

BASELINE

COPY

ENVIRONMENTAL CONSULTING

13 July 1995
93333-B0

Mr. Andrew Clark-Clough
City of Oakland
Office of Public Works
Environmental Affairs Division
1333 Broadway, Suite 330
Oakland, CA 94612

**Subject: Groundwater Monitoring Event at the City of Oakland, Municipal Service Center,
7101 Edgewater Drive - April 1995**

Dear Andrew:

This letter documents the groundwater monitoring activities performed by BASELINE at the Municipal Service Center (MSC) in April 1995 (Figure 1). Mr. Michael McGuire of Woodward Clyde Consultants authorized BASELINE to perform the tasks of redeveloping and sampling the five groundwater monitoring wells at the MSC. The approximate locations of the wells are shown in Figure 2. A survey to determine the exact relative location and elevation of the wells is underway. All field work was performed by a BASELINE geologist. Detailed procedures for well redevelopment and sampling and the analytical results are described below.

Well Redevelopment

Groundwater monitoring wells MW-1, MW-2, MW-5, MW-6, and MW-7 were redeveloped on 14 and 17 April 1995. Redevelopment procedures consisted of the following:

- Monitored vapor in well casing using an HNu instrument upon opening well cap.
- Measured product/water level in the well from top of casing using dual-interface probe.
- Surge blocked well.
- Pumped groundwater using double diaphragm pump and new disposal hose into well-specific 55-gallon drum until the water was clear.
- Monitored conductivity and pH of pumped groundwater during development.
- Recorded activities on well development logs.
- Decontaminated surge block and dual-interface probe by washing in TSP solution and rinsing with DI water.

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Well development logs are provided in Attachment A. Unusual observations were noted for MW-1 and MW-6. The groundwater in MW-1 appeared to have been under pressure; the groundwater was rising in the well casing when the water level was measured. A sheen was observed on the dual-interface probe after the water level in MW-6 was measured. Approximately 1.5 gallons of water was removed from the top of the water column in MW-6 at the beginning of pumping. The extracted water appeared to contain petroleum emulsions. A surge block was used in MW-6 after removal of the emulsion-containing water and development was continued.

Groundwater Sampling

Groundwater samples were collected from the five groundwater monitoring wells on 19 April 1995. Sample bottles were provided by the analytical laboratory. Groundwater sampling forms are provided in Attachment B. Sampling procedures were as follows:

- Monitored vapor in well casing using an HNu instrument upon opening well cap.
- Measured product/water level and total depth of well from top of casing using dual-interface probe; decontaminated probe by washing in TSP solution and rinsing with DI water.
- Purged well using double diaphragm pump and new disposal hosing into a 55-gallon drum.
- Measured temperature, pH, and conductivity of the purged water.
- Purged well of a minimum of 3.5 well volumes and until parameters had stabilized.
- Collected groundwater samples using new disposal PVC bailers after the water level had recovered to at least 97 percent of original level.
- Filled sample bottles for volatile organic analyses using volatile organic compound attachments to minimize turbulence and to prevent air bubbles; filled other sample bottles directly from bottom of bailer.
- Collected duplicate sample from MW-6 (labeled sample MW-6A).
- Submitted trip blank with samples (labeled MW-500).
- Stored labeled sample bottles in plastic cooler with blue ice; samples were picked up by laboratory using chain-of-custody procedures.
- Labeled and secured 55-gallon drums containing purge and decontamination water.

Petroleum odor was noticed during purging of MW-1, MW-5, and MW-6.

Analytical Results

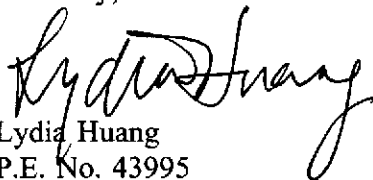
The analyses performed on each sample is summarized in Table 1. The samples were analyzed by Chromalab, Inc., a state-certified laboratory located in Pleasanton. Analytical results are summarized in Tables 2 and 3. The laboratory report is provided in Attachment C.

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Please contact us if you have any questions regarding the groundwater monitoring activities described in this letter.

Sincerely,



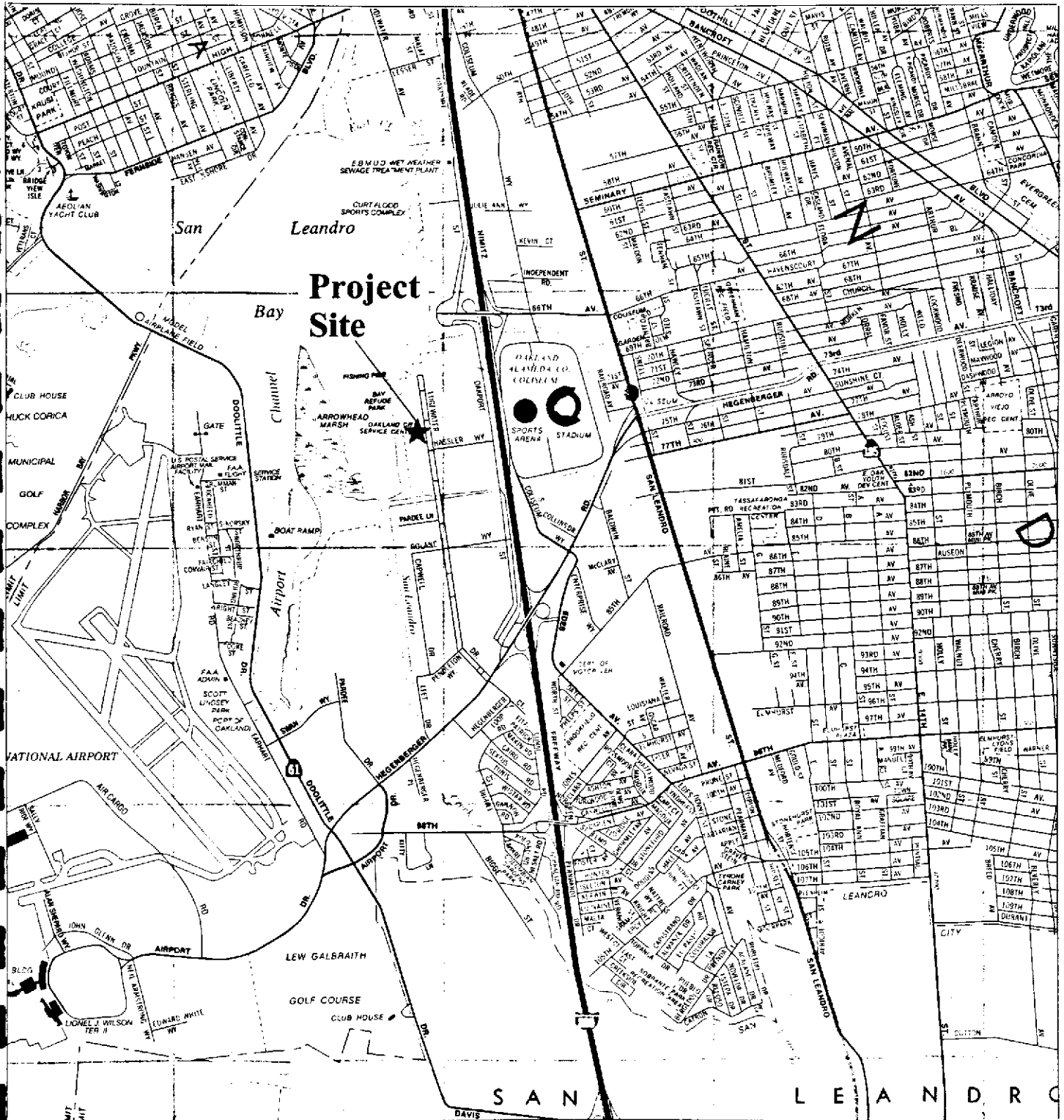
Lydia Huang
P.E. No. 43995

Attachments

cc: Mr. Barney Chan, Alameda County Health Services Agency

REGIONAL LOCATION

Figure 1



**City of Oakland
Municipal Service Center
Oakland, California**

93333-BO 6/2/95



BASILINE

SITE LAYOUT

Figure 2

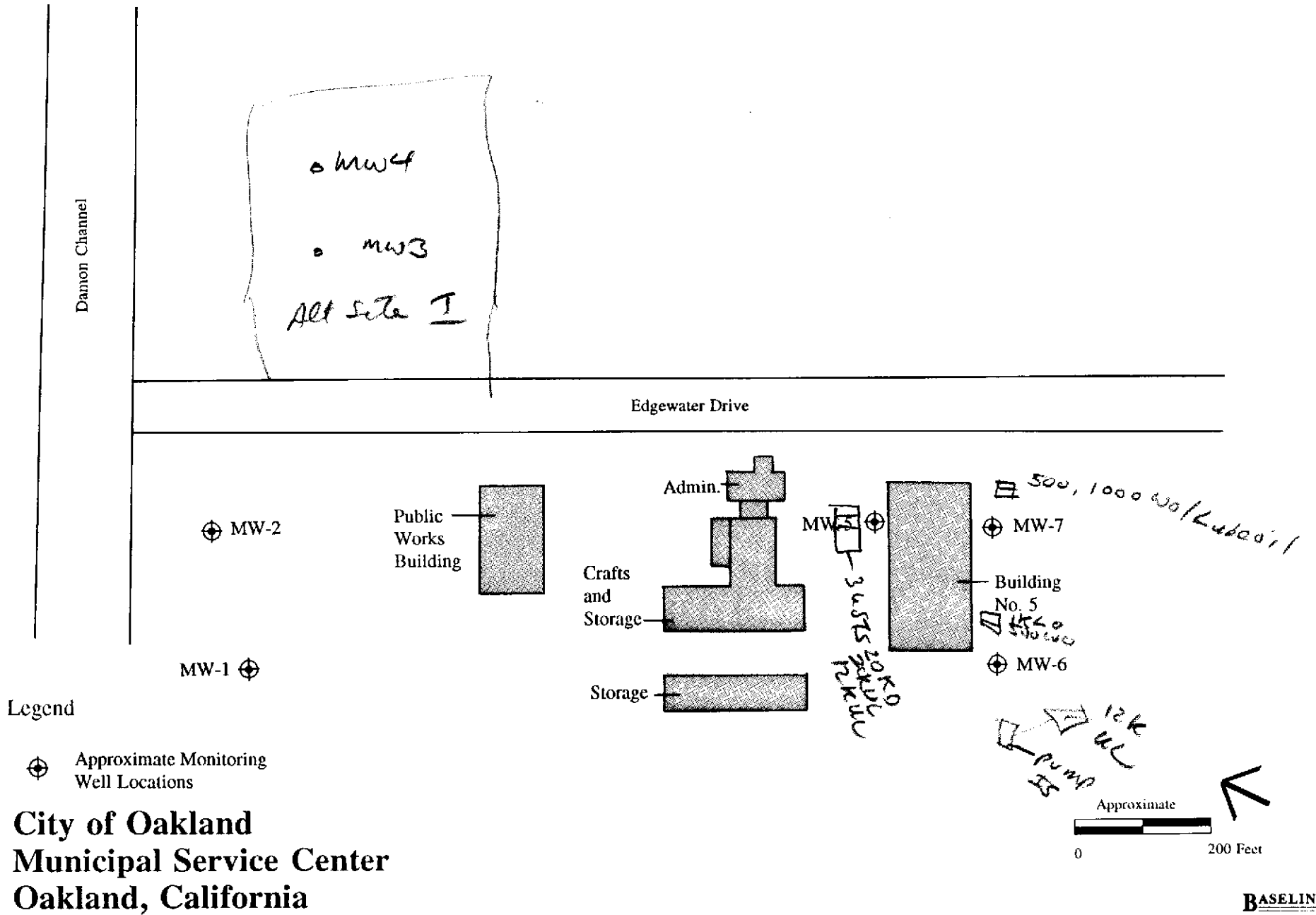


TABLE 1

LABORATORY ANALYSES PERFORMED ON GROUNDWATER SAMPLES
 Oakland Municipal Service Center
 April 1995

Location	TOTAL PETROLEUM HYDROCARBONS		TRPH ² (418.1)	VOLATILE ORGANIC COMPOUNDS		METALS ¹				
	Gasoline (5030/8015)	Diesel (3510/8015)		BTEX ³ (8020)	VOC ⁴ (8240)	Cadmium (6010)	Chromium (6010)	Lead (6010)	Nickel (6010)	Zinc (6010)
MW-1	✓	--	--	✓	--	--	--	✓	--	--
MW-2	✓	--	--	✓	--	--	--	✓	--	--
MW-5	✓	✓	✓	--	✓	✓	✓	✓	✓	✓
MW-6	✓	✓	--	✓	--	--	--	✓	--	--
MW-6A	✓	✓	--	✓	--	--	--	✓	--	--
MW-7	✓	✓	✓	--	✓	✓	✓	✓	✓	✓
Trip Blank	✓	--	--	✓	--	--	--	--	--	--

Notes: -- = Not analyzed.

Number shown in parenthesis indicates the EPA method used for analysis.

¹ All samples for metals analyses were filtered in the laboratory.

² TRPH = Total recoverable petroleum hydrocarbons.

³ BTEX = Benzene, toluene, ethylbenzene, and xylene.

⁴ VOC = Volatile organic compounds.

TABLE 2
METAL CONCENTRATIONS IN GROUNDWATER
Oakland Municipal Service Center
April 1995
(mg/L)

Sample	Cadmium	Chromium	Lead	Nickel	Zinc
MW-1	--	--	<0.01	--	--
MW-2	--	--	0.10	--	--
MW-5	<0.005	<0.01	<0.01	<0.01	0.02
MW-6	--	--	0.41	--	--
MW-6A	--	--	0.39	--	--
MW-7	0.069	0.07	<0.01	0.08	0.04

Notes: Groundwater samples were filtered by laboratory prior to analysis.
Analyzed by EPA method 6010.
<x.x = Metal not identified above the laboratory reporting limit of x.x.
Laboratory report is provided in Attachment C.

TABLE 3

PETROLEUM AND ORGANIC COMPOUND CONCENTRATIONS IN GROUNDWATER
Oakland Municipal Service Center
April 1995
(mg/L)

Sample	TPH as Gasoline ¹	TPH as Diesel ²	TRPH ³	Benzene ⁴	Toluene ⁴	Ethyl Benzene ⁴	Xylenes ⁴
MW-1	3.2	--	--	0.88	0.015	0.023	0.021
MW-2	<0.05	--	--	0.0018	<0.0005	<0.0005	<0.0005
MW-5	14	0.88 ⁵	4.7	0.49	0.051	0.61	1.2
MW-6	5.7	6.7 ⁵	--	0.04	<0.0008	0.0039	0.029
MW-6A	3.0	3.7 ⁵	--	0.31	0.0031	0.0027	0.1
MW-7	<0.05	<0.05	<1.0	<0.002	<0.002	<0.002	<0.002
MW-500	<0.05	--	--	<0.0005	<0.0005	<0.0005	<0.0005

Notes: TPH = Total Petroleum Hydrocarbons.
TRPH = Total Recoverable Petroleum Hydrocarbons.
<x.x = Compound not identified above the laboratory reporting limit of x.x.
Laboratory report is provided in Attachment C.

¹ Analyzed by EPA Method 5030/8015M.

² Analyzed by EPA Method 3510/8015M.

³ Analyzed by EPA Method 418.1.

⁴ Analyzed by EPA Method 8020 or 8240.

⁵ Laboratory report indicated sample chromatogram did not resemble chromatogram of any of the petroleum standards. Quantification listed in the table was based on the laboratory's diesel standard.

ATTACHMENT A
Well Development Logs

WELL DEVELOPMENT

Project no.:	<u>93333-BO</u>	Well no.:	<u>MW-1</u>	Date:	<u>4-17-95</u>
Project name:	<u>WWC-Oakland MSC</u>	Depth of well from TOC (feet):	<u>15.80</u>		
Location:	<u>7101 Edgewater</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>6-16</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):			
Weather:	<u>Cloudy</u>	Water level from TOC (feet):	<u>4.5 (rising)</u>	Time:	<u>11:10</u>
Precip in past		Product level from TOC (feet):	<u>None</u>	Time:	<u>11:10</u>
5 days (inch):	<u>Approx. 0.10</u>	Water level measurement:	<u>Dual-interface probe</u>		

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge:	
			Time	Water Level from TOC (feet)
11:14	0	Very turbid		
11:24	5	Very turbid		
11:33	7.5	Very turbid (well ran dry)	11:33	15.8
12:38	7.5	(resumed pumping)	12:38	7.4
13:00	9	Very slightly turbid		
13:25	10.5	Clear		
13:50	12.5	Clear		

Comments: Surge blocked well prior to purging. Well head under pressure.
HNu in well head upon opening = 140 ppm.

Total gallons removed:	<u>12.5</u>	Average recharge rate (ft/min):	<u>0.129 feet/minute</u>
Development method:	<u>Surge block, double diaphragm pump, disposable hose.</u>	Purged water disposal:	<u>Drum MW-1</u>
		Number of drums:	<u>1</u>
Decontamination method:	<u>TSP wash, DI water rinse</u>	Rinsate disposal:	<u>Drum MW-1</u>

WELL DEVELOPMENT

Project no.:	<u>93333-BO</u>	Well no.:	<u>MW-2</u>	Date:	<u>4-17-95</u>
Project name:	<u>WWC-Oakland MSC</u>	Depth of well from TOC (feet):	<u>15.70</u>		
Location:	<u>7101 Edgewater</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>6-16</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):			
Weather:	<u>Overcast</u>	Water level from TOC (feet):	<u>6.20</u>	Time:	<u>8:50</u>
Precip in past		Product level from TOC (feet):	<u>None</u>	Time:	<u>8:50</u>
5 days (inch):	<u>Approx. 0.10</u>	Water level measurement:	<u>Dual-interface probe</u>		

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge:	
			Time	Water Level (feet)
8:59	0	Very turbid	NA	
9:08	6	Very turbid		
9:10	7.5	Slightly turbid		
Slowed pump rate down				
9:16	10	Very slightly turbid		
9:25	13	Very slightly turbid		
9:48	18	Very slightly turbid-clear		
Slowed pump rate down				
10:29	25	Clear		
10:55	28.5	Clear		

Comments: Surge blocked well prior to purging.
HNu in well head upon opening = 22 ppm.

Total gallons removed:	<u>28.5</u>	Average recharge rate (ft/min):	<u>NA</u>
Development method:	<u>Surge block, double diaphragm pump, disposable hose.</u>	Purged water disposal:	<u>Drum MW-2</u>
		Number of drums:	<u>1</u>
Decontamination method:	<u>TSP wash, DI water rinse</u>	Rinsate disposal:	<u>Drum MW-2</u>

WELL DEVELOPMENT

Project no.:	<u>93333-BO</u>	Well no.:	<u>MW-5</u>	Date:	<u>4-14-95</u>
Project name:	<u>WWC-Oakland MSC</u>	Depth of well from TOC (feet):	<u>14.30</u>		
Location:	<u>7101 Edgewater</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>4-14</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):			
Weather:	<u>Sunny</u>	Water level from TOC (feet):	<u>6.10</u>	Time:	<u>14:51</u>
Precip in past		Product level from TOC (feet):	<u>None</u>	Time:	<u>14:51</u>
5 days (inch):	<u>Approx. 0.3</u>	Water level measurement:	<u>Dual-interface probe</u>		

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge:	
			Time	Water Level (feet)
14:58	0.5	Very turbid	NA	
15:04	1.5	Turbid		
15:17	3.25	Clear		
15:30	5	Clear		
15:36	6	Clear		
15:41	7	Clear		

Comments: Surge blocked well prior to purging.
HNu in well head upon opening = 20 ppm.

Total gallons removed:	<u>7</u>	Average recharge rate (ft/min):	<u>NA</u>
Development method:	<u>Surge block, double diaphragm pump, disposable hose.</u>	Purged water disposal:	<u>Drum MW-5</u>
		Number of drums:	<u>1</u>
Decontamination method:	<u>TSP wash, DI water rinse</u>	Rinsate disposal:	<u>Drum MW-5</u>

WELL DEVELOPMENT

Project no.:	93333-BO	Well no.:	MW-6	Date:	4-14-95
Project name:	WWC-Oakland MSC	Depth of well from TOC (feet):	14.30		
Location:	7101 Edgewater Oakland, CA	Well diameter (inch):	2		
Recorded by:	WKS	Screened interval from TOC (feet):	4-14		
Weather:	Sunny, breezy	TOC elevation (feet):			
Precip in past 5 days (inch):	Approx. 0.3	Water level from TOC (feet):	7.04	Time:	10:48
		Product level from TOC (feet):	7.04	Time:	10:48
		Water level measurement:	Dual-interface probe		

FIELD MEASUREMENTS

Time	Gallons Removed	Appearance	Recharge:	
			Time	Water Level (feet)
10:40	0		NA	
10:50	1	Clear with product		
11:30	5	Turbid		
11:50	9	Slightly turbid		
12:40	15	Very slightly turbid		
Reduced pump rate				
13:00	16.5	Clear		
13:20	17.5	Clear		

Comments: Sheen observed on probe. Began removing sheen by lowering PVC hose opening to just below top of water. Removed about 1.5 gallons of groundwater containing product emulsions. Surge blocked well prior to continuing development.
HNu in well head upon opening = 20 ppm.

Total gallons removed:	17.5	Average recharge rate (ft/min):	NA
Development method:	Surge block, double diaphragm pump, disposable hose.	Purged water disposal:	Drum MW-6
Decontamination method:	TSP wash, DI water rinse	Number of drums:	1
		Rinsate disposal:	Drum MW-6

93333APR.XLS (6/2/95)

ATTACHMENT B

Groundwater Sampling Forms

GROUNDWATER SAMPLING

Project no.: 93333-BO Well no.: MW-1 Date: 4-19-95
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 15.8 (measured)
 Location: 7101 Edgewater Well diameter (inch): 2
Oakland, CA Screened interval from TOC (feet): 6-15.8
 Recorded by: WKS TOC elevation (feet): _____
 Weather: Cloudy Water level from TOC (feet): 3.65 Time: 7:31
 Precip in past _____ Product level from TOC (feet): None Time: 7:31
 5 days (inch): Approx. 0.10 Water level measurement: Dual-interface probe

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(15.8 \text{ ft}) - (3.65 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \underline{\quad 2.0 \text{ gallons in one well volume}} \\
 \text{Well depth} \quad \text{Water level} \quad \text{Well radius} \quad \underline{\quad 9.9 \text{ gallons in 5 well volumes}} \\
 \underline{\quad 7 \text{ total gallons removed}}$$

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	7:33	10.0	7.01/10.01	10,000
Before Purging:	7:35	10.0	7.01/10.01	6,500
After Purging:	12:40	20.0	6.98/9.86	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
7:41	Start pumping				Very slightly turbid with silt
7:53	15.3	6.86	10,000	1.0	Petroleum odor
8:16	17.5	6.80	7,500	3.0	Clear/petroleum odor
8:26	17.0	6.85	7,000	4.0	Clear/petroleum odor
8:38	17.3	6.84	7,600	6.0	Clear/petroleum odor
8:48	17.1	6.89	7,500	7.0	Clear/petroleum odor

Pumping rate: 0.10 gallons/minute HNu reading in wellhead (ppm): 10
 Water level after purging/after sampling (feet): 4.00/4.33 Time: 13:00
 Appearance of sample: Slightly turbid Time: 13:05
 Duplicate/blank number: N/A Time: _____
 Purge method: Double diaphragm pump with new disposable hose
 Sampling equipment: New disposable PVC bailer VOC attachment: Used for VOAs
 Sample containers: 2 VOAs; 1 1-liter plastic bottles
 Sample analyses: TPH as gasoline, BTEX, lead Laboratory: Chromalab
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum MW1

93333APR.XLW (6/2/95)

GROUNDWATER SAMPLING

Project no.:	<u>93333-BO</u>	Well no.:	<u>MW-2</u>	Date:	<u>4-19-95</u>
Project name:	<u>WWC-Oakland MSC</u>	Depth of well from TOC (feet):	<u>15.7 (measured)</u>		
Location:	<u>7101 Edgewater</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>6-15.70</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):	_____		
Weather:	<u>Cloudy</u>	Water level from TOC (feet):	<u>6.16</u>	Time:	<u>7:15</u>
Precip in past	_____	Product level from TOC (feet):	<u>None</u>	Time:	<u>7:15</u>
5 days (inch):	<u>Approx. 0.10</u>	Water level measurement:	<u>Dual-interface probe</u>		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(15.7 \text{ ft}) - (6.16 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \underline{\quad 1.5 \text{ gallons in one well volume}} \\ \text{Well depth} \quad \text{Water level} \quad \text{Well radius} \quad \underline{\quad 7.7 \text{ gallons in 5 well volumes}} \\ \underline{\quad 6.0 \text{ total gallons removed}}$$

CALIBRATION:

	Time	Temp (°C)	pH	EC (µmho/cm)
Calibration Standard:	7:33	10.0	7.01/10.01	10,000
Before Purging:	7:35	10.0	7.01/10.01	6,500
After Purging:	12:40	20.0	6.98/9.86	8,000

FIELD MEASUREMENTS:

Time	Temp (°C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
12:00	Start pumping				
12:05	18.5	6.27	19,000	2.25	Very slightly turbid/sulphur odor
12:18	18.5	6.48	20,000	3.5	Clear/sulphur odor
12:27	18.1	6.41	20,000	4.75	Clear/sulphur odor
12:35	18.2	6.46	20,000	6	Clear/sulphur odor

Pumping rate:	<u>0.17 gallons/minute</u>	HNu reading in wellhead (ppm):	<u>25</u>
Water level after purging/after sampling (feet):	<u>6.22/6.23</u>	Time:	<u>12:45</u>
Appearance of sample:	<u>Slightly turbid</u>	Time:	<u>12:46</u>
Duplicate/blank number:	<u>N/A</u>	Time:	_____
Purge method:	<u>Double diaphragm pump with new disposable hose</u>		
Sampling equipment:	<u>New disposable PVC bailer</u>	VOC attachment:	<u>Used for VOAs</u>
Sample containers:	<u>2 VOAs; 1 1-liter plastic bottle</u>		
Sample analyses:	<u>TPH as gasoline, BTEX, lead</u>	Laboratory:	<u>Chromalab</u>
Decontamination method:	<u>TSP and water, DI water rinse</u>	Rinsate disposal:	<u>Drum MW2</u>

93333APR.XLW (6/2/95)

GROUNDWATER SAMPLING

Project no.:	<u>93333-BO</u>	Well no.:	<u>MW-5</u>	Date:	<u>4-19-95</u>
Project name:	<u>WWC-Oakland MSC</u>	Depth of well from TOC (feet):	<u>14.30 (measured)</u>		
Location:	<u>7101 Edgewater</u>	Well diameter (inch):	<u>2</u>		
	<u>Oakland, CA</u>	Screened interval from TOC (feet):	<u>4-14</u>		
Recorded by:	<u>WKS</u>	TOC elevation (feet):	_____		
Weather:	<u>Cloudy</u>	Water level from TOC (feet):	<u>6.05</u>	Time:	<u>10:20</u>
Precip in past	_____	Product level from TOC (feet):	<u>None</u>	Time:	<u>10:20</u>
5 days (inch):	<u>Approx. 0.10</u>	Water level measurement:	<u>Dual-interface probe</u>		

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(14.3 \text{ ft}) - (6.05 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \underline{1.3} \text{ gallons in one well volume}$$

Well depth Water level Well radius

$$\underline{6.7} \text{ gallons in 5 well volumes}$$

$$\underline{5.0} \text{ total gallons removed}$$

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	7:33	10.0	7.01/10.01	10,000
Before Purging:	7:35	10.0	7.01/10.01	6,500
After Purging:	12:40	20.0	6.98/9.86	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
11:12	Start pumping				
11:16	17.8	6.50	7,000	1	Very slightly turbid-clear/strong petrol. odor
11:24	17.8	6.51	6,000	2.75	Clear/strong petroleum odor
11:30	17.7	6.49	6,000	4	Clear/strong petroleum odor
11:38	17.7	6.52	6,000	5	Clear/strong petroleum odor

Pumping rate:	<u>0.19 gallons/minute</u>	HNu reading in wellhead (ppm):	<u>15</u>
Water level after purging/after sampling (feet):	<u>6.05/6.13 rising</u>	Time:	<u>11:45 AM</u>
Appearance of sample:	<u>Clear</u>	Time:	<u>11:46 AM</u>
Duplicate/blank number:	<u>N/A</u>	Time:	_____
Purge method:	<u>Double diaphragm pump with new disposable hose</u>		
Sampling equipment:	<u>New disposable PVC bailer</u>	VOC attachment:	<u>Used for VOAs</u>
Sample containers:	<u>4 VOAs; 3 1-liter amber glass bottles; 2 1-liter plastic bottles</u>		
Sample analyses:	<u>TPH gas & diesel, TRPH, 8240, met;</u>		Laboratory: <u>Chromalab</u>
Decontamination method:	<u>TSP and water, DI water rinse</u>	Rinsate disposal:	<u>Drum MW5</u>

93333APR.XLW (6/2/95)

GROUNDWATER SAMPLING

Project no.: 93333-BO Well no.: MW-6 Date: 4-19-95
 Project name: WWC-Oakland MSC Depth of well from TOC (feet): 14.27 (measured)
 Location: 7101 Edgewater Well diameter (inch): 2
Oakland, CA Screened interval from TOC (feet): 4-14
 Recorded by: WKS TOC elevation (feet): _____
 Weather: Cloudy Water level from TOC (feet): 6.81 Time: 9:04
 Precip in past _____ Product level from TOC (feet): None Time: 9:04
 5 days (inch): Approx. 0.10 Water level measurement: Dual-interface probe

VOLUME OF WATER TO BE REMOVED BEFORE SAMPLING:

$$[(14.27 \text{ ft}) - (6.81 \text{ ft})] \times (0.083 \text{ ft})^2 \times 3.14 \times 7.48 = \underline{1.2} \text{ gallons in one well volume}$$

Well depth Water level Well radius 6.1 gallons in 5 well volumes
6 total gallons removed

CALIBRATION:

	Time	Temp (° C)	pH	EC (µmho/cm)
Calibration Standard:	7:33	10.0	7.01/10.01	10,000
Before Purging:	7:35	10.0	7.01/10.01	6,500
After Purging:	12:40	20.0	6.98/9.86	8,000

FIELD MEASUREMENTS:

Time	Temp (° C)	pH	EC (µmho/cm)	Cumulative Gallons Removed	Appearance
9:06	Start pumping				Sheen on purge water
9:12	16.2	7.38	4,000	1	Clear/slight petroleum odor
9:27	16.5	7.39	3,700	3.75	Clear/slight petroleum odor
9:38	15.6	7.27	3,600	5	Clear/slight petroleum odor
9:46	16.1	7.34	3,600	6	Clear/slight petroleum odor

Pumping rate: 0.15 gallons/minute HNu reading in wellhead (ppm): 15
 Water level after purging prior to sampling (feet): 6.86/7.35 Time: 15:38
 Appearance of sample: Slightly turbid Time: 15:40
 Duplicate/blank number: MW6-A Time: 15:45
 Purge method: Double diaphragm pump with new disposable hose
 Sampling equipment: New disposable PVC bailer VOC attachment: Used for VOAs
 Sample containers: 2 VOAs; 1 2-liter amber glass bottle; 2 1-liter plastic bottles
 Sample analyses: TPH as gas & diesel, BTEX, lead Laboratory: Chromalab
 Decontamination method: TSP and water, DI water rinse Rinsate disposal: Drum MW6

93333APR.XLW (6/2/95)

ATTACHMENT C

Laboratory Report

CHROMALAB, INC.

Environmental Services (SDB)

RECEIVED

MAY 4 1995

Submission #: 9504229

April 20, 1995

BASELINE ENVIRONMENTAL/EMRYVL

BASELINE

Atten: William Scott

Project: WWC-OAKLAND MSC

Project#: 93333-AO

Received: April 19, 1995

re: 6 samples for Lead analysis.


Sampled: April 19, 1995
Method: EPA 3010A M/6010

Matrix: WATER
Run#: 6297

Extracted: April 20, 1995
Analyzed: April 20, 1995

Spl #	CLIENT	SMPL ID	LEAD (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
85393	MW-1		N.D.	0.01	N.D.	106
85394	MW-2		0.10	0.01	N.D.	106
85395	MW-5		N.D.	0.01	N.D.	106
85397	MW-6		0.41	0.01	N.D.	106
85398	MW-7		N.D.	0.01	N.D.	106
85400	MW-6A		0.39	0.01	N.D.	106


Doina Danet
Chemist


John S. Labash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC

Project#: 93333-AO

Received: April 19, 1995

re: One sample for Metals analysis.

Sample ID: MW-5

Spl#: 85396

Matrix: WATER

Extracted: April 25, 1995

Sampled: April 19, 1995


Run#: 6365

Analyzed: April 26, 1995

Method: EPA 3005A M/6010

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
CADMIUM	N.D.	0.005	N.D.	93
CHROMIUM	N.D.	0.01	N.D.	99
NICKEL	N.D.	0.01	N.D.	96
ZINC	0.02	0.01	N.D.	102


Doina Danet
Chemist


John S. Labash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC
Received: April 19, 1995

Project#: 93333-AO

re: One sample for Metals analysis.

Sample ID: MW-7

Spl#: 85399

Sampled: April 19, 1995

Method: EPA 3005A M/6010

Matrix: WATER

Run#: 6365

Extracted: April 25, 1995

Analyzed: April 26, 1995

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
CADMIUM	0.069	0.005	N.D.	93
CHROMIUM	0.07	0.01	N.D.	99
NICKEL	0.08	0.01	N.D.	96
ZINC	0.04	0.01	N.D.	102

Doina Danet
Doina Danet
Chemist

John S. Labash
John S. Labash
Inorganic Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

April 25, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC
Received: April 19, 1995

Project#: 93333-AO


re: 2 samples for Total Recoverable Petroleum Hydrocarbons analysis.

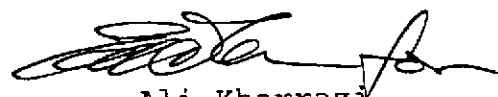
Sampled: April 19, 1995
Method: EPA 418.1

Matrix: WATER
Run#: 6364

Extracted: April 25, 1995
Analyzed: April 25, 1995

Spl #	CLIENT	SMPL ID	TRPH (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
85395	MW-5		4.7	1.0	N.D.	100
85398	MW-7		N.D.	1.0	N.D.	100


Carolyn House
Extractions Supervisor


Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

April 25, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC

Project#: 93333-AO

Received: April 19, 1995

re: One sample for Volatile Organic Compounds analysis.

Sample ID: MW-5

Spl#: 85395

Matrix: WATER

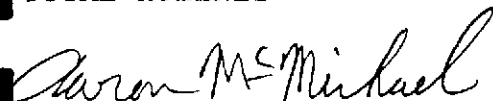
Sampled: April 19, 1995

Run#: 6356

Analyzed: April 24, 1995

Method: EPA 8240/8260

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
ACETONE	N.D.	4.0	N.D.	--
BENZENE	490	10	N.D.	121
BROMODICHLOROMETHANE	N.D.	2.0	N.D.	--
BROMOFORM	N.D.	2.0	N.D.	--
BROMOMETHANE	N.D.	2.0	N.D.	--
METHYL ETHYL KETONE	N.D.	2.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	2.0	N.D.	--
CHLOROBENZENE	N.D.	2.0	N.D.	105
CHLOROETHANE	N.D.	2.0	N.D.	--
2-CHLOROETHYL VINYL ETHER	N.D.	2.0	N.D.	--
CHLOROFORM	N.D.	2.0	N.D.	--
CHLOROMETHANE	N.D.	2.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,2-DICHLOROETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHENE	N.D.	2.0	N.D.	119
CIS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
1,2-DICHLOROPROPANE	N.D.	2.0	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
ETHYLBENZENE	610	10	N.D.	--
2-HEXANONE	N.D.	2.0	N.D.	--
METHYLENE CHLORIDE	N.D.	2.0	N.D.	--
METHYL ISOBUTYL KETONE	N.D.	2.0	N.D.	--
STYRENE	N.D.	2.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	2.0	N.D.	--
TETRACHLOROETHENE	N.D.	2.0	N.D.	--
TOLUENE	51	2.0	N.D.	104
1,1,1-TRICHLOROETHANE	N.D.	2.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	2.0	N.D.	--
TRICHLOROETHENE	N.D.	2.0	N.D.	108
TRICHLOROFLUOROMETHANE	N.D.	2.0	N.D.	--
VINYL ACETATE	N.D.	2.0	N.D.	--
VINYL CHLORIDE	N.D.	2.0	N.D.	--
TOTAL XYLENES	1200	10	N.D.	--


Aaron McMichael
Chemist


Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

April 25, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Attended: William Scott

Project: WWC-OAKLAND MSC

Project#: 93333-AO

Received: April 19, 1995

Sample: One sample for Volatile Organic Compounds analysis.

Sample ID: MW-7

Spl#: 85398

Matrix: WATER

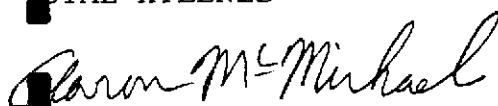
Sampled: April 19, 1995

Run#: 6356

Analyzed: April 24, 1995

Method: EPA 8240/8260

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
ACETONE	N.D.	4.0	N.D.	--
BENZENE	N.D.	2.0	N.D.	121
BROMODICHLOROMETHANE	N.D.	2.0	N.D.	--
BROMOFORM	N.D.	2.0	N.D.	--
BROMOMETHANE	N.D.	2.0	N.D.	--
METHYL ETHYL KETONE	N.D.	2.0	N.D.	--
CARBON TETRACHLORIDE	N.D.	2.0	N.D.	--
CHLOROBENZENE	N.D.	2.0	N.D.	105
CHLOROETHANE	N.D.	2.0	N.D.	--
2-CHLOROETHYL VINYL ETHER	N.D.	2.0	N.D.	--
CHLOROFORM	N.D.	2.0	N.D.	--
CHLOROMETHANE	N.D.	2.0	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	2.0	N.D.	--
1,1-DICHLOROETHANE	N.D.	2.0	N.D.	--
2-DICHLOROETHANE	N.D.	2.0	N.D.	--
1-DICHLOROETHENE	N.D.	2.0	N.D.	119
CIS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	2.0	N.D.	--
2-DICHLOROPROPANE	N.D.	2.0	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	2.0	N.D.	--
ETHYLBENZENE	N.D.	2.0	N.D.	--
HEXANONE	N.D.	2.0	N.D.	--
ETHYLENE CHLORIDE	N.D.	2.0	N.D.	--
METHYL ISOBUTYL KETONE	N.D.	2.0	N.D.	--
STYRENE	N.D.	2.0	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	2.0	N.D.	--
TETRACHLOROETHENE	N.D.	2.0	N.D.	--
TOLUENE	N.D.	2.0	N.D.	104
1,1,1-TRICHLOROETHANE	N.D.	2.0	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	2.0	N.D.	--
TRICHLOROETHENE	N.D.	2.0	N.D.	108
TRICHLOROFLUOROMETHANE	N.D.	2.0	N.D.	--
VINYL ACETATE	N.D.	2.0	N.D.	--
VINYL CHLORIDE	N.D.	2.0	N.D.	--
TOTAL XYLENES	N.D.	2.0	N.D.	--


Aaron McMichael
Chemist


Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC
Received: April 19, 1995

Project#: 93333-AO

re: 5 samples for Gasoline and BTEX analysis.

Matrix: WATER

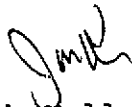
Sampled: April 19, 1995


Run#: 6353

Analyzed: April 25, 1995

Method: EPA 5030/8015M/602/8020

Spl #	CLIENT SMPL ID	Gasoline (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
85393	MW-1	3.2	880	15	23	21
	Note: GAS DET.LIMIT=.25mg/L, BTEX DET.LIMIT=2.5ug/L					
85394	MW-2	N.D.	1.8	N.D.	N.D.	N.D.
85397	MW-6	5.7	40	N.D.	3.9	29
	Note: GAS DET.LIMIT=.08mg/L, BTEX DET.LIMIT=.8ug/L					
85400	MW-6A	3.0	310	3.1	2.7	100
	Note: GAS DET.LIMIT=.17mg/L, BTEX DET.LIMIT=1.7ug/L					
85401	MW-500	N.D.	N.D.	N.D.	N.D.	N.D.
Reporting Limits		0.05	0.5	0.5	0.5	0.5
Blank Result		N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)		111	94	110	99	108


Jack Kelly
Chemist


Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC
Received: April 19, 1995

Project#: 93333-AO

re: 4 samples for Diesel analysis.

Matrix: WATER Extracted: April 20, 1995
Run#: 6324 Analyzed: April 20, 1995
Sampled: April 19, 1995
Method: EPA 3510/8015M

Spl #	CLIENT SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
85397	MW-6	N.D.	500	N.D.	75
<i>Note: Compounds in the Diesel range do not match any of our petroleum hydrocarbon standard profiles. Compared to our Diesel standard, amount is 6700 ug/L.</i>					
85398	MW-7	N.D.	50	N.D.	75

Matrix: WATER Extracted: April 20, 1995
Run#: 6324 Analyzed: April 24, 1995
Sampled: April 19, 1995
Method: EPA 3510/8015M

Spl #	CLIENT SMPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
85395	MW-5	N.D.	50	N.D.	75
<i>Note: Compounds in the Diesel range do not match any of our petroleum hydrocarbon standard profiles. Compared to our Diesel standard, amount is 880 ug/L.</i>					
85400	MW-6A	N.D.	250	N.D.	75
<i>Note: Compounds in the Diesel range do not match any of our petroleum hydrocarbon standard profiles. Compared to our Diesel standard, amount is 3700 ug/L.</i>					

Sirirat Chullakorn

Sirirat (Sindy) Chullakorn
Chemist

Ali Kharrazi
Ali Kharrazi
Organic Manager

CHROMALAB, INC.

Environmental Services (SDB)

April 26, 1995

Submission #: 9504229

BASELINE ENVIRONMENTAL/EMRYVL

Atten: William Scott

Project: WWC-OAKLAND MSC

Project#: 93333-AO

Received: April 19, 1995

re: 2 samples for Gasoline analysis.

Matrix: WATER

Sampled: April 19, 1995

Run#: 6350

Analyzed: April 24, 1995

Method: EPA 5030/8015M

Spl #	CLIENT	SMPL ID	GASOLINE (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE RESULT (%)
85395	MW-5		14	4	N.D.	111
Note: GASOLINE DET. LIMIT IS 4mg/L DUE TO DILUTION						
85398	MW-7		N.D.	0.05	N.D.	111



Jack Kelly
Chemist



Ali Kharrazi
Organic Manager

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name BREELINE Date/Time Received 4/19/95 16:15
Project _____ Received by P. Sells Date / Time
Reference/Subm # 21802/PS04229 Carrier name _____
Checklist completed by: Chowley 4/20/95 Logged in by TA 4/19/95
Signature Date Initials / Date
Matrix H2O

- Shipping container in good condition? NA ___ Yes ___ No ___
- Custody seals present on shipping container? Intact ___ Broken ___ Yes ___ No ___
- Custody seals on sample bottles? Intact ___ Broken ___ Yes ___ No ___
- 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 ___
- Samples intact? Yes No ___
- Sufficient sample volume for indicated test? Yes No ___
- VOA vials have zero headspace? NA ___ Yes No ___
- Trip Blank received? NA ___ Yes ___ No
- All samples received within holding time? Yes No ___
- Container temperature? 50C
- pH upon receipt _____ pH adjusted < 2 Check performed by: _____ NA ___

Any NO responses must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted? _____ Date contacted? _____

Person contacted? _____ Contacted by? _____

Regarding? _____

Comments: _____

Corrective Action: _____

229 / 85393-85401
 BASELINE CHAIN
 5900 Hollis Street, Suite D
 Emeryville, CA 94608
 (510) 420-8686

SUBJ #: 8504220
 CLIENT: BASELINE
 DUE: 04/26/95
 REF #: 21562

around Time 21562
 Standard Chromalabs
 PHONE Contact Person

Project No. 93333-A0		Project Name and Location WWC - Oakland MSC 7101 Edgewater Drive				Analysis										Remarks/ Composite	Detection Limits		
Samplers: (Signature) <i>William K Scott</i>						TPH as Gasoline (8015)	TPH as Gasoline (8015) (TPH with BTX&E) 8020	TPH as Diesel (8015) Oil & Grease	TRPH (418.1)	Lead (EPA 7421)	Filtered by Lab, (6010)	MS C, C ₁ , N, Z	Vol. TIC organic compounds (8240)						
Sample ID No. Station	Date	Time	Media	Depth	No. of Containers														
MW-1	4-19-95	13:05	Water	-	3	X			X										
MW-2	4-19-95	12:46	Water	-	3	X			X										
MW-5	4-19-95	14:15	Water	-	9	X	X	X	X	X	X	X							
MW-6	4-19-95	13:40	Water	-	5	X	X		X										
MW-7	4-19-95	14:45	Water	-	9	X	X	X	X	X	X	X							
MW-6A	4-19-95	13:45	Water	-	5	X	X		X										
MW-500	4-19-95	7:00	Water	-	2	X													
RECEIVED AT SOC																			

Relinquished by: (Signature) <i>William K Scott</i>	Date / Time 4/19/95 / 15:51	Received by: (Signature) <i>John Adam</i>	Date / Time 4-19-95 16:15	Conditions of Samples Upon Arrival at Laboratory:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Remarks:
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	