Report Issued:

November 29, 1990

TES

Quarterly Groundwater

Monitoring Report

General Construction Gas Yard

4930 Coliseum Way, Oakland

October 1990

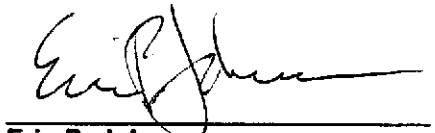
Prepared by

Water Resources Unit

Report 402.331-90.53

Pacific Gas and Electric Company
Technical and Ecological Services
3400 Crow Canyon Road, San Ramon, California 94583

Prepared by:



Eric P. Johnson
Environmental Specialist

Approved by:

Daniel P. Griffin
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BACKGROUND

This report presents the results of quarterly groundwater field and laboratory analyses performed in October 1990 on samples collected at the Pacific Gas and Electric Company's (PG&E) Oakland Gas Construction yard. The yard is located at 4930 Coliseum Way in Oakland. The analyses were performed to monitor the distribution of waste oil, solvents, and fuel compounds in the uppermost aquifer beneath the northern part of the yard, near the former sites of five underground storage tanks.

The tanks were excavated and removed in January 1988. Analysis of their contents revealed that of the four tanks formerly located near the north corner of the yard, two tanks contained mineral spirits and two tanks contained heavy oil. The tank formerly located near the west corner of the yard contained diesel fuel.

SAMPLING ACTIVITIES

On 12 October 1990, groundwater samples were collected by PG&E personnel from four shallow monitoring wells (OW-1 to OW-4) located at the site. The monitoring well locations are shown on the attached groundwater contour map. Two of the wells are located near the north corner of the yard, one well is located near the west corner of the yard, and one well is located near the south corner of the yard.

Groundwater samples collected from each well were analyzed by Brown and Caldwell Laboratories (Emeryville, CA) for total petroleum hydrocarbons (TPH) (EPA method 418.1); volatile petroleum hydrocarbons (TPHV) (EPA method 5030/8015); semi-volatile petroleum hydrocarbons (TPHS) (EPA method 3510/8015); and volatile organics including benzene, toluene, ethylbenzene, and xylenes (EPA method 8240).

One set of blind duplicate and one set of field blank samples were analyzed for quality control purposes. The samples designated OW-5 in the laboratory report are duplicate samples collected from monitoring well OW-3.

Laboratory data sheets, well purge and sample data sheets, and chain-of-custody documentation are provided in Appendix A.

ANALYTICAL RESULTS

Table 1 summarizes the analytical results for petroleum hydrocarbons in the samples collected in October. TPHS were detected in all of the samples (200 ug/L in well OW-1, 90 ug/L in well OW-2, 130 and 270 ug/L in well OW-3, and 150 ug/L in well OW-4). TPH were not detected in any of the samples (the detection limit was 5 mg/L). TPHV were not detected in any of the samples (the detection limit was 50 ug/L). BTEX were not detected in any of the samples (the detection limit was 1 ug/L). Previous 1990 analytical results are also presented in Table 1 for comparison purposes.

Table 2 summarizes the analytical results for volatile organics in the samples collected in October. Several volatile organics were detected in the samples collected from wells OW-1, OW-3, and OW-4. However, none of these compounds were encountered in concentrations exceeding maximum contaminant levels for drinking water. Previous 1990 analytical results for volatile organics are also presented in Table 2 for comparison purposes.

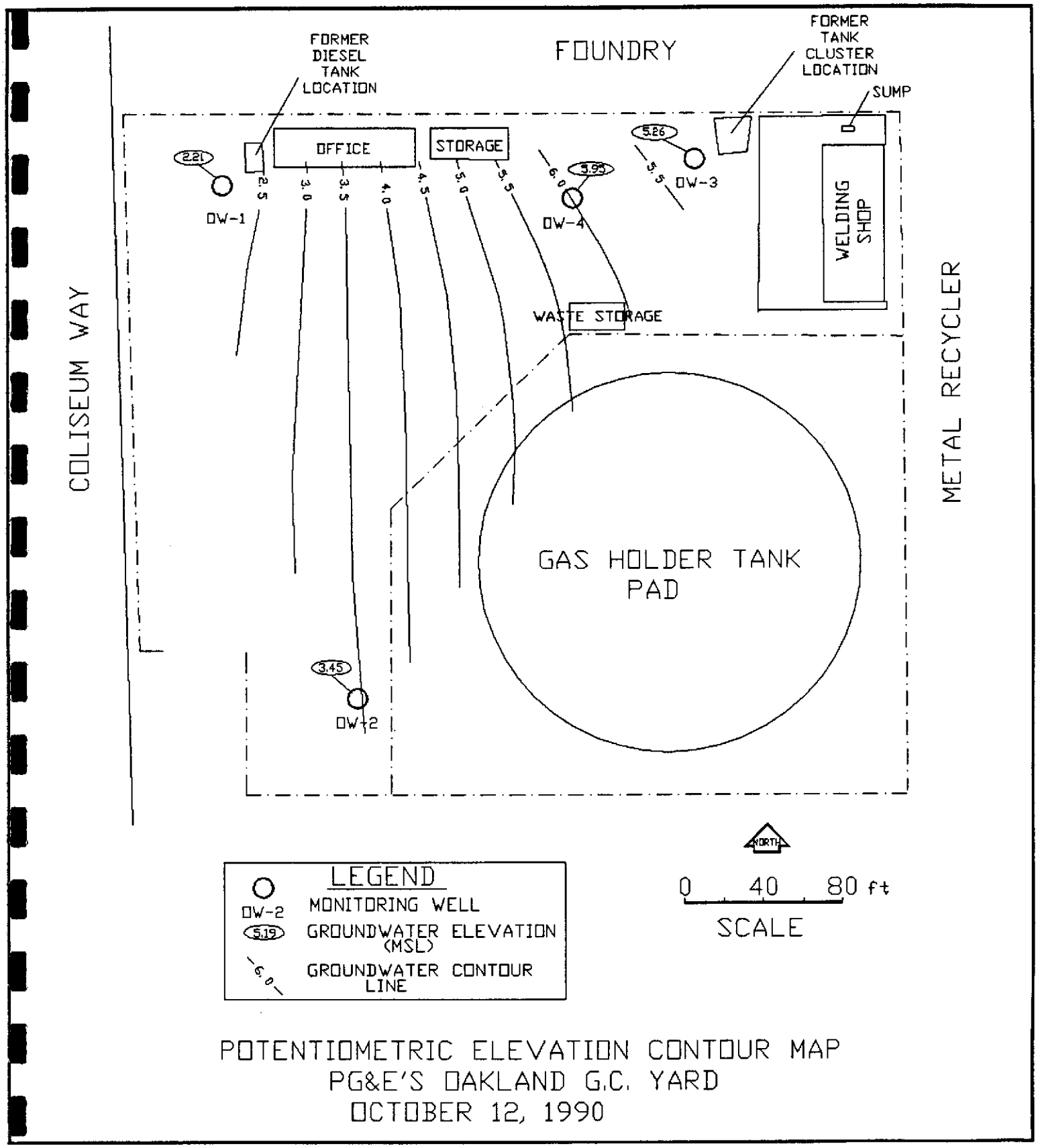
GROUNDWATER FLOW DIRECTION

Water level measurements collected on 15 October 1990 from four wells (OW-1 to OW-4) were used to develop a groundwater elevation contour map (see attached figure) for the yard in the vicinity of the former tank locations. Assuming that horizontal isotropic conditions prevail, groundwater in the uppermost aquifer west of well OW-4 flowed to the west. Between wells OW-3 and OW-4, groundwater in the uppermost aquifer appeared to flow to the southwest.

CONCLUSIONS

Results of analyses performed on groundwater samples collected in October 1990 from monitoring wells OW-1, OW-2, OW-3, and OW-4 show that semi-volatile petroleum hydrocarbons were detected in all of the groundwater samples. However, no volatile organic compounds (including benzene, toluene, ethylbenzene, and xylenes) were detected in concentrations at or above maximum contaminant levels for drinking water.

Water level measurements indicate that a groundwater divide exists near well OW-4. West of well OW-4, groundwater appears to flow to the west. East of well OW-4, groundwater appears to flow to the northeast. Groundwater flow across most of the site appears to be to the west toward Coliseum Way.



POTENTIOMETRIC ELEVATION CONTOUR MAP
PG&E'S OAKLAND G.C. YARD
OCTOBER 12, 1990

Table 1

Summary of Analytical Results for Petroleum Hydrocarbons in Samples Collected in 1990 PG&E's Oakland Gas Construction Yard

Well Date Sampled	TPH (ppm)	TPHV (ppb)	TPHS (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)
OW-1							
01-26-90	<5	<50	190	3.2	2.3	<.3	2.6*
04-23-90	<5	82	300	<.3	0.4	<.3	2.4*
07-05-90	<5	<50	200	<1	<1	<1	<1**
10-12-90	<5	<50	200	<1	<1	<1	<1**
OW-2							
01-26-90	<5	<50	130	0.4	0.4	<.3	0.4*
04-23-90	<5	<50	140	<.3	0.6	<.3	0.8*
07-05-90	<5	<50	68	<1	<1	<1	<1**
10-12-90	<5	<50	90	<1	<1	<1	<1**
OW-3							
01-26-90	<5	<50	440	0.5	0.4	<.3	0.7*
04-23-90	<5	52	470	<.3	0.8	0.5	2.1*
07-05-90	<5	<50	450	<1	<1	<1	<1**
10-12-90	<5	<50	130	<1	<1	<1	<1**
OW-3 (duplicate)							
01-26-90	<5	<50	550	0.6	0.5	0.4	1.3*
04-23-90	<5	120	570	0.5	0.9	0.8	1.3*
07-05-90	<5	<50	500	<1	<1	<1	<1**
10-12-90	<5	<50	270	<1	<1	<1	<1**
OW-4							
01-26-90	<5	<50	150	<.3	<.3	<.3	0.6*
04-23-90	<5	<50	210	0.5	0.6	0.3	2.0*
07-05-90	<5	<50	150	<1	<1	<1	<1**
10-12-90	<5	<50	150	<1	<1	<1	<1**

TPH = total petroleum hydrocarbons by infared method (EPA Method 418.1)
TPHV = total volatile petroleum hydrocarbons (EPA Method 5030/8015)
TPHS = total semi-volatile petroleum hydrocarbons (EPA Method 3510/8015)
BTEX = benzene, toluene, ethylbenzene, and xylenes (EPA Method 5030/8020* or 8240**)
< = not detected at or above method detection limit

Table 2

Summary of Analytical Results for Volatile Organics in Groundwater Samples Collected in 1990 at PG&E's Oakland Construction Yard

Well Date Sampled	1,1-DCA (ug/l)	1,2-DCB (ug/l)	1,3-DCB (ug/l)	1,4-DCB (ug/l)	Fluoro benzene (ug/l)	cis-1,2-DCE (ug/l)	Diisopropyl ether (ug/l)	Methylene chloride (ug/l)
OW-1								
01-26-90	4	<1	1	5	ND	<1	5	<5
04-23-90	4	<1	4	13	ND	<1	7	<5
07-05-90	2	<1	4	11	ND	<1	ND	<5
10-12-90	2	<1	1	6	ND	<1	ND	<5
OW-2								
01-26-90	<1	<1	<1	<1	ND	<1	ND	<5
04-23-90	<1	<1	<1	<1	ND	<1	ND	<5
07-05-90	<1	<1	<1	<1	ND	<1	ND	<5
10-12-90	<1	<1	<1	<1	ND	<1	ND	<5
OW-3								
01-26-90	29	2	3	2	ND	<1	8	<5
04-23-90	14	<1	<1	<1	ND	33	ND	9
07-05-90	17	1	2	<1	ND	<1	ND	<5
10-12-90	17	1	2	2	ND	1	ND	<5
OW-3 (duplicate)								
01-26-90	30	2	3	2	ND	<1	9	<5
04-23-90	13	<1	4	13	ND	40	ND	10
07-05-90	21	2	2	<1	10	<1	ND	<5
10-12-90	16	1	2	2	ND	1	ND	<5
OW-4								
01-26-90	<1	<1	<1	<1	ND	<1	ND	<5
04-23-90	<1	<1	<1	<1	ND	<1	ND	<5
07-05-90	<1	<1	<1	<1	ND	<1	ND	<5
10-12-90	<1	<1	<1	<1	ND	<1	ND	<5
Field Blank								
01-26-90	<1	<1	<1	<1	ND	<1	ND	<5
04-23-90	na	na	na	na	na	na	na	na
07-05-90	<1	<1	<1	<1	ND	<1	ND	<5
10-12-90	<1	<1	<1	<1	ND	<1	ND	<5
Maximum Containment Level	–	–	–	7.5	–	–	–	–

Notes:

DCA = dichloroethane
DCB = dichlorobenzene
DCE = dichloroethene
ND = not detected (detection limit not stated)
na = not analyzed

Appendix A

LABORATORY DATA SHEETS

CHAIN-OF-CUSTODY DOCUMENTATION

WELL PURGE AND SAMPLE FIELD DATA SHEETS

Analytical Report

LOG NO: E90-10-323

Received: 12 OCT 90
Reported: 29 OCT 90

Mr. E. P. Johnson
PG&E Technical & Eco. Services
3400 Crow Canyon Road
San Ramon, California 94583

Purchase Order: Z-19-0-128-89

Project: 7823

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-323-1	OW-1	12 OCT 90
10-323-2	OW-2	12 OCT 90
10-323-3	OW-3	12 OCT 90
10-323-4	OW-4	12 OCT 90
10-323-5	OW-5	12 OCT 90

PARAMETER	10-323-1	10-323-2	10-323-3	10-323-4	10-323-5
Petroleum Hydrocarbons (418.1), mg/L	<5	<5	<5	<5	<5
TPH - Semivolatile Hydrocarbons					
Date Analyzed	10.20.90	10.20.90	10.20.90	10.20.90	10.20.90
Dilution Factor, Times	1	1	1	1	1
C12 to C25 Hydrocarbons, ug/L	200	90	130	150	270
C12-C25 Fuel characterization,	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
Other TPH - Semivolatile Hydrocarbons	---	---	---	---	---
TPH - Volatile Hydrocarbons					
Date Analyzed	10.13.90	10.13.90	10.13.90	10.13.90	10.13.90
Dilution Factor, Times	1	1	1	1	1
C4 to C12 Hydrocarbons, ug/L	<50	<50	<50	<50	<50
Other TPH - Volatile Hydrocarbons	---	---	---	---	---

This Fuel characterization is tentative identification based upon a visual comparison of sample chromatograms with those from authentic standards.

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REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-323-1	OW-1	12 OCT 90
10-323-2	OW-2	12 OCT 90
10-323-3	OW-3	12 OCT 90
10-323-4	OW-4	12 OCT 90
10-323-5	OW-5	12 OCT 90

PARAMETER	10-323-1	10-323-2	10-323-3	10-323-4	10-323-5
Purgeable Priority Pollutants					
Date Analyzed	10.19.90	10.19.90	10.22.90	10.19.90	10.22.90
Date Extracted	10.19.90	10.19.90	10.22.90	10.19.90	10.22.90
Dilution Factor, Times	1	1	1	1	1
1,1,1-Trichloroethane, ug/L	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane, ug/L	<1	<1	<1	<1	<1
1,1,2-Trichloroethane, ug/L	<1	<1	<1	<1	<1
1,1-Dichloroethane, ug/L	2	<1	16	6	17
1,1-Dichloroethene, ug/L	<1	<1	<1	<1	<1
1,2-Dichloroethane, ug/L	<1	<1	<1	<1	<1
1,2-Dichlorobenzene, ug/L	<1	<1	1	<1	1
1,2-Dichloropropane, ug/L	<1	<1	<1	<1	<1
1,3-Dichlorobenzene, ug/L	1	<1	2	<1	2
1,4-Dichlorobenzene, ug/L	6	<1	1	<1	2
2-Chloroethylvinylether, ug/L	<1	<1	<1	<1	<1
2-Hexanone, ug/L	<1	<1	<1	<1	<1
4-Methyl-2-Pentanone, ug/L	<1	<1	<1	<1	<1
Acetone, ug/L	<10	<10	<10	<10	<10
Acrolein, ug/L	<10	<10	<10	<10	<10
Acrylonitrile, ug/L	<10	<10	<10	<10	<10
Bromodichloromethane, ug/L	<1	<1	<1	<1	<1
Bromomethane, ug/L	<1	<1	<1	<1	<1
Benzene, ug/L	<1	<1	<1	<1	<1

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LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
10-323-1	OW-1	12 OCT 90
10-323-2	OW-2	12 OCT 90
10-323-3	OW-3	12 OCT 90
10-323-4	OW-4	12 OCT 90
10-323-5	OW-5	12 OCT 90

PARAMETER	10-323-1	10-323-2	10-323-3	10-323-4	10-323-5
Bromoform, ug/L	<1	<1	<1	<1	<1
Chlorobenzene, ug/L	<1	<1	<1	<1	<1
Carbon Tetrachloride, ug/L	<1	<1	<1	<1	<1
Chloroethane, ug/L	<1	<1	<1	<1	<1
Chloroform, ug/L	<1	<1	<1	<1	<1
Chloromethane, ug/L	<1	<1	<1	<1	<1
Carbon Disulfide, ug/L	<1	<1	<1	<1	<1
Dibromochloromethane, ug/L	<1	<1	<1	<1	<1
Ethylbenzene, ug/L	<1	<1	<1	<1	<1
Freon 113, ug/L	<1	<1	<1	<1	<1
Methyl ethyl ketone, ug/L	<20	<20	<20	<20	<20
Methylene chloride, ug/L	<5	<5	<5	<5	<5
Styrene, ug/L	<1	<1	<1	<1	<1
Trichloroethene, ug/L	<1	<1	<1	<1	<1
Trichlorofluoromethane, ug/L	<1	<1	<1	<1	<1
Toluene, ug/L	<1	<1	<1	<1	<1
Tetrachloroethene, ug/L	<1	<1	<1	<1	<1
Vinyl acetate, ug/L	<1	<1	<1	<1	<1
Vinyl chloride, ug/L	<1	<1	<1	<1	<1
Total Xylene Isomers, ug/L	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene, ug/L	<1	<1	1	<1	1
cis-1,3-Dichloropropene, ug/L	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene, ug/L	<1	<1	<1	<1	<1

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10-323-1	OW-1	12 OCT 90
10-323-2	OW-2	12 OCT 90
10-323-3	OW-3	12 OCT 90
10-323-4	OW-4	12 OCT 90
10-323-5	OW-5	12 OCT 90

PARAMETER	10-323-1	10-323-2	10-323-3	10-323-4	10-323-5
trans-1,3-Dichloropropene, ug/L	<1	<1	<1	<1	<1

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REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-323-6	Field Blank	12 OCT 90

PARAMETER	10-323-6
Petroleum Hydrocarbons (418.1), mg/L	<5
TPH - Semivolatile Hydrocarbons	
Date Analyzed	10.20.90
Dilution Factor, Times	1
C12 to C25 Hydrocarbons, ug/L	<50
Other TPH - Semivolatile Hydrocarbons	---
TPH - Volatile Hydrocarbons	
Date Analyzed	10.13.90
Dilution Factor, Times	1
C4 to C12 Hydrocarbons, ug/L	<50
Other TPH - Volatile Hydrocarbons	---

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REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-323-6	Field Blank	12 OCT 90

PARAMETER	10-323-6
Purgeable Priority Pollutants	
Date Analyzed	10.22.90
Date Extracted	10.22.90
Dilution Factor, Times	1
1,1,1-Trichloroethane, ug/L	<1
1,1,2,2-Tetrachloroethane, ug/L	<1
1,1,2-Trichloroethane, ug/L	<1
1,1-Dichloroethane, ug/L	<1
1,1-Dichloroethene, ug/L	<1
1,2-Dichloroethane, ug/L	<1
1,2-Dichlorobenzene, ug/L	<1
1,2-Dichloropropane, ug/L	<1
1,3-Dichlorobenzene, ug/L	<1
1,4-Dichlorobenzene, ug/L	<1
2-Chloroethylvinylether, ug/L	<1
2-Hexanone, ug/L	<1
4-Methyl-2-Pentanone, ug/L	<1
Acetone, ug/L	<10
Acrolein, ug/L	<10
Acrylonitrile, ug/L	<10
Bromodichloromethane, ug/L	<1
Bromomethane, ug/L	<1
Benzene, ug/L	<1
Bromoform, ug/L	<1
Chlorobenzene, ug/L	<1
Carbon Tetrachloride, ug/L	<1
Chloroethane, ug/L	<1

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Project: 7823

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, BLANK WATER SAMPLES	DATE SAMPLED
10-323-6	Field Blank	12 OCT 90

PARAMETER	10-323-6
Chloroform, ug/L	<1
Chloromethane, ug/L	<1
Carbon Disulfide, ug/L	<1
Dibromochloromethane, ug/L	<1
Ethylbenzene, ug/L	<1
Freon 113, ug/L	<1
Methyl ethyl ketone, ug/L	<20
Methylene chloride, ug/L	<5
Styrene, ug/L	<1
Trichloroethene, ug/L	<1
Trichlorofluoromethane, ug/L	<1
Toluene, ug/L	<1
Tetrachloroethene, ug/L	<1
Vinyl acetate, ug/L	<1
Vinyl chloride, ug/L	<1
Total Xylene Isomers, ug/L	<1
cis-1,2-Dichloroethene, ug/L	<1
cis-1,3-Dichloropropene, ug/L	<1
trans-1,2-Dichloroethene, ug/L	<1
trans-1,3-Dichloropropene, ug/L	<1

Sim D. Lessley, Ph.D., Laboratory Director

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BCA B C Analytical

BATCH QC REPORT: Definitions and Terms

Accuracy	The ability of a procedure to determine the "true" concentration of an analyte
Precision	The reproducibility of a procedure demonstrated by the agreement between analyses performed on either duplicates of the same sample or a pair of duplicate spikes
Batch	A group of samples analyzed sequentially using the same calibration curve, reagents, and instrument
Laboratory Control Standard (LCS)	Laboratory reagent water spiked with known compounds and subjected to the same procedures as the samples. The LCS thus indicates the accuracy of the analytical method and, because it is prepared from a different source than the standard used to calibrate the instrument, it also serves to double-check the calibration
Matrix QC	Quality control tests performed on actual client samples. For most inorganic analyses, the laboratory uses a pair of duplicate samples and a spiked sample. For most organic analyses, the laboratory uses a pair of spiked samples (duplicate spikes)
LC Result	Laboratory result of an LCS analysis
LT Result	Expected result, or true value, of the LCS analysis
R1, R2 Result:	Result of the analysis of replicate aliquots of a sample, with R1 indicating the first analysis of the sample and R2 its corresponding duplicate; used to determine precision
S1, S2 Result	Result of the analysis of replicate spiked aliquots, with S1 indicating one spike of the sample and S2 the second spike; used to determine precision and accuracy
R Bar Result	The average of replicate analysis results
S Bar Result:	The average of spike analysis results
True value	The theoretical, or expected, result of a spike sample analysis
Percent Recovery	The percentage of analyte recovered. For LCS, the percent recovery calculation is: LC ÷ LT x 100 For spike recoveries, the percent recovery calculatiion is: $\frac{(\text{S Bar - Sample Concentration})}{\text{Spike Amount}} \times 100$
Relative Percent Difference (RPD)	Calculated using one of the following: $\frac{(R1 - R2) \times 100}{(R1 + R2) \div 2}$ $\frac{(S1 - S2) \times 100}{(S1 + S2) \div 2}$
Blank Result	The result of the analysis of a method blank,which is reagent water that is analysed using the same reagents, instruments and procedures as the samples in a batch; used to determine laboratory contamination
Reporting Detection Limit (RDL)	BCA-assigned limit based on—but not the same as—method detection limits (MDLs) determined using EPA guidelines

: ORDER PLACED FOR CLIENT: PG&E Technical & Eco. Services 9010323 :
: BC ANALYTICAL : EMVL LAB : 09:25:02 30 OCT 1990 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM CODE....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9010323*1	OW-1	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.19.90	8240	517-04	347	7038
9010323*2	OW-2	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.19.90	8240	517-04	347	7038
9010323*3	OW-3	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.22.90	8240	517-04	349	7038
9010323*4	OW-4	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.19.90	8240	517-04	347	7038
9010323*5	OW-5	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.22.90	8240	517-04	349	7038
9010323*6	Field Blank	IR.PETROHC	10.26.90	418.1	513-03	94	7453
		3510.FUEL	10.20.90	3510/8015	516-08	240	7754
		GAS.5030	10.13.90	5030/8015	516-19	266	7258
		VOA.8240	10.22.90	8240	517-04	349	7038

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Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9010323

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LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
Petroleum Hydrocarbons (418.1)	10.26.90	94	6	6	mg/L	100
TPH - Semivolatile Hydrocarbons						
Dilution Factor	10.20.90	240	1	1	Times	100
C12 to C25 Hydrocarbons	10.20.90	240	600	1000	ug/L	60
TPH - Volatile Hydrocarbons						
Dilution Factor	10.13.90	266	1	1	Times	100
Benzene	10.13.90	266	19	25	ug/L	76
Ethylbenzene	10.13.90	266	21	25	ug/L	84
Toluene	10.13.90	266	20	25	ug/L	80
Total Xylene Isomers	10.13.90	266	45	25	ug/L	180
C4 to C12 Hydrocarbons	10.13.90	266	420	470	ug/L	89
Purgeable Priority Pollutants						
Dilution Factor	10.19.90	347	1	1	Times	100
1,1,1-Trichloroethane	10.19.90	347	56	50	ug/L	112
1,1,2,2-Tetrachloroethane	10.19.90	347	47	50	ug/L	94
1,1,2-Trichloroethane	10.19.90	347	45	50	ug/L	90
1,1-Dichloroethane	10.19.90	347	51	50	ug/L	102
1,1-Dichloroethene	10.19.90	347	53	50	ug/L	106
1,2-Dichloroethane	10.19.90	347	48	50	ug/L	96
1,2-Dichlorobenzene	10.19.90	347	61	50	ug/L	122
1,2-Dichloropropane	10.19.90	347	43	50	ug/L	86
1,3-Dichlorobenzene	10.19.90	347	62	50	ug/L	124
1,4-Dichlorobenzene	10.19.90	347	61	50	ug/L	122
2-Chloroethylvinylether	10.19.90	347	40	50	ug/L	80
2-Hexanone	10.19.90	347	38	50	ug/L	76
4-Methyl-2-Pentanone	10.19.90	347	39	50	ug/L	78
Acetone	10.19.90	347	41	50	ug/L	82
Acrolein	10.19.90	347	200	250	ug/L	80
Acrylonitrile	10.19.90	347	190	250	ug/L	76
Bromodichloromethane	10.19.90	347	49	50	ug/L	98
Bromomethane	10.19.90	347	62	50	ug/L	124
Benzene	10.19.90	347	52	50	ug/L	104
Bromoform	10.19.90	347	46	50	ug/L	92
Chlorobenzene	10.19.90	347	53	50	ug/L	106
Carbon Tetrachloride	10.19.90	347	56	50	ug/L	112
Chloroethane	10.19.90	347	58	50	ug/L	116
Chloroform	10.19.90	347	53	50	ug/L	106
Chloromethane	10.19.90	347	42	50	ug/L	84
Carbon Disulfide	10.19.90	347	55	50	ug/L	110
Dibromochloromethane	10.19.90	347	46	50	ug/L	92

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LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
Ethylbenzene	10.19.90	347	48	50	ug/L	96
Freon 113	10.19.90	347	59	50	ug/L	118
Methyl ethyl ketone	10.19.90	347	38	50	ug/L	76
Methylene chloride	10.19.90	347	46	50	ug/L	92
Styrene	10.19.90	347	51	50	ug/L	102
Trichloroethene	10.19.90	347	48	50	ug/L	96
Trichlorofluoromethane	10.19.90	347	61	50	ug/L	122
Toluene	10.19.90	347	50	50	ug/L	100
Tetrachloroethene	10.19.90	347	51	50	ug/L	102
Vinyl acetate	10.19.90	347	39	50	ug/L	78
Vinyl chloride	10.19.90	347	44	50	ug/L	88
Total Xylene Isomers	10.19.90	347	96	100	ug/L	96
cis-1,2-Dichloroethene	10.19.90	347	48	50	ug/L	96
cis-1,3-Dichloropropene	10.19.90	347	43	50	ug/L	86
trans-1,2-Dichloroethene	10.19.90	347	51	50	ug/L	102
trans-1,3-Dichloropropene	10.19.90	347	44	50	ug/L	88
Purgeable Priority Pollutants						
Dilution Factor	10.22.90	349	1	1	Times	100
1,1,1-Trichloroethane	10.22.90	349	57	50	ug/L	114
1,1,2,2-Tetrachloroethane	10.22.90	349	46	50	ug/L	92
1,1,2-Trichloroethane	10.22.90	349	47	50	ug/L	94
1,1-Dichloroethane	10.22.90	349	51	50	ug/L	102
1,1-Dichloroethene	10.22.90	349	52	50	ug/L	104
1,2-Dichloroethane	10.22.90	349	49	50	ug/L	98
1,2-Dichlorobenzene	10.22.90	349	62	50	ug/L	124
1,2-Dichloropropane	10.22.90	349	43	50	ug/L	86
1.3-Dichlorobenzene	10.22.90	349	61	50	ug/L	122
1,4-Dichlorobenzene	10.22.90	349	59	50	ug/L	118
2-Chloroethylvinylether	10.22.90	349	39	50	ug/L	78
2-Hexanone	10.22.90	349	41	50	ug/L	82
4-Methyl-2-Pentanone	10.22.90	349	41	50	ug/L	82
Acetone	10.22.90	349	41	50	ug/L	82
Acrolein	10.22.90	349	190	250	ug/L	76
Acrylonitrile	10.22.90	349	190	250	ug/L	76
Bromodichloromethane	10.22.90	349	49	50	ug/L	98
Bromomethane	10.22.90	349	63	50	ug/L	126
Benzene	10.22.90	349	53	50	ug/L	106
Bromoform	10.22.90	349	48	50	ug/L	96

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LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
Chlorobenzene	10.22.90	349	53	50	ug/L	106
Carbon Tetrachloride	10.22.90	349	57	50	ug/L	114
Chloroethane	10.22.90	349	57	50	ug/L	114
Chloroform	10.22.90	349	55	50	ug/L	110
Chloromethane	10.22.90	349	44	50	ug/L	88
Carbon Disulfide	10.22.90	349	57	50	ug/L	114
Dibromochloromethane	10.22.90	349	48	50	ug/L	96
Ethylbenzene	10.22.90	349	47	50	ug/L	94
Freon 113	10.22.90	349	59	50	ug/L	118
Methyl ethyl ketone	10.22.90	349	40	50	ug/L	80
Methylene chloride	10.22.90	349	47	50	ug/L	94
Styrene	10.22.90	349	50	50	ug/L	100
Trichloroethene	10.22.90	349	49	50	ug/L	98
Trichlorofluoromethane	10.22.90	349	62	50	ug/L	124
Toluene	10.22.90	349	49	50	ug/L	98
Tetrachloroethene	10.22.90	349	48	50	ug/L	96
Vinyl acetate	10.22.90	349	38	50	ug/L	76
Vinyl chloride	10.22.90	349	44	50	ug/L	88
Total Xylene Isomers	10.22.90	349	97	100	ug/L	97
cis-1,2-Dichloroethene	10.22.90	349	48	50	ug/L	96
cis-1,3-Dichloropropene	10.22.90	349	42	50	ug/L	84
trans-1,2-Dichloroethene	10.22.90	349	50	50	ug/L	100
trans-1,3-Dichloropropene	10.22.90	349	44	50	ug/L	88

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MATRIX QC PRECISION (DUPLICATES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	R1 RESULT	R2 RESULT	UNIT	RELATIVE %DIFF
Petroleum Hydrocarbons (418.1)	10.26.90	94	<5	<5	mg/L	NA

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BATCH QC REPORT
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MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
TPH - Semivolatile Hydrocarbons						
Dilution Factor	10.20.90	240	1	1	Times	0
C12 to C25 Hydrocarbons	10.20.90	240	1800	1700	ug/L	6
TPH - Volatile Hydrocarbons						
Dilution Factor	10.13.90	266	1	1	Times	0
C4 to C12 Hydrocarbons	10.13.90	266	350	420	ug/L	18
Purgeable Priority Pollutants						
Dilution Factor	10.19.90	347	1	1	Times	0
1,1-Dichloroethene	10.19.90	347	62	64	ug/L	3
2-Chloroethylvinylether	10.19.90	347	45	44	ug/L	2
Benzene	10.19.90	347	50	50	ug/L	0
Chlorobenzene	10.19.90	347	49	49	ug/L	0
Toluene	10.19.90	347	44	42	ug/L	5
1,2-Dichloroethane-d4 Reported	10.19.90	347	50	51	ug/L	2
1,2-Dichloroethane-d4 Theo.	10.19.90	347	50	50	ug/L	0
4-Bromofluorobenzene Reported	10.19.90	347	46	47	ug/L	2
4-Bromofluorobenzene Theo.	10.19.90	347	50	50	ug/L	0
Toluene-d8 Reported	10.19.90	347	48	48	ug/L	0
Toluene-d8 Theo.	10.19.90	347	50	50	ug/L	0
Purgeable Priority Pollutants						
Analyst ID	10.22.90	349	7038	7038	No.	0
Detection Limit	10.22.90	349	0.5	0.5	ug/L	0
Dilution Factor	10.22.90	349	0.5	0.5	Times	0
1,1-Dichloroethene	10.22.90	349	35	35	ug/L	0
Benzene	10.22.90	349	21	20	ug/L	5
Chlorobenzene	10.22.90	349	24	23	ug/L	4
Trichloroethene	10.22.90	349	27	27	ug/L	0
Toluene	10.22.90	349	22	21	ug/L	5
1,2-Dichloroethane-d4 Reported	10.22.90	349	24	24	ug/L	0
1,2-Dichloroethane-d4 Theo.	10.22.90	349	25	25	ug/L	0
4-Bromofluorobenzene Reported	10.22.90	349	21	24	ug/L	13
4-Bromofluorobenzene Theo.	10.22.90	349	25	25	ug/L	0
Toluene-d8 Reported	10.22.90	349	23	24	ug/L	4
Toluene-d8 Theo.	10.22.90	349	25	25	ug/L	0

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MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
TPH - Semivolatile Hydrocarbons							
C12 to C25 Hydrocarbons	10.20.90	240	1750	2200	200	ug/L	78
TPH - Volatile Hydrocarbons							
C4 to C12 Hydrocarbons	10.13.90	266	385	470	<50	ug/L	82
Purgeable Priority Pollutants							
1,1-Dichloroethene	10.19.90	347	63	50	<1	ug/L	126
2-Chloroethylvinylether	10.19.90	347	44.5	50	<1	ug/L	89
Benzene	10.19.90	347	50	50	<1	ug/L	100
Chlorobenzene	10.19.90	347	49	50	<1	ug/L	98
Toluene	10.19.90	347	43	50	<1	ug/L	86
Purgeable Priority Pollutants							
1,1-Dichloroethene	10.22.90	349	35	25	<0.5	ug/L	140
Benzene	10.22.90	349	20.5	25	<0.5	ug/L	82
Chlorobenzene	10.22.90	349	23.5	25	<0.5	ug/L	94
Trichloroethene	10.22.90	349	27	29	4.5	ug/L	92
Toluene	10.22.90	349	21.5	25	<0.5	ug/L	86

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METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
Petroleum Hydrocarbons (418.1)	10.26.90	94	0	5	mg/L
TPH - Semivolatile Hydrocarbons					
Date Analyzed	10.20.90	240	0.20.90	NA	Date
Dilution Factor	10.20.90	240	1	NA	Times
C12 to C25 Hydrocarbons	10.20.90	240	27	50	ug/L
TPH - Volatile Hydrocarbons					
Date Analyzed	10.13.90	266	0.13.90	NA	Date
Dilution Factor	10.13.90	266	1	NA	Times
Benzene	10.13.90	266	0	0.5	ug/L
Ethylbenzene	10.13.90	266	0	0.5	ug/L
Toluene	10.13.90	266	0	0.5	ug/L
Total Xylene Isomers	10.13.90	266	0.36	0.5	ug/L
C4 to C12 Hydrocarbons	10.13.90	266	1.9	50	ug/L
Purgeable Priority Pollutants					
Date Analyzed	10.19.90	347	0.19.90	NA	Date
Date Extracted	10.19.90	347	0.19.90	NA	Date
Dilution Factor	10.19.90	347	1	NA	Times
1,1,1-Trichloroethane	10.19.90	347	0	1	ug/L
1,1,2,2-Tetrachloroethane	10.19.90	347	0	1	ug/L
1,1,2-Trichloroethane	10.19.90	347	0	1	ug/L
1,1-Dichloroethane	10.19.90	347	0	1	ug/L
1,1-Dichloroethene	10.19.90	347	0	1	ug/L
1,2-Dichloroethane	10.19.90	347	0	1	ug/L
1,2-Dichlorobenzene	10.19.90	347	0	1	ug/L
1,2-Dichloropropane	10.19.90	347	0	1	ug/L
1,3-Dichlorobenzene	10.19.90	347	0	1	ug/L
1,4-Dichlorobenzene	10.19.90	347	0	1	ug/L
2-Chloroethylvinylether	10.19.90	347	0	1	ug/L
2-Hexanone	10.19.90	347	0	1	ug/L
4-Methyl-2-Pentanone	10.19.90	347	0	1	ug/L
Acetone	10.19.90	347	0	10	ug/L
Acrolein	10.19.90	347	0	10	ug/L
Acrylonitrile	10.19.90	347	0	10	ug/L
Bromodichloromethane	10.19.90	347	0	1	ug/L
Bromomethane	10.19.90	347	0	1	ug/L
Benzene	10.19.90	347	0	1	ug/L
Bromoform	10.19.90	347	0	1	ug/L
Chlorobenzene	10.19.90	347	0	1	ug/L
Carbon Tetrachloride	10.19.90	347	0	1	ug/L
Chloroethane	10.19.90	347	0	1	ug/L

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
Chloroform	10.19.90	347	0	1	ug/L
Chloromethane	10.19.90	347	0	1	ug/L
Carbon Disulfide	10.19.90	347	0	1	ug/L
Dibromochloromethane	10.19.90	347	0	1	ug/L
Ethylbenzene	10.19.90	347	0	1	ug/L
Freon 113	10.19.90	347	0	1	ug/L
Methyl ethyl ketone	10.19.90	347	0	20	ug/L
Methylene chloride	10.19.90	347	0.76	5	ug/L
Styrene	10.19.90	347	0	1	ug/L
Trichloroethene	10.19.90	347	0	1	ug/L
Trichlorofluoromethane	10.19.90	347	0	1	ug/L
Toluene	10.19.90	347	0.58	1	ug/L
Tetrachloroethene	10.19.90	347	0	1	ug/L
Vinyl acetate	10.19.90	347	0	1	ug/L
Vinyl chloride	10.19.90	347	0	1	ug/L
Total Xylene Isomers	10.19.90	347	0	1	ug/L
cis-1,2-Dichloroethene	10.19.90	347	0	1	ug/L
cis-1,3-Dichloropropene	10.19.90	347	0	1	ug/L
trans-1,2-Dichloroethene	10.19.90	347	0	1	ug/L
trans-1,3-Dichloropropene	10.19.90	347	0	1	ug/L
1,2-Dichloroethane-d4 Reported	10.19.90	347	48	NA	ug/L
1,2-Dichloroethane-d4 Theo.	10.19.90	347	50	NA	ug/L
4-Bromofluorobenzene Reported	10.19.90	347	49	NA	ug/L
4-Bromofluorobenzene Theo.	10.19.90	347	50	NA	ug/L
Toluene-d8 Reported	10.19.90	347	48	NA	ug/L
Toluene-d8 Theo.	10.19.90	347	50	NA	ug/L
Purgeable Priority Pollutants					
Date Analyzed	10.22.90	349	0.22.90	NA	Date
Date Extracted	10.22.90	349	0.22.90	NA	Date
Dilution Factor	10.22.90	349	1	NA	Times
1,1,1-Trichloroethane	10.22.90	349	0	1	ug/L
1,1,2,2-Tetrachloroethane	10.22.90	349	0	1	ug/L
1,1,2-Trichloroethane	10.22.90	349	0	1	ug/L
1,1-Dichloroethane	10.22.90	349	0	1	ug/L
1,1-Dichloroethene	10.22.90	349	0	1	ug/L
1,2-Dichloroethane	10.22.90	349	0	1	ug/L
1,2-Dichlorobenzene	10.22.90	349	0	1	ug/L
1,2-Dichloropropane	10.22.90	349	0	1	ug/L

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METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
1,3-Dichlorobenzene	10.22.90	349	0	1	ug/L
1,4-Dichlorobenzene	10.22.90	349	0	1	ug/L
2-Chloroethylvinylether	10.22.90	349	0	1	ug/L
2-Hexanone	10.22.90	349	0	1	ug/L
4-Methyl-2-Pentanone	10.22.90	349	0	1	ug/L
Acetone	10.22.90	349	0	10	ug/L
Acrolein	10.22.90	349	0	10	ug/L
Acrylonitrile	10.22.90	349	0	10	ug/L
Bromodichloromethane	10.22.90	349	0	1	ug/L
Bromomethane	10.22.90	349	0	1	ug/L
Benzene	10.22.90	349	0	1	ug/L
Bromoform	10.22.90	349	0	1	ug/L
Chlorobenzene	10.22.90	349	0	1	ug/L
Carbon Tetrachloride	10.22.90	349	0	1	ug/L
Chloroethane	10.22.90	349	0	1	ug/L
Chloroform	10.22.90	349	0	1	ug/L
Chloromethane	10.22.90	349	0	1	ug/L
Carbon Disulfide	10.22.90	349	0	1	ug/L
Dibromochloromethane	10.22.90	349	0	1	ug/L
Ethylbenzene	10.22.90	349	0	1	ug/L
Freon 113	10.22.90	349	0	1	ug/L
Methyl ethyl ketone	10.22.90	349	0	20	ug/L
Methylene chloride	10.22.90	349	0.52	5	ug/L
Styrene	10.22.90	349	0	1	ug/L
Trichloroethene	10.22.90	349	0	1	ug/L
Trichlorofluoromethane	10.22.90	349	0	1	ug/L
Toluene	10.22.90	349	0	1	ug/L
Tetrachloroethene	10.22.90	349	0	1	ug/L
Vinyl acetate	10.22.90	349	0	1	ug/L
Vinyl chloride	10.22.90	349	0	1	ug/L
Total Xylene Isomers	10.22.90	349	0	1	ug/L
cis-1,2-Dichloroethene	10.22.90	349	0	1	ug/L
cis-1,3-Dichloropropene	10.22.90	349	0	1	ug/L
trans-1,2-Dichloroethene	10.22.90	349	0	1	ug/L
trans-1,3-Dichloropropene	10.22.90	349	0	1	ug/L
1,2-Dichloroethane-d4 Reported	10.22.90	349	49	NA	ug/L
1,2-Dichloroethane-d4 Theo.	10.22.90	349	50	NA	ug/L

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METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
4-Bromofluorobenzene Reported	10.22.90	349	49	NA	ug/L
4-Bromofluorobenzene Theo.	10.22.90	349	50	NA	ug/L
Toluene-d8 Reported	10.22.90	349	48	NA	ug/L
Toluene-d8 Theo.	10.22.90	349	50	NA	ug/L

CHAIN OF CUSTODY RECORD

Technical and Ecological Services

3400 Crow Canyon Road, San Ramon, California 94583

SHIP [redacted] B [redacted]

1255 POWELL ST 9010323

EMERYVILLE, CA

ATTENTION: CHI-SAN HO PHONE: 428-2300

Page 1 of 1

Project Number:	Project Name:	Project Manager:
7823	OAKLAND GAS YARD	E.P. JOHNSON

Sampler(s) (Signatures): Robert Gray

Field Team Leader: RM Gray

SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	SAMPLE INFORMATION	STATION LOCATION	NUMBER OF CONTAINERS	Fuels 8015	TPH-D 3510/8015	Oil & Grease by 5030/8015	EPA 624			REMARKS
1	10-12	GW	1000	MONITOR WELL SAMPLE	OW-1	8	/	/	/	/			CONTRACT #
2	"	GW	0945	"	OW-2	8	/	/	/	/			Z-19-0-128-89
3	"	GW	1030	"	OW-3	8	/	/	/	/			
4	"	GW	1000	"	OW-4	8	/	/	/	/			
5	"	GW	1045	"	OW-5	8	/	/	/	/			Please obtain lowest possible detection limits
6	"	AQ	0930	DI WATER + N_2 Purged H_2O	FIELD BLANK	6	/	/	/	/			

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Ship Via:
Robert Gray	10-12 @1230	[signature]				Hand Carry
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	BL/Airbill Number: / Date:
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	

89-7-632 Distribution: Original Accompanies Shipment; Canary Copy to PG&E; Pink-Sampler

NOTE: Samples are discarded 30 days after results are reported unless other arrangements are made.

PG&E WATER PURGING & SAMPLING LOG

SITE OAK GC yrd JOB ID 7823
SAMPLING DATE 10-12-90, by RWG, KNK
PURGE DATE " ", by "

WELL NO OW-1
WEATHER: clear

WATER ELEVATION/VOLUME CALCULATIONS

Description of Measuring Point (MP): TOC @ mark
Total depth of well: 17.90 ft
Depth (from MP) to Water: 7.79 ft
Total water depth: 10.11 ft
Measurement method: Solinst

Screen interval from ___ ft to ___ ft.
Hydrocarbons present: Yes ___ No ___
Hydrocarbons thickness: ___

PURGE VOLUME CALCULATION

10.11 ft water * casing ~~factor = 1.77 gal/casing~~ vol. * 3 volumes = 5.2 Total gals purged.

Casing Factor: (circle one)
(For 2" dia = 0.17 gal/ft)
~~For 3" dia = 0.38 gal/ft~~
For 4" dia = 0.66 gal/ft

DRAWDOWN DETERMINATION

Water level begin ___ time: ___ time pump on ___
Water level end ___ time: ___ time pump off ___

PURGING

Time Start	Time End	Cumulative Discharge (gal)	pH	Conductivity µmho/cm	Turbidity	°C Temp	Comments
0910	0911	3	6.6	928	50	21.0	
	0912	4	6.6	948	40	21.0	
	0913	5.2	6.6	828	10	20.8	
	0914	5.6	6.6	828	5	20.8	

Method of discharge disposal Ground
Method of purging/sampling Hand lift Teflon Bailer
Method of cleaning bailer/pump: Alconox DI rinse
~~Pump lines/bailer ropes new~~, cleaned or dedicated? (circle one)

pH meter YSI 3500 calibrated YES conductivity meter YSI 3500 calibrated YES
temp corrected? YES

SAMPLES

Lab analyses to be performed TPH-D, Fuels, O+G, 629
Laboratory BCAL

Remarks HC odor, Sampled @ 1000

2965a/capA14

PG&E WATER PURGING & SAMPLING LOG

SITE OAK GC Yrd JOB ID 7823 WELL NO OW-2
SAMPLING DATE 10-17-90, by BMG, KNC WEATHER: clear
PURGE DATE 10-17-90, by " "

WATER ELEVATION/VOLUME CALCULATIONS

Description of Measuring Point (MP): TOC @ Mark
Total depth of well: 19.0 ft
Depth (from MP) to Water: 4.98 ft
Total water depth: 14.02 ft
Measurement method: Solinst

Screen interval from ___ ft to ___ ft.
Hydrocarbons present: Yes ___ No ___
Hydrocarbons thickness: ___

PURGE VOLUME CALCULATION

___ ft water * casing factor = 2.38 gal/casing vol. * 3 volumes = 7.2 Total gals purged.

Casing Factor (circle one): (For 2" dia = 0.17 gal/ft) For 3" dia = 0.38 gal/ft For 4" dia = 0.66 gal/ft

DRAWDOWN DETERMINATION

Water level begin ___ time: ___ time pump on ___
Water level end ___ time: ___ time pump off ___

PURGING

Time Start	Time End	Cumulative Discharge (gal)	pH	Conductivity µmho/cm	Turbidity	°C Temp	Comments
0920	0922	4	7.1	1105	25	20.8	
	0924	6	7.1	1153	10	20.4	
	0925	7.2	7.2	1205	5	20.3	
	0926	7.5	7.2	1210	5	20.3	

Method of discharge disposal Ground
Method of purging/sampling Hoelit Pump / teflon Bailer
Method of cleaning bailer/pump: Alconox & DI Water
Pump lines/bailer ropes new, cleaned or dedicated? (circle one)

pH meter YSI 3500 calibrated YES conductivity meter YSI 3500 calibrated YES
temp corrected? YES

SAMPLES

Lab analyses to be performed Fuels, TPH-D, O+G 624
Laboratory BCAL
Remarks ~~0930~~ Sampld @ 0945 w/ field blanks filled @ 0930

2965a/capA14

PG&E WATER PURGING & SAMPLING LOG

SITE Oak GC Yrd JOB ID 7823
SAMPLING DATE 10-17-90, by Erin KNC
PURGE DATE " ", by " "

WELL NO OW-3
WEATHER: clear

WATER ELEVATION/VOLUME CALCULATIONS

Description of Measuring Point (MP): TOC @ Mark
Total depth of well: 18.20 ft
Depth (from MP) to Water: 6.88 ft
Total water depth: 11.32 ft
Measurement method: Solinst

Screen interval from ___ ft to ___ ft.
Hydrocarbons present: Yes ___ No ___
Hydrocarbons thickness: ___

PURGE VOLUME CALCULATION

11.32 ft water * casing ~~factor~~ 1.92 gal/casing vol. * 3 volumes = 5.8 Total gals purged.

Casing Factor: (circle one)
For 2" dia = 0.17 gal/ft
For 3" dia = 0.38 gal/ft
For 4" dia = 0.66 gal/ft

DRAWDOWN DETERMINATION

Water level begin ___ time: ___ time pump on ___
Water level end ___ time: ___ time pump off ___

PURGING

Time Start	Time End	Cumulative Discharge (gal)	pH	Conductivity umho/cm	Turbidity	°C Temp	Comments
0903	0905	4	6.9	787	75	20.7	clear H2O
	0906	5	6.9	812	50	20.7	" "
	0907	6	6.9	817	40	20.5	" "

Method of discharge disposal Ground
Method of purging/sampling Monsoke / Teflon Bailer
Method of cleaning bailer/pump: Alconox DI H2O
Pump lines/bailer ropes new, cleaned or dedicated? (circle one)

pH meter YSI 300 calibrated yes conductivity meter YSI 3600 calibrated yes
temp corrected? yes

SAMPLES

Lab analyses to be performed Fuels, TPH-D, 8240, 624
Laboratory BCAL

Remarks HC odor, Sampled @ 1030 w/ blind duplicate @ 1045 labeled OW-5

2965a/capA14

PG&E WATER PURGING & SAMPLING LOG

SITE OAK GROVE JOB ID 7823
SAMPLING DATE 10-12-90, by RMG, KWC
PURGE DATE " ", by " "

WELL NO OW-4
WEATHER: clear

WATER ELEVATION/VOLUME CALCULATIONS

Description of Measuring Point (MP): TOC @ mark
Total depth of well: 20.15 ft
Depth (from MP) to Water: 5.06 ft
Total water depth: 15.09 ft
Measurement method: SOUNDER

Screen interval from ___ ft to ___ ft.
Hydrocarbons present: Yes ___ No ___
Hydrocarbons thickness: ___

PURGE VOLUME CALCULATION

15.09 ft water * casing factor = 2.5 gal/casing vol. * 3 volumes = 7.7 Total gals purged.

Casing Factor: (circle one)
~~For 2" dia = 0.17 gal/ft~~
For 3" dia = 0.38 gal/ft
For 4" dia = 0.66 gal/ft

DRAWDOWN DETERMINATION

Water level begin ___ time: ___ time pump on ___
Water level end ___ time: ___ time pump off ___

PURGING

Time Start	Time End	Cumulative Discharge (gal)	pH	Conductivity umho/cm	Turbidity	°C Temp	Comments
0848	0855	2.5	7.5	81088	407	22.1	~~WELL DRY~~
	0857	5.0	6.9	1051	205	22.4	
	0859	7.5	6.8	1125	155	20.1	WELL DRY
	0905	8.0	6.8	1130	108		" "

Method of discharge disposal Ground
Method of purging/sampling Bennette Teflon Bailer
Method of cleaning bailer/pump: Alconox DI H2O
Pump lines/bailer ropes new, cleaned or dedicated? (circle one)

pH meter YSI 3500 calibrated YES conductivity meter YSI 3500 calibrated YES
temp corrected? YES

SAMPLES

Lab analyses to be performed Fuels (8015), TPHD 3510/8015, 016, 624
Laboratory BCAL

Remarks sampled @ 1015