

**GROUNDWATER MONITORING AND SAMPLING
ANNUAL REPORT**

**OAKLAND POWER PLANT
50 MARTIN LUTHER KING JR. WAY
OAKLAND, CALIFORNIA
First Quarter 1998**

Prepared for
Pacific Gas and Electric Company
May 1998

Prepared by
EMCON
1433 North Market Boulevard
Sacramento, California 95834

Project 0143-117.01

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1 INTRODUCTION

This report presents data collected during the first quarter 1998 monitoring period at Pacific Gas and Electric Company (PG&E) Oakland Power Plant, 50 Martin Luther King, Jr. Way, Oakland, California (see Figure 1).

2 GROUNDWATER GRADIENT AND DIRECTION

First quarter groundwater levels were measured at PG&E's Oakland Power Plant on February 24, 1998, using an electronic sounding device, and recorded on the monitoring well data form included in Appendix A. The groundwater elevations are summarized in the table. The February data were used in constructing a groundwater contour map (see Figure 2). February water levels ranged from a low of 10.19 feet above mean sea level (MSL) in well MW-1-3 to a high of 10.51 feet above MSL in well MW-2-3. The estimated groundwater gradient is approximately 0.005 foot per foot (ft/ft) to the north-northwest.

3 SAMPLING, ANALYSIS, AND MONITORING PROGRAM RESULTS

Groundwater samples were collected from wells MW-1-2, MW-1-3, and MW-2-3 on February 24, 1998, consistent with the protocol presented in Figure 3. Samples collected from wells MW-1-2, MW-1-3, and MW-2-3 were analyzed for diesel by the U.S. Environmental Protection Agency (USEPA) Method 3510/8015M. Based on a letter dated January 11, 1996, from Hazardous Materials Specialist, Jennifer Eberle, with the Alameda County Environmental Health Services Department, the analysis for BTEX was eliminated from well MW-2-3, as well as from the field blank. The analysis for BTEX in wells MW-1-2 and MW-1-3 was eliminated in the second quarter of 1994. Field readings from the first quarter 1998 (annual sampling event) monitoring event are recorded on the water sample field data sheets (see Appendix A) and summarized in the table.

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

An unknown hydrocarbon in the diesel range was detected in samples collected from wells MW-1-2, MW-1-3, and MW-2-3 at concentrations of 430, 160, and 140 micrograms per liter ($\mu\text{g/L}$), respectively.

4 FIELD AND 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 and analyzing it for diesel.

The field blank was collected to assess the effect of field environments on the analytical results and to identify false positives. No parameters were detected above their respective method reporting limits in the field 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) results.

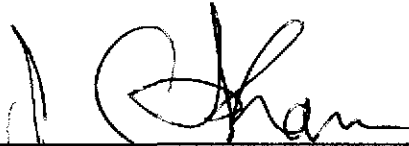
Holding times are established by the USEPA and refer to the maximum time allowed to pass between sample collection and analysis by the laboratory. These limits assist in determining data validity. The method blank results are used to assess the effect of the laboratory environment on the analytical results.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

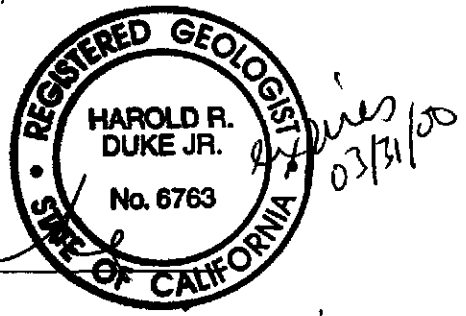
EMCON



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



Harold R. Duke
Project Manager
R.G. 6763



**Table
Oakland Power Plant
First Quarter 1998 Monitoring Data**

Sample Designation	Sampling Date	Top of Casing (ft/MSL)	Depth to Groundwater		TPHD ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Total Xylenes ug/L
			Groundwater (ft)	Elevation (ft/MSL)					
MW-1-2	06/22/93	13.95	5.05	8.90	1,500 ¹	<0.5	<0.5	<0.5	<0.5
MW-1-2	09/22/93		5.91	8.04	240	<0.5	<0.5	<0.5	<0.5
Dup	09/22/93		---	---	---	<0.5	<0.5	<0.5	<0.5
MW-1-2	12/28/93		4.77	9.18	200	<0.5	<0.5	<0.5	<0.5
Dup	12/28/93		---	---	---	<0.5	<0.5	<0.5	<0.5
MW-1-2	04/11/94		4.66	9.29	---	<0.5	<0.5	<0.5	<0.5
Dup	04/11/94		---	---	---	<0.5	<0.5	<0.5	<0.5
MW-1-2	04/20/94		4.86	9.09	600	---	---	---	---
MW-1-2	06/29/94		5.18	8.77	520	---	---	---	---
MW-1-2	10/07/94		4.55	9.40	590	---	---	---	---
MW-1-2	01/03/95		4.11	9.84	650 ¹	---	---	---	---
MW-1-2	03/24/95		3.57	10.38	740 ¹	---	---	---	---
MW-1-2	06/30/95		4.69	9.26	540	---	---	---	---
MW-1-2	10/12/95		5.35	8.60	230 ¹	---	---	---	---
MW-1-2	01/18/96		4.19	9.76	600 ¹	---	---	---	---
MW-1-2	02/19/96		4.03	9.92	670 ¹	---	---	---	---
MW-1-2	02/28/97		4.73	9.22	1,800 ¹	---	---	---	---
MW-1-2	02/24/98		3.50	10.45	430 ¹	---	---	---	---
MW-1-3	06/22/93	14.01	5.15	8.86	160 ¹	<0.5	<0.5	<0.5	<0.5
MW-1-3	09/22/93		5.57	8.44	430	<0.5	<0.5	<0.5	<0.5
MW-1-3	12/28/93		5.13	8.88	<50	<0.5	<0.5	<0.5	<0.5
MW-1-3	04/11/94		5.01	9.00	---	<0.5	<0.5	<0.5	<0.5
MW-1-3	04/20/94		5.09	8.92	<50	---	---	---	---
MW-1-3	06/29/94		5.30	8.71	280 ¹	---	---	---	---
MW-1-3	10/07/94		5.69	8.32	160 ¹	---	---	---	---
MW-1-3	01/03/95		4.62	9.39	210 ¹	---	---	---	---

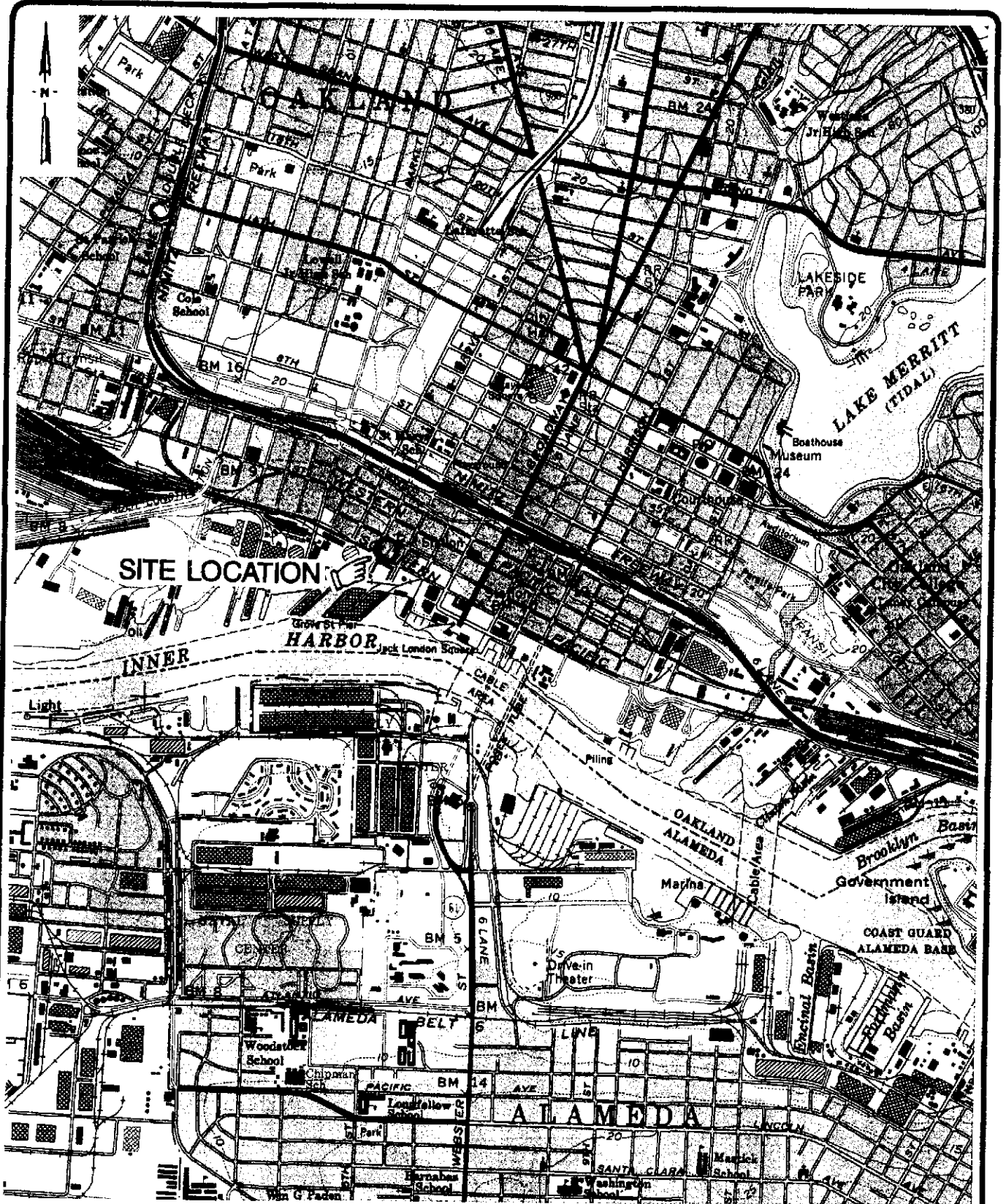
**Table
Oakland Power Plant
First Quarter 1998 Monitoring Data**

Sample Designation	Sampling Date	Top of Casing (ft/MSL)	Depth to Groundwater		TPHD ug/L	Benzene ug/L	Toluene ug/L	Ethyl-benzene ug/L	Total Xylenes ug/L
			Groundwater (ft)	Elevation (ft/MSL)					
MW-1-3	06/30/95		4.89	9.12	231 ¹	---	---	---	---
MW-1-3	10/12/95		5.43	8.58	190 ¹	---	---	---	---
MW-1-3	01/18/96		4.72	9.29	240 ¹	---	---	---	---
MW-1-3	02/19/96		4.41	9.60	290 ¹	---	---	---	---
MW-1-3	02/28/97		4.90	9.11	1,500 ¹	---	---	---	---
MW-1-3	02/24/98		3.82	10.19	160 ¹	---	---	---	---
MW-2-3	06/22/93	13.91	5.00	8.91	560 ²	3	<0.5	<0.5	<0.5
MW-2-3	09/22/93		5.50	8.41	460	<0.5	<0.5	<0.5	<0.5
MW-2-3	12/28/93		4.74	9.17	<50 ³	<0.5	<0.5	<0.5	<0.5
MW-2-3	04/11/94		5.62	8.29	---	<0.5	<0.5	<0.5	<0.5
MW-2-3	04/20/94		5.83	8.08	<50	---	---	---	---
MW-2-3	06/29/94		5.14	8.77	920 ^{1,4}	<0.5	<0.5	<0.5	<0.5
MW-2-3	10/07/94		5.50	8.41	<50	16	13	6	24
MW-2-3	01/03/95		4.11	9.80	190 ¹	<0.5	<0.5	<0.5	<0.5
MW-2-3	03/24/95		3.47	10.44	110 ¹	<0.5	<0.5	<0.5	<0.5
Dup	03/24/95		---	---	---	<0.5	<0.5	<0.5	<0.5
MW-2-3	06/30/95		4.66	9.25	187 ¹	<0.5	<0.5	<0.5	<0.5
Dup	06/30/95		---	---	---	<0.5	<0.5	<0.5	<0.5
MW-2-3	10/12/95		5.30	8.61	290 ¹	<0.5	<0.5	<0.5	<0.5
MW-2-3	01/18/96		4.15	9.76	370 ¹	---	---	---	---
MW-2-3	02/19/96		3.97	9.94	320 ¹	---	---	---	---
MW-2-3	02/28/97		4.70	9.21	610 ¹	---	---	---	---
MW-2-3	02/24/98		3.40	10.51	140 ¹	---	---	---	---
Travel Blank	09/22/93				---	<0.5	<0.5	<0.5	<0.5
Travel Blank	12/28/93				---	<0.5	<0.5	<0.5	<0.5
Travel Blank	04/11/94				---	<0.5	<0.5	<0.5	<0.5
Travel Blank	01/03/95				---	<0.5	<0.5	<0.5	<0.5

**Table
Oakland Power Plant
First Quarter 1998 Monitoring Data**

Sample Designation	Sampling Date	Top of Casing (ft/MSL)	Depth to Groundwater (ft)	Groundwater Elevation (ft/MSL)	TPHD ug/L	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Total Xylenes ug/L
Travel Blank	03/24/95				---	<0.5	0.5	<0.5	<0.5
Travel Blank	06/30/95				---	<0.5	<0.5	<0.5	<0.5
Travel Blank	10/12/95				---	<0.5	<0.5	<0.5	<0.5
Trip Blank	01/18/96				<50	---	---	---	---
Field Blank	02/19/96				<50	---	---	---	---
Field Blank	02/28/97				<50	---	---	---	---
Field Blank	02/24/98				<50	---	---	---	---

TPHD = Total petroleum hydrocarbons as diesel.
ft/MSL = Feet with respect to mean sea level.
ug/L = Micrograms per liter.
Dup = Blind duplicate.
1 Unknown hydrocarbon in diesel range quantified as diesel.
2 Motor oil at a concentration of 3.1 milligrams per liter detected in sample.
3 Motor oil at a concentration of 2.9 milligrams per liter detected in sample.
4 Unknown hydrocarbon in motor oil range was also observed in sample.
-- = Not analyzed.



Base map from U.S. Geologic Survey 7.5 minute series
 quadrangle: Oakland West, California

SCALE: 0 2000 FEET

10/96



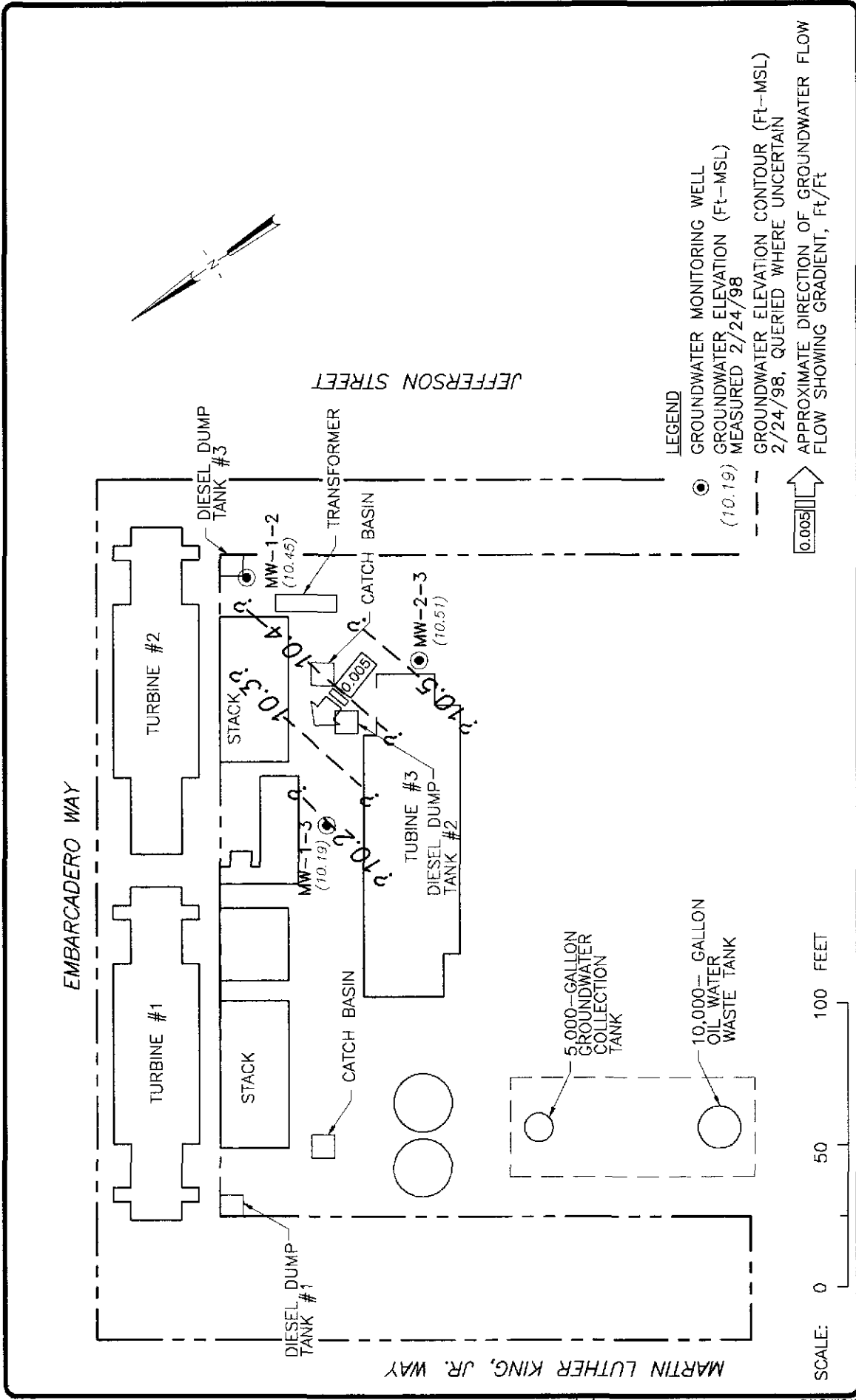
PACIFIC GAS AND ELECTRIC COMPANY
 OAKLAND POWER PLANT
 50 MARTIN LUTHER KING, JR. WAY
 OAKLAND, CALIFORNIA

SITE LOCATION MAP

FIGURE

1

PROJECT NO.
 0143-117.01



N:\DWG\FG&E\117GCM.DWG DATE-LAST-REVISED: 4/1/98

FIGURE
2
PROJECT NO.
0143-117.01

PACIFIC GAS & ELECTRIC
OAKLAND POWER PLANT
OAKLAND, CALIFORNIA

**GROUNDWATER CONTOUR MAP
FIRST QUARTER 1998**





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MONITORING WELL PURGING PROTOCOL

MEASURE AND RECORD DEPTH TO WATER AND WELL TOTAL DEPTH

CHECK FOR FLOATING PRODUCT

YES

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

NO

CALCULATE PURGE VOLUME BY USING THE FOLLOWING EQUATION:

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

where:

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

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 = \pm 0.05 pH units
- COND. = \pm 3%
- TEMP. = \pm 1.0 °F
- TURBIDITY = \pm <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.



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MONITORING WELL PURGING PROTOCOL

FIGURE

3

M. J. [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					
MW-1-2	10/12/95		5.35	5.35	ND	13.5	Time: 1018 Lock: 0464
	02/19/96		4.03	4.03	ND	13.5	
	02/28/97		4.73	4.73	ND	13.6	
	2/24/98		3.50	3.50	ND	13.5	
MW-1-3	10/12/95		5.43	5.43	ND	7.2	Time: 1015 Lock: NONE
	02/19/96		4.41	4.41	ND	7.1	
	02/28/97		4.90	4.90	ND	7.2	
			3.82	3.82	ND	7.1	
MW-2-3	10/12/95		5.30	5.30	ND	13.3	Time: 1012 Lock: 3204
	02/19/96		3.97	3.97	ND	13.3	
	02/28/97		4.70	4.70	ND	13.4	
			3.40	3.40	ND	13.3	



EMCON ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 20143-117-001
 PURGED BY: M. Ballagos
 SAMPLED BY: ↓

SAMPLE ID: MW-1-2
 CLIENT NAME: PG+E - Oakland P.P.
 LOCATION: OAKLAND 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.): 6.53
 DEPTH TO WATER (feet): 3.50 CALCULATED PURGE (gal.): 19.6
 DEPTH OF WELL (feet): 13.5 ACTUAL PURGE VOL (gal.): 12.0

DATE PURGED: 2-24-98 Start (2400 Hr) 1043 End (2400 Hr) 1046
 DATE SAMPLED: ↓ Start (2400 Hr) 1055 End (2400 Hr) ---

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1044</u>	<u>7.0</u>	<u>5.74</u>	<u>1821</u>	<u>59.3</u>	<u>Clear</u>	<u>Light</u>
	<u>73.5</u>					
	<u>20.0 in case</u>	<u>dry</u>	<u>at 12.0</u>	<u>yellowish</u>		
<u>1055</u>	<u>rechecked</u>	<u>6.72</u>	<u>1451</u>	<u>56.7</u>	<u>↓</u>	<u>↓</u>
D. O. (ppm):	<u>NR</u>	ODOR:	<u>modern</u>		<u>NR</u>	<u>NR</u>
					(COBALT 0 - 500)	(NTU 0 - 200 or 0 - 1000)
Field QC samples collected at this well:	<u>NR</u>		Parameters field filtered at this well:	<u>NR</u>		

PURGING EQUIPMENT

- 2" Bladder Pump
- Centrifugal Pump
- Submersible Pump
- Well Wizard™
- Other: _____

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 83490

REMARKS: all samples taken

Meter Calibration: Date: 2/24/98 Time: 1055 Meter Serial #: 87m Temperature °F: 53.7
 (EC 1000 991/1000) (DI _____) (pH 7 724/700) (pH 10 986/1000) (pH 4 408/1400)

Location of previous calibration: _____

Signature: [Signature] Reviewed By: [Signature] Page 1 of 3



WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 20143-117.001 SAMPLE ID: MW-2-3
 PURGED BY: M. Gallegos CLIENT NAME: PL&E-OAKLAND P-P
 SAMPLED BY: ✓ LOCATION: OAKLAND, CA.

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

CASING ELEVATION (feet/VMSL): N/A VOLUME IN CASING (gal.): 6.48
 DEPTH TO WATER (feet): 3.40 CALCULATED PURGE (gal.): 19.40
 DEPTH OF WELL (feet): 13.3 ACTUAL PURGE VOL (gal.): 12.0

DATE PURGED: 2-24-98 Start (2400 Hr) 1122 End (2400 Hr) 1127
 DATE SAMPLED: ✓ Start (2400 Hr) 1138 End (2400 Hr) _____

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1124</u>	<u>6.5</u>	<u>7.04</u>	<u>2004</u>	<u>60.3</u>	<u>6.6</u>	<u>Light</u>
	<u>well</u>	<u>DRY</u>	<u>12.0</u>	<u>5.1/1000</u>		
<u>1140</u>	<u>recharge</u>	<u>6.81</u>	<u>1708</u>	<u>60.6</u>	<u>↓</u>	<u>✓</u>

D. O. (ppm): N/A ODOR: NONE _____
 (COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: QC-1 get (12.0)
 Parameters field filtered at this well: N/A

PURGING EQUIPMENT

- 2" Bladder Pump
- Centrifugal Pump
- Submersible Pump
- Well Wizard™
- Other: _____

SAMPLING EQUIPMENT

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

WELL INTEGRITY: OK LOCK #: 3490

REMARKS: All samples to Ken

Meter Calibration: Date: 2/24/98 Time: _____ Meter Serial #: 87m Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
 Location of previous calibration: MW-1-2

Signature: [Signature] Reviewed By: [Signature] Page 2 of 3



WATER SAMPLE FIELD DATA SHEET

PROJECT NO: 20143-117.001
 PURGED BY: M. Gallegos
 SAMPLED BY: ↓

SAMPLE ID: MW-1-3
 CLIENT NAME: OAKLAND P.P. (PGE)
 LOCATION: OAKLAND, CA

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 2.14
 DEPTH TO WATER (feet): 3.82 CALCULATED PURGE (gal.): 6.42
 DEPTH OF WELL (feet): 7.1 ACTUAL PURGE VOL (gal.): 6.5

DATE PURGED: 2-24-98 Start (2400 Hr) 1107 End (2400 Hr) 1113
 DATE SAMPLED: ↓ Start (2400 Hr) 1120 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1109</u>	<u>2.0</u>	<u>7.04</u>	<u>1814</u>	<u>57.7</u>	<u>cloudy</u>	<u>cloudy</u>
<u>1111</u>	<u>4.0</u>	<u>7.11</u>	<u>1755</u>	<u>58.3</u>	<u>↓</u>	<u>↓</u>
<u>1113</u>	<u>6.5</u>	<u>7.13</u>	<u>1744</u>	<u>58.4</u>	<u>↓</u>	<u>↓</u>

D. O. (ppm): N/A ODOR: None N/A N/A
 (COBALT 0 - 500) (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

- | | | | |
|--|--|--|--|
| <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) | <input type="checkbox"/> 2" Bladder Pump | <input checked="" type="checkbox"/> Bailer (Teflon®) |
| <input checked="" type="checkbox"/> Centrifugal Pump | <input 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: OK LOCK #: 3490

REMARKS: All samples taken.

Meter Calibration: Date: 2/24/98 Time: _____ Meter Serial #: _____ Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)
 Location of previous calibration: MW-1-2

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

EMCON - Drum Inventory Record

20143-117.001

Project No

Oakland, CA

Location

2/24/98

Date

PG&E-Oakland

Client

Manuel Gallegos

Sampler

Tuesday

Day of Week

DRUM NUMBER OR ID	WELL OR SOURCE ID(s)	TYPE OF MATERIAL	AMOUNT OF MATERIAL IN DRUM	DATE ACCUMULATED OR GENERATED
A.	All wells.	groundwater	31.0 (gallons)	2-24-98

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: **PACIFIC GAS & ELECTRIC-Oakland Power Plant**
50 Martin Luther King Way

DATE SUBMITTED: **24-Feb-98**

SPECIAL INSTRUCTIONS / CONSIDERATIONS :

Annual Water Quality Monitoring

**BRING TWO DRUMS AND FIELD BLANK WATER FOR TPH-DIESE
MUST BE ON SITE BY 10:00AM.** Gate is not staffed. Ring bell to be let in.

Take some extra locks along

Survey water levels prior to well purging and sampling.

Purge three casing volumes prior to sample collection

Purge with a jacuzzi or with bailers; sample with teflon bailers.

Drum purge water. Label and store drums by Hazardous

Waste storage area shed on the west side of the yard.

Deliver the samples to Chromalab when finished. (See attached map)

Authorization: _____

Project No. : **20143-117.001**

Task Code: _____

Send Results To: **JC Isham**

Coordinator: **Steve Horton**

Well Locks:
3490

TES Contact: **Darrell Klingman**
Site Contact: **NA**

Phone No.: **(510) 866-5883**
Phone No.: **NA**

Well ID or Source	Casing Diameter (inches)	Casing Length (feet)	ANALYSES REQUESTED
MW-1-2	4.0	13.5	TPHD by EPA 3510/8015M (Fill 2, 1 Liter Glass, NP)
MW-1-3	4.0	7.2	
MW-2-3	4.0	12.3	
Sample In Indicated Order			
QC-1	(Field Blank)		TPHD by EPA 3510/8015M (2, 1 Liter Glass, NP)

Laboratory and Lab QC Instructions: all samples submitted to Chromalab; please send results to JC Isham.

CHROMALAB, INC.

Environmental Services (SDB)

March 3, 1998

MAR - 9 1998

Submission #: 9802392

EMCON ASSOCIATES-SACRAMENTO

Atten: J.C. Isham

Project: PGE OAKLAND
Received: February 25, 1998

Project#: 20143-117.001

re: 4 samples for TPH - Diesel analysis.
Method: EPA 8015M

Matrix: WATER Extracted: February 26, 1998
Sampled: February 24, 1998 Run#: 11367 Analyzed: February 26, 1998

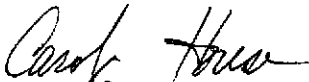
Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
172498	MW-2-3	140	50	N.D.	104	1
Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.						
172499	QC-1	N.D.	50	N.D.	104	1


Matrix: WATER Extracted: February 26, 1998
Sampled: February 24, 1998 Run#: 11367 Analyzed: February 27, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
172496	MW-1-2	430	50	N.D.	104	1
Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.						

Matrix: WATER Extracted: February 26, 1998
Sampled: February 24, 1998 Run#: 11367 Analyzed: February 28, 1998

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
172497	MW-1-3	160	50	N.D.	104	1
Note: Hydrocarbon reported does not match the pattern of our Diesel Standard.						


Carolyn House
Chemist


Bruce Havlik
Chemist



EMCON - San Jose

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

38410

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

Project Name: Pacific Gas & Electric, Oakland

Project Number: 20143-117.001

Project Manager: J. C. Isham

Company/Address: EMCON

1433 North Market Blvd, Suite 2

Sacramento, CA 95834-9014

Phone: (916) 928-0415

Date 2/24/98 Page of

Analysis Requested

Number of Containers

TPH-DIESEL
(EPA 3510/8015M)

SUBM #: 9802392 REP: GC
CLIENT: EMCON
DUE: 03/03/98
REF #: 30410

Sampler's Signature: *M. A. ...*

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	TPH-DIESEL (EPA 3510/8015M)	Number of Containers	Analysis Requested	Preservations
MW-1-2	2/24/98	1055		H2O	X	2		
MW-1-3		1120		H2O	X	2		
MW-2-3		1137		H2O	X	2		
QC-1		12:00		H2O	X	2		

Relinquished By: *[Signature]* Signature: *[Signature]* Received By: *[Signature]* Signature: *[Signature]*

Mannel Gallegos Printed Name: *[Signature]* Chromalab Inc. Firm: *[Signature]*

EMCON Firm: 2/25/98 1:40 Date/Time: 2/25/98 1:40

Relinquished By: *[Signature]* Signature: *[Signature]* Received By: *[Signature]* Signature: *[Signature]*

ASAN eh. Salimpor Printed Name: *[Signature]* Chromalab Inc. Firm: *[Signature]*

Chromalab Firm: 2/25/98 5:45 Date/Time: 2/25/98 5:45

TURNAROUND REQUIREMENTS

24 hr 48 hr 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)
 RW/QCB (MDLs/PQLs/TRACE#)

INVOICE INFORMATION

P.O. # _____ Bill to: _____

SAMPLE RECEIPT

Shipping VIA: _____ Shipping #: _____ Condition: _____ Lab No: _____

Special Instructions/Comments:

Tier I QC

Please provide all QC data (i.e., MB, MS/MSD, etc)

Please fax chain-of-custody to Darrell Klingman prior to conducting analysis; please fax analytical results to Darrell Klingman after conducting analysis (fax # 510-866-5681)

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

CHROMALAB, INC.

Environmental Service (SDB)

Sample Receipt Checklist

Client Name: **EMCON ASSOCIATES-SACRAMENTO** Date/Time Received: **02/25/98** | 1340
Reference/Submis: **38410** | **9802392** Received by: AS
Checklist completed by: Chris Rowley | 2/26/98 Reviewed by: _____
Signature | Date Initials | Date

Matrix: H2O Carrier name: Client C/L

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Temp: 5.0°C Yes No
- Water - VOA vials have zero headspace? Yes No VOA vials submitted Yes No
- Water - pH acceptable upon receipt? YES Adjusted? Checked by CR chemist for VOAs

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

Client contacted: _____ Date contacted: _____ Person contacted: _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action: _____

