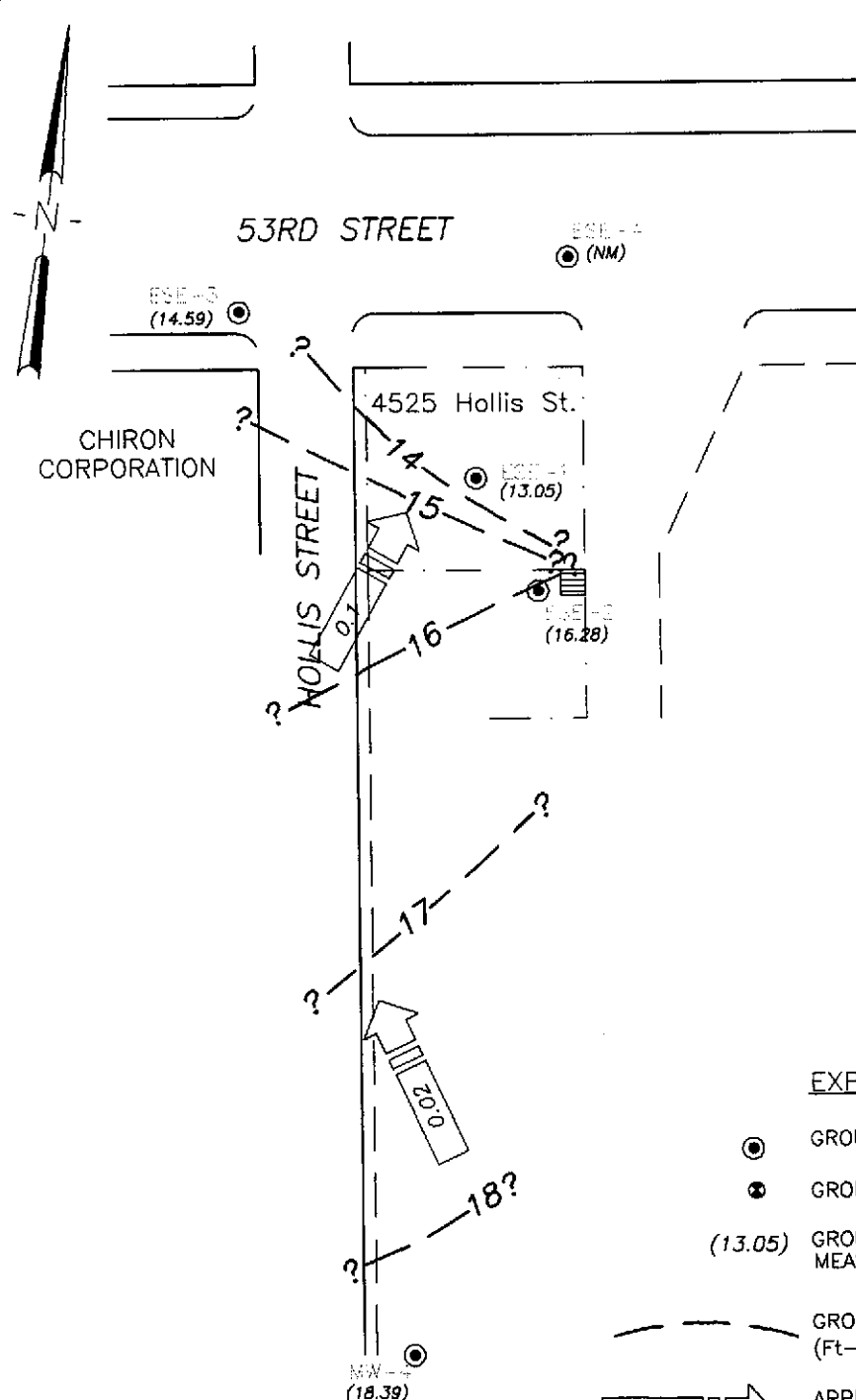


PACIFIC GAS & ELECTRIC COMPANY  
 QUARTERLY MONITORING PROGRAM  
 EMERYVILLE, CALIFORNIA

---

SITE LOCATION

FIGURE  
**1**  
 PROJECT NO.  
 143-014.02



**EXPLANATION**

- GROUNDWATER MONITORING WELL
- ⊗ GROUNDWATER EXTRACTION WELL
- (13.05) GROUNDWATER ELEVATION (Ft-MSL) MEASURED FEBRUARY 13, 1998
- - - GROUNDWATER ELEVATION CONTOUR (Ft-MSL); FEBRUARY 13, 1998
- 0.02 → APPROXIMATE DIRECTION OF GROUNDWATER FLOW SHOWING GRADIENT
- (NM) NOT MEASURED

SCALE: 0 40 80 FEET

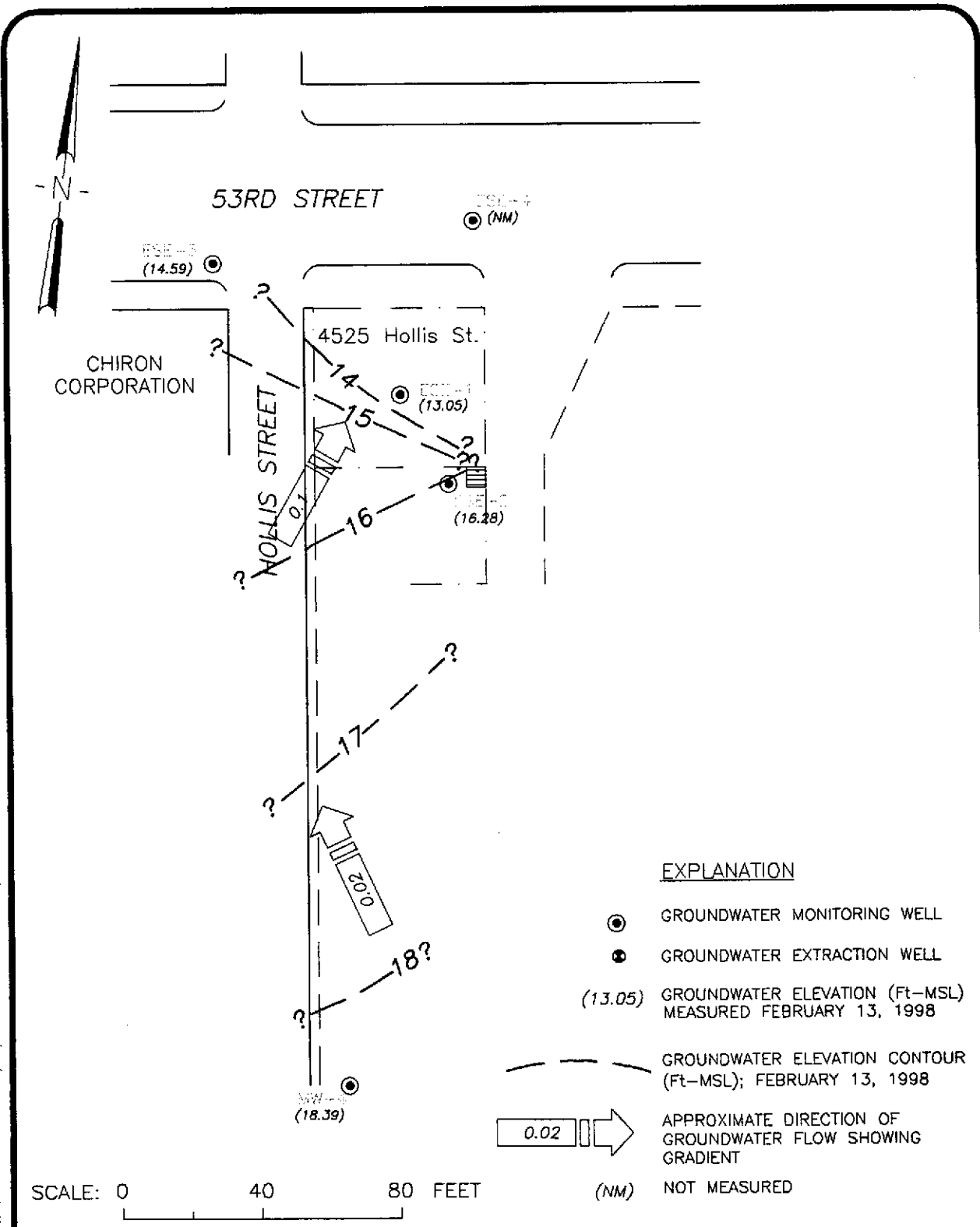
EA-SACRAMENTO/CAD: I:\DWG\VP&E\014\GW.M.dwg Xrefs: <NONE> Date: 3/11/98 Time: 12:08 PM Operator: AVK Scale: 1 = 40.00 DimScale: 1 = 40.00



DATE 3/11/98  
 DWN AVK  
 APP \_\_\_\_\_  
 REV \_\_\_\_\_  
 PROJECT NO. 20143-014.003

**FIGURE 2**  
 PACIFIC GAS AND ELECTRIC  
 EMERYVILLE MAINTENANCE FACILITY  
 EMERYVILLE, CALIFORNIA  
**GROUNDWATER CONTOUR MAP**  
**FIRST QUARTER 1998**

EA-SACRAMENTO1/CAD: I:\DWG\PG&E\01-HG\WUM.dwg Xrefs: <NONE>  
 Scale: 1 = 40.00 DirScale: 1 = 40.00 Date: 3/11/98 Time: 12:08 PM Operator: AVK



DATE 3/11/98  
 DWN AVK  
 APP \_\_\_\_\_  
 REV \_\_\_\_\_  
 PROJECT NO.  
 20143-014.003

**FIGURE 2**  
 PACIFIC GAS AND ELECTRIC  
 EMERYVILLE MAINTENANCE FACILITY  
 EMERYVILLE, CALIFORNIA  
**GROUNDWATER CONTOUR MAP**  
**FIRST QUARTER 1998**



# 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)  
 $\pi$  = 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

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

YES

NO

YES

NO

WELL PURGING CRITERIA MET; PROCEED TO WELL SAMPLING

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

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

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

*Mike Rosen*  
 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	05/16/97		13.05	13.05	ND	34.2	
	08/22/97		12.60	12.60	ND	34.0	
	11/14/97		12.32	12.32	ND	33.7	
	2-13-98		10.61	10.61	ND	33.7	Time: 0843 Lock: None
ESE-2	05/16/97		14.07	14.07	ND	34.4	
	08/22/97		14.35	14.35	ND	34.4	
	11/14/97		13.80	13.80	ND	34.4	
			11.52	11.52	NO	34.4	Time: 0903 Lock: Dolphin T.O. C. Pressure UNDER PRESSURE
ESE-3	05/16/97		10.99	10.99	ND	31.0	
	08/22/97		10.65	10.65	ND	31.0	
	11/14/97		10.50	10.50	ND	31.0	
			9.32	9.32	ND	31.0	Time: 0905 Lock: 3210
ESE-4	05/16/97		10.56	10.56	ND	31.6	
	08/22/97		NR	NR	NR	NR	
	11/14/97		10.20	10.20	ND	31.5	
			UNABLE	to locate well in the STREET!			
MW-4	05/16/97		10.78	10.78	ND	14.7	
	08/22/97		10.55	10.55	ND	14.7	
	11/14/97		10.15	10.15	ND	14.7	
			9.75	9.75	ND	14.7	Time: 0900 Lock: None

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97



OWT

PROJECT NO: 20143-014,000  
PURGED BY: M. ROSS  
SAMPLED BY: M. ROSS

SAMPLE ID: ESE-1  
CLIENT NAME: Pete Emeryville  
LOCATION: Emeryville, CA

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other   
.653

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.76  
DEPTH OF WELL (feet): 33.7 CALCULATED PURGE (gal.): 15.07  
DEPTH OF WATER (feet): 10.61 ACTUAL PURGE VOL. (gal.): 15.5

DATE PURGED: 2-13-98 END PURGE: 0957  
DATE SAMPLED: 2-13-98 SAMPLING TIME: 1005

TIME (2400 HR)	VOLUME (gal)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>0938</u>	<u>4.0</u>	<u>6.81</u>	<u>716</u>	<u>60.8</u>	<u>BRN</u>	<u>Heavy</u>
<u>0945</u>	<u>8.0</u>	<u>7.11</u>	<u>610</u>	<u>61.8</u>	<u>BRN</u>	<u>Heavy</u>
<u>0951</u>	<u>12.0</u>	<u>7.19</u>	<u>611</u>	<u>61.4</u>	<u>BRN</u>	<u>Heavy</u>
<u>0957</u>	<u>15.5</u>	<u>7.21</u>	<u>621</u>	<u>61.8</u>	<u>BRN</u>	<u>Heavy</u>

OTHER: NR ODOR: NONE NR NR  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard™  Dedicated  
Other: \_\_\_\_\_

### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard™  Dedicated  
Other: \_\_\_\_\_

WELL INTEGRITY: OK LOCK: PR

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

pH, E.C., Temp. Meter Calibration Date: 2-13-98 Time: 0925 Meter Serial No.: 600112  
E.C. 1000 993, 1000 pH 716, 700 pH 10 997, 1000 pH 4 805, 400  
Temperature °F 64.0  
SIGNATURE: M. Ross REVIEWED BY: PR PAGE 1 OF 4

# WATER SAMPLE FIELD DATA SHEET

Rev 1/97



**OWT**

PROJECT NO 20143-014.002  
 PURGED BY M. Ross  
 SAMPLED BY M. Ross

SAMPLE ID ESE-2  
 CLIENT NAME PG&E Emeryville  
 LOCATION Emeryville, Ca

TYPE: Groundwater  Surface Water  Leachate  Other   
 CASING DIAMETER (inches): 2  3  4  4.5  6  Other

0.653

CASING ELEVATION (feet/MSL): <u>NR</u>	VOLUME IN CASING (gal.): <u>30.73</u>
DEPTH OF WELL (feet): <u>34.4</u>	CALCULATED PURGE (gal.): <u>14.93</u>
DEPTH OF WATER (feet): <u>11.53</u>	ACTUAL PURGE VOL. (gal.): <u>15.0</u>

DATE PURGED: 2-12-98 END PURGE: 1044  
 DATE SAMPLED: 2-13-98 SAMPLING TIME: 1055

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1027</u>	<u>4.0</u>	<u>7.30</u>	<u>672</u>	<u>62.1</u>	<u>Light Blue</u>	<u>MUD</u>
<u>1033</u>	<u>8.0</u>	<u>7.08</u>	<u>658</u>	<u>62.9</u>	<u>"</u>	<u>"</u>
<u>1039</u>	<u>11.5</u>	<u>7.09</u>	<u>653</u>	<u>62.3</u>	<u>"</u>	<u>"</u>
<u>1044</u>	<u>15.0</u>	<u>7.15</u>	<u>646</u>	<u>62.4</u>	<u>"</u>	<u>"</u>

OTHER: NR ODOR: NONE (COBALT 0-100) NR (NTU 0-200) NR

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): FB-1 @ 1100

**PURGING EQUIPMENT**

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard™  Dedicated  
 Other: \_\_\_\_\_

**SAMPLING EQUIPMENT**

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard™  Dedicated  
 Other: \_\_\_\_\_

WELL INTEGRITY: OK LOCK: PG&E

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

pH, E.C., Temp. Meter Calibration Date: 2-13-98 Time: 0925 Meter Serial No.: 60112  
 E.C. 1000 \_\_\_\_\_ pH 7 \_\_\_\_\_ pH 10 \_\_\_\_\_ pH 4 \_\_\_\_\_

Temperature °F \_\_\_\_\_ See ESE-1  
 SIGNATURE: [Signature] REVIEWED BY: SA PAGE 7 OF 4

# WATER SAMPLE FIELD DATA SHEET

Rev 1/97



**OWT**

PROJECT NO 20143-014,002  
 PURGED BY M. ROSS  
 SAMPLED BY M. ROSS

SAMPLE ID ESE-3  
 CLIENT NAME PG&E Emeryville  
 LOCATION Emeryville, Ca

TYPE Groundwater  Surface Water  Leachate  Other   
 CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 3.54  
 DEPTH OF WELL (feet): 31.0 CALCULATED PURGE (gal.): 14.17  
 DEPTH OF WATER (feet): 9.29 ACTUAL PURGE VOL. (gal.): 14.5

DATE PURGED: 2-13-98 END PURGE: 1148  
 DATE SAMPLED: 2-13-98 SAMPLING TIME: 1205

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1132</u>	<u>4.0</u>	<u>7.16</u>	<u>605</u>	<u>62.9</u>	<u>Light Brown</u>	<u>TRACE</u>
<u>1136</u>	<u>8.0</u>	<u>7.06</u>	<u>584</u>	<u>63.5</u>	<u>"</u>	<u>"</u>
<u>1142</u>	<u>11.5</u>	<u>7.05</u>	<u>596</u>	<u>63.6</u>	<u>"</u>	<u>"</u>
<u>1148</u>	<u>14.5</u>	<u>7.04</u>	<u>602</u>	<u>63.7</u>	<u>"</u>	<u>"</u>

OTHER: NR ODOR: None NR NR  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

**PURGING EQUIPMENT**

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard™  Dedicated  
 Other: \_\_\_\_\_

**SAMPLING EQUIPMENT**

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard™  Dedicated  
 Other: \_\_\_\_\_

WELL INTEGRITY: OK LOCK: PG&E

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

pH, E.C., Temp. Meter Calibration Date: 2-13-98 Time: 0925 Meter Serial No.: 600112  
 E.C. 1000 1 pH 7 1 pH 10 1 pH 4 1

Temperature °F \_\_\_\_\_  
 SIGNATURE: M. Ross REVIEWED BY: SA PAGE 3 OF 4

# WATER SAMPLE FIELD DATA SHEET

Rev 1/97



OWT

PROJECT NO 20143-014.008  
PURGED BY NR  
SAMPLED BY NR

SAMPLE ID ESE-4  
CLIENT NAME PG+E Emeryville  
LOCATION Emeryville, CA

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): NR  
DEPTH OF WELL (feet): NR CALCULATED PURGE (gal.): NR  
DEPTH OF WATER (feet): NR ACTUAL PURGE VOL. (gal.): NR

DATE PURGED: NR END PURGE: NR  
DATE SAMPLED: NR SAMPLING TIME: NR

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>UNABLE TO purge or sample well!</u>						

OTHER: NR ODOR: NR NR NR  
(COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)	<input type="checkbox"/> 2" Bladder Pump	<input type="checkbox"/> Bailer (Teflon)
<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Bailer (PVC)	<input type="checkbox"/> Bomb 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: NR LOCK: NR

REMARKS: UNABLE TO purge or sample well! Well is covered with a layer of dirt and crushed rock from a major construction project located across the street from the well. Needs a metal detector or well resurveyed to locate.

pH, E.C., Temp. Meter Calibration Date: NR Time: \_\_\_\_\_ Meter Serial No.: \_\_\_\_\_  
E.C. 1000 / \_\_\_\_\_ pH 7 / \_\_\_\_\_ pH 10 / \_\_\_\_\_ pH 4 / \_\_\_\_\_

Temperature °F \_\_\_\_\_  
SIGNATURE: [Signature] REVIEWED BY: [Signature] PAGE 4 OF 4

**EMCON - Drum Inventory Record**

20143-014.002

**Project No**

Emeryville, CA

**Location**

2/13/98

**Date**

PG&E- Emeryville

**Client**

Mike Ross

**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
Ⓐ	ESE-1, ESE-2, ESE-3	H <sub>2</sub> O	45.0 gal	2-13-98

Sketch locations of drums, include drum ID's

COMMENTS:

---



---



---

Number of Drums From This Event

---

Total Number of Drums At Site

---

**EMCON  
GROUNDWATER SAMPLING AND ANALYSIS REQUEST FORM**

PROJECT NAME: **PG&E-Emeryville**  
 4525 Hollis Street, Emeryville, CA  
 DATE SUBMITTED: **13-Feb-98**

**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 samples to Chromalabs upon completion.

Authorization: \_\_\_\_\_

Project No. : 20143-014.002

Send Results To: J. C. Isham

Coordinator: Steve Horton

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	<b>PCBs by EPA 8080 BTEX by EPA 602 TEPH as mineral oil by EPA 3510/8015</b>
FB-1	NA	NA	<b>BTEX by EPA 602</b>
MW-4	2.0	14.7	<b>Water Level &amp; Total Depth Only</b>

**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 (SOS)

Submission #: 9802225

February 24, 1998

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project#: 20143-014.002

Project: PGE EMERYVILLE  
Received: February 13, 1998

re: One sample for TEPH analysis.  
Method: EPA 8015M

Client Sample ID: ESE-1

Spl#: 170876

Matrix: WATER

Extracted: February 18, 1998

Sampled: February 13, 1998

Run#:11224

Analyzed: February 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
MINERAL OIL	N.D.	100	N.D.	77.2	1

Note: Quantitation for the above Analyte is based on the response factor of Diesel.

  
Bruce Havlik  
Chemist

  
Carolyn House  
Chemist

# CHROMALAB, INC.

Environmental Services (SDB)

February 24, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project#: 20143-014.002

Project: EGE EMERYVILLE  
 Received: February 13, 1998

re: One sample for TEPH analysis.  
 Method: EPA 8015M

Client Sample ID: ESE-2

Spl#: 170877

Matrix: WATER

Extracted: February 18, 1998

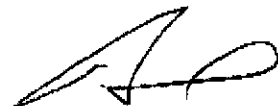
Sampled: February 13, 1998

Run#: 11224

Analyzed: February 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
MINERAL OIL	N.D.	100	N.D.	77.2	1

Note: Quantitation for the above Analyte is based on the response factor of Diesel.



Bruce Havlik  
 Chemist



Carolyn House  
 Chemist

# CHROMALAB, INC.

Environmental Services (SDB)

February 24, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project#: 20143-014.002

Project: PGE EMERYVILLE  
 Received: February 13, 1998

re: One sample for TEPH analysis.  
 Method: EPA 8015M

Client Sample ID: ESE-3

Spl#: 170878

Matrix: WATER

Extracted: February 18, 1998

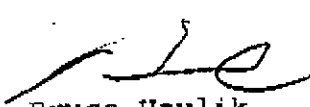
Sampled: February 13, 1998


Run#: 11224

Analyzed: February 23, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
MINERAL OIL	N.D.	100	N.D.	77.2	1

Note: Quantitation for the above Analyte is based on the response factor of Diesel.

  
 Bruce Havlik  
 Chemist

  
 Carolyn House  
 Chemist

# CHROMALAB, INC.

Environmental Services (SDB)

February 23, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
 Received: February 13, 1998

Project#: 20143-014.002

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.  
 Method: SW846 Method 8080A Sept 1994

Client Sample ID: ESE-1

Spl#: 170876

Matrix: WATER


Extracted: February 17, 1998

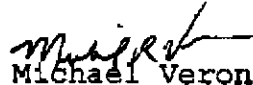
Sampled: February 13, 1998

Run#: 11200

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE SPIKE (%)	DILUTION FACTOR
AROCLOR 1016	N.D.	0.50	N.D.	110	1
AROCLOR 1221	N.D.	0.50	N.D.	--	1
AROCLOR 1232	N.D.	0.50	N.D.	--	1
AROCLOR 1242	N.D.	0.50	N.D.	--	1
AROCLOR 1248	N.D.	0.50	N.D.	--	1
AROCLOR 1254	N.D.	0.50	N.D.	--	1
AROCLOR 1260	N.D.	0.50	N.D.	111	1

  
 Alex Tam  
 Chemist

  
 Michael Verona  
 Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

February 23, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
 Received: February 13, 1998

Project#: 20143-014.002

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.  
 Method: SW846 Method 8080A Sept 1994

Client Sample ID: ESE-2

Spl#: 170877

Matrix: WATER


Extracted: February 17, 1998

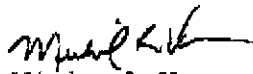
Sampled: February 13, 1998

Run#: 11200

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
AROCLOR 1016	N.D.	0.50	N.D.	110	1
AROCLOR 1221	N.D.	0.50	N.D.	--	1
AROCLOR 1232	N.D.	0.50	N.D.	--	1
AROCLOR 1242	N.D.	0.50	N.D.	--	1
AROCLOR 1248	N.D.	0.50	N.D.	--	1
AROCLOR 1254	N.D.	0.50	N.D.	--	1
AROCLOR 1260	N.D.	0.50	N.D.	111	1

  
 Alex Tam  
 Chemist

  
 Michael Verona  
 Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

February 23, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
 Received: February 13, 1998

Project#: 20143-014.002

re: One sample for Polychlorinated Biphenyls (PCBs) analysis.  
 Method: SW846 Method 8080A Sept 1994

Client Sample ID: ESE-3

Spl#: 170878

Matrix: WATER


Extracted: February 17, 1998

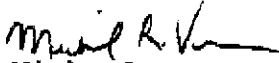
Sampled: February 13, 1998

Run#: 11200

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
AROCLOR 1016	N.D.	0.50	N.D.	110	1
AROCLOR 1221	N.D.	0.50	N.D.	--	1
AROCLOR 1232	N.D.	0.50	N.D.	--	1
AROCLOR 1242	N.D.	0.50	N.D.	--	1
AROCLOR 1248	N.D.	0.50	N.D.	--	1
AROCLOR 1254	N.D.	0.50	N.D.	--	1
AROCLOR 1260	N.D.	0.50	N.D.	111	1

  
 Alex Tam  
 Chemist

  
 Michael Verona  
 Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
Received: February 13, 1998

Project#: 20143-014.002

re: One sample for BTEX analysis.  
Method: SW646 8020A Nov 1990

Client Sample ID: BSE-1

Spl#: 170876


Matrix: WATER

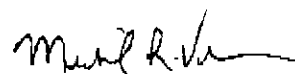
Sampled: February 13, 1998

Run#: 11215

Analyzed: February 17, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	106	1
ETHYL BENZENE	N.D.	0.50	N.D.	101	1
XYLENES	N.D.	0.50	N.D.	101	1

  
Vincent Vancil  
Chemist

  
Michael Verona  
Operations Manager



# CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
Received: February 13, 1998

Project#: 20143-014.002

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

Client Sample ID: ESE-2

Spl#: 170877

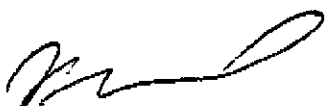
Matrix: WATER

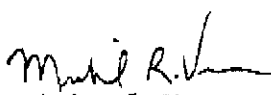
Sampled: February 13, 1998

Run#: 11215

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	106	1
ETHYL BENZENE	N.D.	0.50	N.D.	101	1
XYLENES	N.D.	0.50	N.D.	101	1

  
Vincent Vancil  
Chemist

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDS)

February 19, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
Received: February 13, 1998

Project#: 20143-014.002

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

Client Sample ID: ESE-3

Spl#: 170878

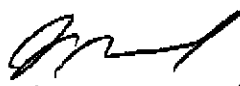
Matrix: WATER

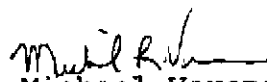
Sampled: February 13, 1998

Run#: 11215

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	106	1
ETHYL BENZENE	N.D.	0.50	N.D.	101	1
XYLENES	N.D.	0.50	N.D.	101	1

  
Vincent Vancil  
Chemist

  
Michael Verona  
Operations Manager

# CHROMALAB, INC.

Environmental Services (SDB)

February 19, 1998

Submission #: 9802225

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE EMERYVILLE  
 Received: February 13, 1998

Project#: 20143-014.002

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

Client Sample ID: FB-1

Spl#: 170879


Matrix: WATER

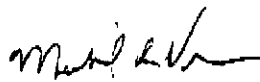
Sampled: February 13, 1998

Run#: 11215

Analyzed: February 18, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	106	1
ETHYL BENZENE	N.D.	0.50	N.D.	101	1
XYLENES	N.D.	0.50	N.D.	101	1

  
 Vincent Vancil  
 Chemist

  
 Michael Verona  
 Operations Manager



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

Laboratory: Chromalab

**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:** *Mike Ross*

					Analysis Requested										REMARKS											
Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	BTEX	EPA 602	PCBs	EPA 8080	TEPH as mineral oil by EPA 3510/8015																
						HCl	NP	NP																		
ESE-1	2-13-98	1005		H2O	5	X	X	X																		
ESE-2	2-13-98	1055		H2O	5	X	X	X																		
ESE-3	2-13-98	1205		H2O	5	X	X	X																		
ESE-4				H2O	5	X	X	X																		No samples taken. WELL UNDER MUD.
FB-1	2-13-98	1100		H2O	2	X																				

**Relinquished By:** *Mike Ross*  
**Signature:** \_\_\_\_\_  
**Printed Name:** Mike Ross  
**Firm:** EMCON  
**Date/Time:** 2-13-98 1415

**Received By:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_  
**Printed Name:** Chromalab  
**Firm:** Chromalab  
**Date/Time:** \_\_\_\_\_

**TURNAROUND REQUIREMENTS**  
 24 hr  48 hr  
 Standard  
 Provide Verbal Preliminary Results  
 Provide FAX Preliminary Results  
 Requested Report Date: \_\_\_\_\_

**REPORT REQUIREMENTS**  
 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: \_\_\_\_\_

**Relinquished By:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_  
**Printed Name:** \_\_\_\_\_  
**Firm:** \_\_\_\_\_  
**Date/Time:** \_\_\_\_\_

**Received By:** *Mike Ross*  
**Signature:** \_\_\_\_\_  
**Printed Name:** \_\_\_\_\_  
**Firm:** \_\_\_\_\_  
**Date/Time:** 2/13/98 1415

**Special Instructions/Comments:**  
 Please fax chain-of-custody to Fred Flint prior to conducting analysis; please fax analytical results to Fred Flint after conducting analysis (fax # 510-866-5681)

Send results to J.C. Isham at Emcon-Sacramento (please FAX preliminary results)  
 Use Dielectric standard previously supplied to Chromalab for TEPH Analysis

**Chromalab Inc.**  
 1220 Quarry Lane  
 Pleasanton, CA 94566  
 (510) 484-1919