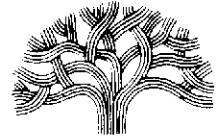




ENVIRONMENTAL
PROTECTION
98 FEB 24 AM 9:09

CITY OF OAKLAND



ENVIRONMENTAL SERVICES • 1333 BROADWAY, SUITE 330A • OAKLAND, CALIFORNIA 94612

Public Works Agency

(510) 238-6688
FAX (510) 238-7286
TDD (510) 238-7644

February 20, 1998

Mr. Barney Chan
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502-6577

**Subject: Groundwater Monitoring Report - November 1997, City of Oakland
Municipal Service Center (94407)**

Dear Barney:

Enclosed is one copy of the Groundwater Monitoring Report for November 1997, prepared by our consultant, DOVE Engineering Group, Inc., for the City of Oakland's Municipal Service Center at 7101 Edgewater Drive. Groundwater monitoring will be performed again this month in accordance with the quarterly monitoring schedule.

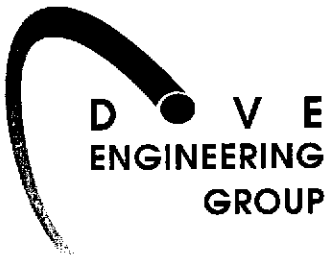
Please call me at 238-7695, if you have any questions or require additional information.

Sincerely,

Mark B. Hersh
Environmental Program Specialist

cc: (w enclosure)
Dianne Heinz, Port of Oakland

(w/o enclosure)
Andrew Clark-Clough
Chris Palmer, DOVE



GROUNDWATER MONITORING REPORT

**CITY OF OAKLAND
Municipal Service Center
Oakland, California**

Prepared for

**Mark Hersh
City of Oakland Public Works Agency
Environmental Services Division**

Prepared by

Dove Engineering Group, Inc.

1/22/98

GROUNDWATER MONITORING REPORT

**Municipal Service Center
7101 Edgewater Drive
Oakland, California**

ACC Project No. 97-6442-001.00

Prepared for:

Mr. Mark Hersh
Office of Public Works
City of Oakland
Oakland, California 94612

January 22, 1998

Prepared by:

Carolyn Mulvihill

Carolyn Mulvihill
Technical Editor

Reviewed by:

D. DeMent

David R. DeMent, RG
Senior Geologist, ACC



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- 2 - Groundwater Analytical Results and Chain of Custody Record

GROUNDWATER MONITORING REPORT

Municipal Service Center

7101 Edgewater Drive

Oakland, California

1.0 INTRODUCTION

ACC Environmental Consultants, Inc., (ACC) was retained by Dove Engineering Group, Inc., (DEGI) to conduct groundwater monitoring of three monitoring wells at the Municipal Service Center (MSC), Oakland, California (Figure 1). ?

The project objectives were to: measure the water levels and calculate the elevation of the groundwater in each monitoring well; obtain groundwater samples from three existing monitoring wells and analyze the water samples for various analytes; and report the findings.

2.0 BACKGROUND

The MSC is located at 7101 Edgewater Drive and occupies approximately 17 acres adjacent to San Leandro Bay and Damon Slough (Figure 2). The site is used by various City of Oakland departments for vehicle and equipment storage, maintenance, and fueling. The MSC property consists of offices including the Public Works building and warehouse structures used for maintenance. About 14 underground storage tanks were previously located at the site. An abandoned pressurized underground gasoline pipeline network is currently located at the site. Previous investigations indicated that elevated levels of fuel hydrocarbons and priority pollutant metals are present in the soil and groundwater.

On November 8, 1996, Uribe & Associates drilled 12 borings (B35 through B46) along the bayside perimeter of the MSC. On May 2, 1997, borings B35, B39, and B44 were converted to permanent monitoring wells MW-8, MW-9, and MW-10, respectively.

3.0 GROUNDWATER MONITORING AND SAMPLING

ACC performed a groundwater investigation of monitoring wells MW-8, MW-9, and MW-10 on November 20, 1997. Work at the site included measuring depth to water, subjectively evaluating groundwater in the wells for petroleum hydrocarbon odor and sheen, and purging and sampling the wells for laboratory analysis. Sampling results have been reviewed by Mr. Christopher Palmer, project manager for DEGI. *wells only 8, 9 + 10?*

Before groundwater sampling, the depth to the surface of the water table was measured from the top of the polyvinyl chloride well casing using a Solinst water level meter. The water level measurements were collected in a 57 minute period and were recorded to the nearest 0.01 foot. Groundwater monitoring data was recorded on the well monitoring worksheets which are attached. Information regarding groundwater levels is summarized in Table 1. No petroleum hydrocarbon odor or sheen were noted in any of the wells.

TABLE 1 - GROUNDWATER DEPTH INFORMATION

Well No.	Date Sampled	Well Elevation ⁽¹⁾ (above MSL)	Depth to Groundwater	Groundwater Elevation
MW-1	11/20/97	10.20	6.41	3.79
MW-2	11/20/97	10.47	7.67	2.80
MW-3 ⁽²⁾	11/20/97	---	6.93	---
MW-4	11/20/97	7.89	6.59	1.30
MW-5	11/20/97	11.15	6.45	4.70
MW-6	11/20/97	10.98	8.91	2.07
MW-7	11/20/97	11.51	7.24	4.27
MW-8	11/20/97	12.22	9.59	2.63
MW-9	11/20/97	10.77	7.91	2.86
MW-10	11/20/97	10.59	7.70	2.89

Notes: All measurements in feet

⁽¹⁾ Well elevation measured to top of casing

⁽²⁾ Well submerged at time of survey

After water level measurements were collected, wells MW-8 through MW-10 were purged by hand using a designated disposable polyethylene bailer for each well. Groundwater pH, temperature, salinity, dissolved oxygen, turbidity, and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Four well volumes were removed to purge each well. Worksheets of conditions monitored during purging are attached.

After the groundwater level had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using designated disposable polyethylene bailers and laboratory supplied containers. The samples were preserved on ice and submitted to Chromalab, Inc., (Chromalab) following chain of custody protocol.

3.1 Groundwater Analytical Results

One groundwater sample from each monitoring well was collected and submitted to Chromalab for analysis of total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method SW846 8020A Nov 1990/8015 Mod, total extractable petroleum hydrocarbons (TEPH) as kerosene, diesel, and motor oil by EPA Method 8015M, soluble iron by EPA Method 3005A/6010A Nov 1990, total iron by EPA Method 3010A/3050A/6010A Nov 1990, pH by method 9040/9045, volatile organics [oxygenates as various alcohols, methyl-tertiary-butyl ether (MTBE), di-isopropyl ether (DIPE), tertiary butyl alcohol (TBA), ethyl-tertiary-butyl ether (ETBE), and tertiary amyl methyl ether (TAME)] by GC/MS Method 8260, dissolved oxygen by method SM 4500G, alkalinity by EPA Method 310.1, nitrate by EPA Method 353.2, sulfate by EPA Method 300.0, oxidation/reduction potential by EPA Method SM 2580B, and petroleum hydrocarbon degraders by proprietary test method. Analytical results of the groundwater samples are summarized in Table 2. A copy of the analytical results and chain of custody record for the groundwater samples is attached.

TABLE 2 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

Analyte	Date Sampled	Well MW-8	Well MW-9	Well MW-10 ⁽¹⁾
TPHg (µg/L)	11/20/96	<50	240	<50
	11/20/97	<50	300	<50
Benzene (µg/L)	11/20/96	0.66	21	49
	11/20/97	<0.5	20	<0.5
Toluene (µg/L)	11/20/96	<0.5	0.81	0.59
	11/20/97	<0.5	<0.5	<0.5
Ethylbenzene (µg/L)	11/20/96	<0.5	1.8	0.54
	11/20/97	<0.5	<0.5	<0.5
Xylenes (µg/L)	11/20/96	<0.5	2.2	1.2
	11/20/97	<0.5	1.8	<0.5
MTBE (µg/L)	11/20/97	2	<1.0	<1.0
DIPE (µg/L)	11/20/97	<5	390	1
ETBE (µg/L)	11/20/97	<5	43	<5
TAME (µg/L)	11/20/97	<1	<1	<1
TBA (µg/L)	11/20/97	<5	40	<5
TPHd (µg/L)	11/20/96	880	1,900	940
TEPH ⁽²⁾ (µg/L)	11/20/97	200d ⁽³⁾	1000d ⁽³⁾ , 780m	370d ⁽³⁾ , 570m
pH (Units)	11/20/97	7.45	7.44	7.74
Chloride ⁽⁴⁾ (mg/L)	11/20/96	7490	2230	1940
Nitrates (mg/L)	11/20/96	<0.5	<0.5	<0.5
	11/20/97	<0.05	<0.05	<0.05
Sulfates (mg/L)	11/20/96	478	<3.0	52
	11/20/97	1,200	1.0	<0.1
Total Iron (mg/L)	11/20/97	22	260	230
Soluble Iron (mg/L)	11/20/96	<0.1	0.24	<0.1
	11/20/97	<1.0	<1.0	<1.0
Oxidation/Reduction Potential (mV)	11/20/96	50	-73	-54
	11/20/97	262	202	226
Dissolved Oxygen (mg/L)	11/20/97	4	<1	<1
Total Phosphorus ⁽⁴⁾ (mg/L)	11/20/96	0.3	2.2	3.4
Alkalinity (mg/L)	11/20/97	380	1,300	870
Hydrocarbon - Degrading Bacteria (CFU/gm)	11/20/97	430	12,000	<10

Notes: ⁽¹⁾ Well MW-10 was initially sampled on 11/28/96

⁽²⁾ TEPH as diesel (d), motor oil (m), and kerosene (k)

⁽³⁾ Hydrocarbon reported is in the late diesel range and does not match the laboratory's diesel standard

⁽⁴⁾ Test result included for informational purposes only; confirmation analysis not warranted at this time

4.0 DISCUSSION

ACC monitored and sampled wells MW-8 through MW-10 on November 20, 1997, exactly one year after the wells were initially monitored by Uribe & Associates. Groundwater sample analytical results indicate minor concentrations of gasoline constituents in well MW-9 and relatively minor concentrations of petroleum hydrocarbons in the late diesel to motor oil range in the three wells. Minor concentrations of oxygenates as MTBE, EDBE, TBA, and DIPE were detected in the samples from wells MW-8 and MW-9.

Various primary and secondary indicators of intrinsic biodegradation were measured. Dissolved oxygen was reported in well MW-8 at 4 ppm and less than 1 ppm in wells MW-9 and MW-10. Concentrations of nitrate and sulfate appear to indicate that these constituents are being used as electron acceptors during anaerobic biodegradation. Alkalinity levels indicate an adequate capacity for groundwater to neutralize acids and maintain a neutral pH. Oxidation/reduction potential, temperature, conductivity, chloride concentration, and pH indicate that biodegradation is possible. Hydrocarbon degrading bacteria, expressed as colony forming units per gram (CFU/gm) was reported in wells MW-8 at 430 CFU/gm and MW-9 at 12,000 CFU/gm. Well MW-9 contains the highest concentrations of petroleum hydrocarbons and bacteria have apparently evolved to utilize it as a food source. Based on the decreases in petroleum hydrocarbon concentrations and intrinsic biodegradation indicators, natural biodegradation is occurring in groundwater at the site.

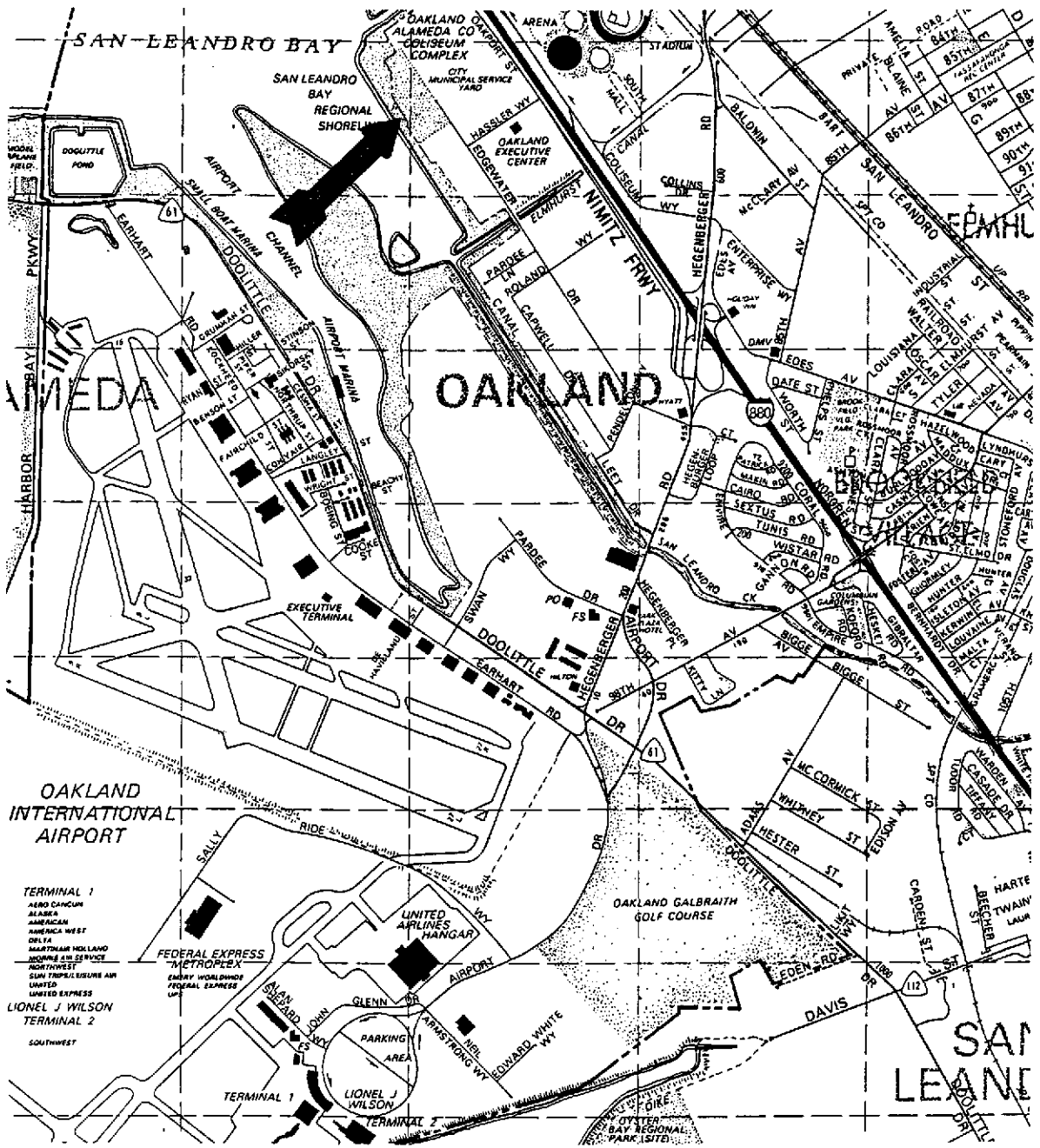
Depth to groundwater was measured in the 10 wells during a 57 minute period to minimize potential tidal influences. Groundwater gradient is consistent across the site at 0.003 foot/foot. Groundwater flow direction has been calculated to the north in the northern portion of the site in the vicinity of wells MW-1, MW-2, and MW-10, and southwest in the southern portion of the site in the vicinity of wells MW-5 through MW-9. Approximate groundwater gradient is illustrated on Figure 3.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on analytical results and field observations and measurements, ACC has made the following conclusions regarding shallow groundwater at the site.

- Minor concentrations of gasoline constituents were detected in wells MW-9 and MW-10 and diesel-range petroleum hydrocarbons were detected in wells MW-8, MW-9, and MW-10;
- Dissolved oxygen levels are low in wells MW-9 and MW-10;
- Trends in groundwater flow direction differ across the site but generally trend toward San Francisco Bay as anticipated.

Based on the results of groundwater monitoring and sampling, ACC recommends continuing quarterly or biannual monitoring of wells MW-8 through MW-10 to document groundwater conditions and concentrations of constituents of concern.



OAKLAND INTERNATIONAL AIRPORT

- TERMINAL 1
- ALCO CANCUN
- ALASKA
- AMERICAN
- AMERICA WEST
- ORLA
- MARTIN LUTHER KING
- NORTHWEST
- SUN TRANS/LEGAS AIR
- UNITED EXPRESS
- LIONEL J WILSON
- TERMINAL 2
- SOUTHWEST

FEDERAL EXPRESS METROPLEX

UNITED AIRLINES HANGAR

OAKLAND GALBRAITH GOLF COURSE

TERMINAL 1

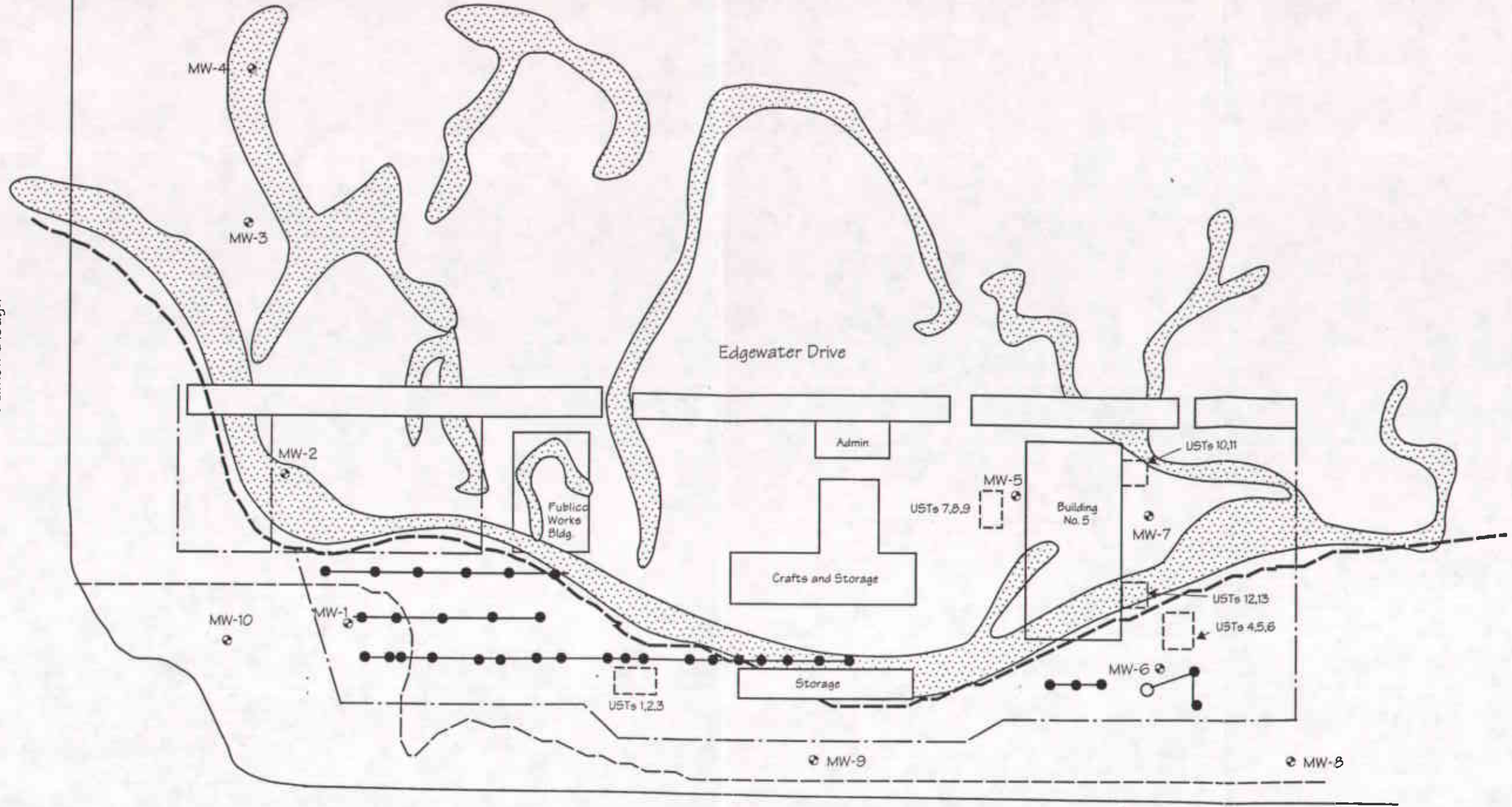
LIONEL J WILSON

TERMINAL 2

Title: Location Map Municipal Service Center 7101 Edgewater Drive Oakland, California	
Figure Number: 1	Scale: 1" = 1/4 mi
Drawn By: CLM	Date: 1/22/98
Project Number: 97-6442-001.00	
ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404	

SOURCE: Thomas Bros. Guide, 1994

Damon Slough



Edgewater Drive

Admin

Public Works Bldg

Crafts and Storage

Building No. 5

Storage

MW-4

MW-3

MW-2

MW-10

MW-1

USTs 1,2,3

USTs 7,8,9

MW-5

MW-7

USTs 10,11

USTs 12,13

USTs 4,5,6

MW-6

MW-9

MW-8

Pre-Development Shoreline

San Leandro Bay

Legend

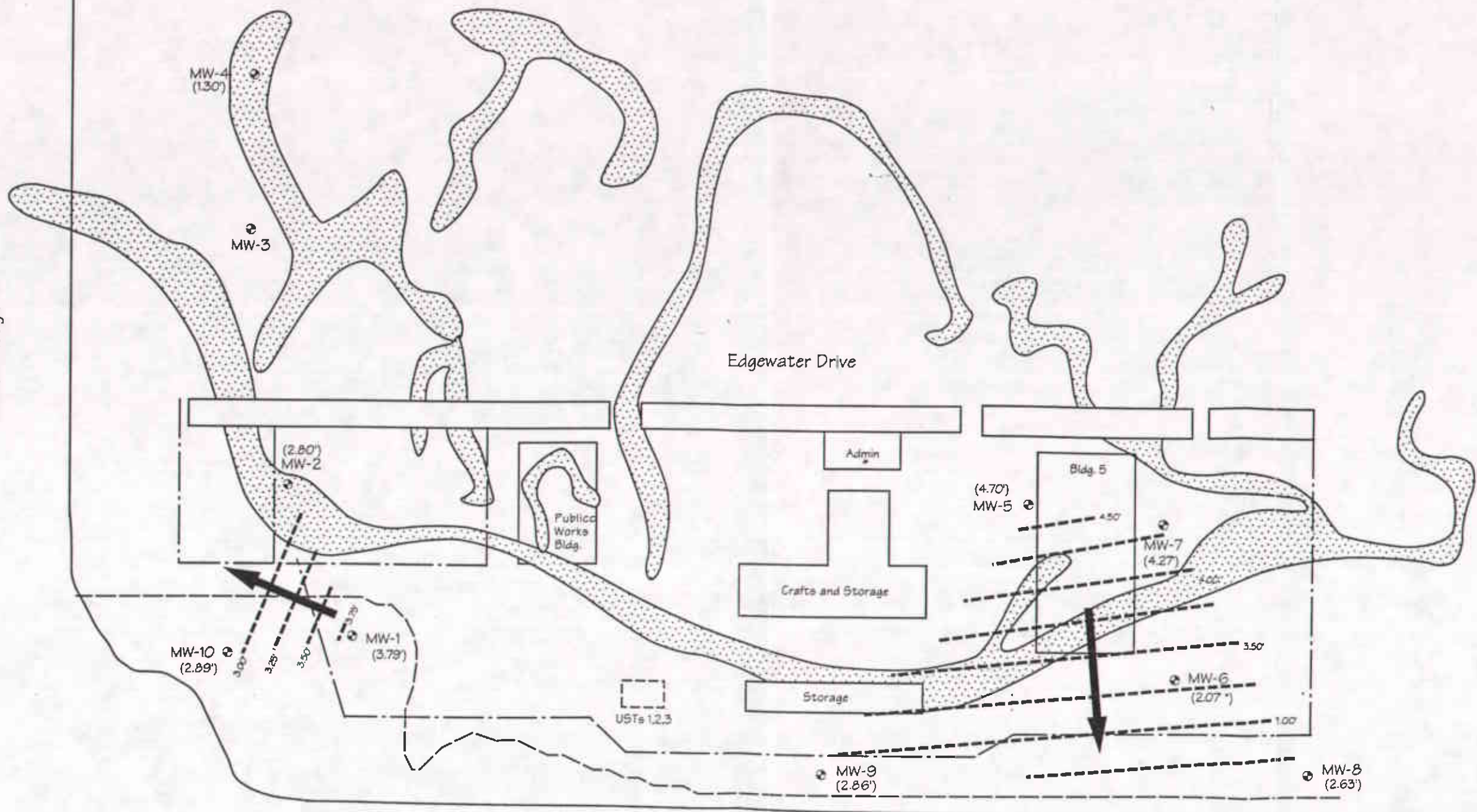
- Approximate Monitoring Well Location
- Approximate UST Location
- Fueling Stations and Pipeline
- Approximate Limits of Fill in 1970
- Dike Location
- Tidal/Stream Channel
- Valve Box

Map Sources: Woodward-Clyde Site Plan and Uribe & Associates Site Plan, measurements not confirmed in the field.

Title: Draft Site Plan Municipal Service Center 7101 Edgewater Drive Oakland, California	
Figure Number: 2	Scale: 1 in = 200 ft
Drawn By: CLM	Date: 12/16/97
Project Number: 6442-001.00	
ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 638-8400 Fax: (510) 638-8404	



Damon Slough



Legend

- Approximate Monitoring Well Location
- Approximate Limits of Fill in 1970
- Tidal/Stream Channel
- Approximate Groundwater Contour Elevation (contour interval = 0.25 feet)
- Approximate Groundwater Flow Direction

Map Source: Woodward -Clyde Site Plan and Uribe & Associates Site Plan, measurements not confirmed in the field. Well elevations provided by Oakland Public Works.

Title: Gradient Map Municipal Service Center 7101 Edgewater Drive Oakland, California	
Figure Number: 3	Scale: 1 in = 200 ft
Drawn By: CLM/DRD	Date: 1/14/98
Project Number: 6442-001.00	
ACC Environmental Consultants 7977 Capwell Drive, Suite 100 Oakland, California 94621 (510) 835-8400 Fax: (510) 635-8404	

JOB NAME:	PURGE METHOD: <i>Manual Bailing</i>
SITE ADDRESS: <i>7101 Edgewater</i>	SAMPLED BY: <i>Eloy Cisneros & Dave DeMent</i>
JOB #: <i>6442-1.0</i>	LABORATORY:
DATE: <i>11/20/97</i>	ANALYSIS:
Onsite Drum Inventory SOIL:	MONITORING <input checked="" type="checkbox"/> DEVELOPING <input type="checkbox"/>
EMPTY: WATER:	SAMPLING <input checked="" type="checkbox"/> (<i>Wells 8, 9 & 10</i>)

	PURGE	PURGE WATER READINGS						OBSERVATIONS	
	VOL.	pH	Temp.(C)	Cond.	Sal.	Turb.	D.O.	<input type="checkbox"/>	
WELL: <i>MW-1</i> DEPTH OF BORING: <i>15.56'</i> DEPTH TO WATER: <i>6.41'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 12:30</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
	<i>Not Sampled</i>							<input type="checkbox"/>	Odor Type _____
	<i>or purged!</i>							<input type="checkbox"/>	Amount _____ Type _____
WELL: <i>MW-2</i> DEPTH OF BORING: <i>15.44'</i> DEPTH TO WATER: <i>7.67'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 12:35</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
	<i>Not Sampled</i>							<input type="checkbox"/>	Odor Type _____
	<i>or purged!</i>							<input type="checkbox"/>	Amount _____ Type _____
WELL: <i>MW-3</i> DEPTH OF BORING: <i>18.13'</i> DEPTH TO WATER: <i>6.93'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 11:38</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
	<i>Not Sampled</i>							<input type="checkbox"/>	Odor Type _____
	<i>or purged!</i>							<input type="checkbox"/>	Amount _____ Type _____

JOB NAME:	PURGE METHOD: <i>Manual Bailing</i>
SITE ADDRESS: <i>7101 Edgewater</i>	SAMPLED BY: <i>Eloy Cisneros & Dave DeMent</i>
JOB #: <i>6442-1.0</i>	LABORATORY:
DATE: <i>1/20/97</i>	ANALYSIS:
<i>Onsite Drum Inventory</i> SOIL:	MONITORING <input checked="" type="checkbox"/> DEVELOPING <input type="checkbox"/>
EMPTY: WATER:	SAMPLING <input checked="" type="checkbox"/> (<i>Wells 8, 9 & 10</i>)

	PURGE	PURGE WATER READINGS						OBSERVATIONS	
	VOL	pH	Temp.(C)	Cond.	Sal.	Turb.	D.O.		
WELL: <i>MW-4</i> DEPTH OF BORING: <i>15.40'</i> DEPTH TO WATER: <i>6.59'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 11:42</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
		<i>Not Sampled</i>						<input type="checkbox"/>	Odor Type _____
								<input type="checkbox"/>	Free Product
		<i>or Purged!</i>						<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other
WELL: <i>MW-5</i> DEPTH OF BORING: <i>19.19'</i> DEPTH TO WATER: <i>6.45'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 12:25</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
		<i>Not Sampled</i>						<input type="checkbox"/>	Odor Type _____
								<input type="checkbox"/>	Free Product
		<i>or Purged!</i>						<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other
WELL: <i>MW-6</i> DEPTH OF BORING: <i>14.08'</i> DEPTH TO WATER: <i>8.91'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 12:00</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
		<i>Not Sampled</i>						<input type="checkbox"/>	Odor Type _____
								<input type="checkbox"/>	Free Product
		<i>or Purged!</i>						<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other

JOB NAME:	PURGE METHOD: <i>Manual Bailing</i>
SITE ADDRESS: <i>7101 Edgewater</i>	SAMPLED BY: <i>Eloy Cisneros & Dave DeMent</i>
JOB #: <i>6442-1.0</i>	LABORATORY: <i>Ch.</i>
DATE: <i>11/20/97</i>	ANALYSIS:
<i>Onsite Drum Inventory</i> SOIL:	MONITORING <input checked="" type="checkbox"/> DEVELOPING <input type="checkbox"/>
EMPTY: WATER:	SAMPLING <input checked="" type="checkbox"/> (<i>Wells 8, 9 & 10</i>)

	PURGE	PURGE WATER READINGS						OBSERVATIONS	
	VOL.	pH	Temp.(C)	Cond.	Sal.	Turb.	D.O.	<input type="checkbox"/>	
WELL: MW-7 DEPTH OF BORING: <i>14.61'</i> DEPTH TO WATER: <i>7.24'</i> WATER COLUMN: WELL DIAMETER: <i>2"</i> WELL VOLUME: COMMENTS: <i>Depth taken at 12:18</i>	(Gal)							<input type="checkbox"/>	Froth
								<input type="checkbox"/>	Sheen
		<i>Not Sampled</i>						<input type="checkbox"/>	Odor Type _____
								<input type="checkbox"/>	Free Product
								<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other
WELL: MW-8 DEPTH OF BORING: <i>15.09'</i> DEPTH TO WATER: <i>9.59'</i> WATER COLUMN: <i>5.50'</i> WELL DIAMETER: <i>2"</i> WELL VOLUME: <i>≈ 0.9 gal</i> COMMENTS: <i>Depth taken at 11:50</i> <i>Sampled collected at 15:00</i>	(Gal)							<input type="checkbox"/>	Froth
	<i>0.9</i>	<i>8.38</i>	<i>19.7</i>	<i>34.2</i>	<i>2.16</i>	<i>999</i>	<i>1.62</i>	<input type="checkbox"/>	Sheen
	<i>1.8</i>	<i>8.33</i>	<i>19.8</i>	<i>34.2</i>	<i>2.16</i>	<i>999</i>	<i>1.80</i>	<input type="checkbox"/>	Odor Type _____
	<i>2.7</i>	<i>8.33</i>	<i>19.7</i>	<i>33.6</i>	<i>2.13</i>	<i>999</i>	<i>1.76</i>	<input type="checkbox"/>	Free Product
								<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other
									<i>Slightly lighter</i>
									<i>Purge water.</i>
	<i>3.6</i>	<i>8.24</i>	<i>20.0</i>	<i>33.2</i>	<i>2.09</i>	<i>999</i>	<i>1.32</i>		
WELL: MW-9 DEPTH OF BORING: <i>14.80'</i> DEPTH TO WATER: <i>7.91'</i> WATER COLUMN: <i>6.89'</i> WELL DIAMETER: <i>2"</i> WELL VOLUME: <i>≈ 1.1 gal</i> COMMENTS: <i>Depth taken at 11:55</i> <i>Sample collected at 13:50</i>	(Gal)							<input type="checkbox"/>	Froth
	<i>1.1</i>	<i>8.11</i>	<i>20.8</i>	<i>14.3</i>	<i>0.83</i>	<i>999</i>	<i>0.51</i>	<input type="checkbox"/>	Sheen
	<i>2.2</i>	<i>8.06</i>	<i>20.7</i>	<i>13.9</i>	<i>0.80</i>	<i>974</i>	<i>0.61</i>	<input checked="" type="checkbox"/>	Odor Type <u><i>Sewer?</i></u>
	<i>3.3</i>	<i>8.17</i>	<i>20.6</i>	<i>12.6</i>	<i>0.72</i>	<i>974</i>	<i>0.47</i>	<input type="checkbox"/>	Free Product
								<input type="checkbox"/>	Amount _____ Type _____
								<input type="checkbox"/>	Other
									<i>Highly turbid</i>
									<i>Purge water.</i>
	<i>4.4</i>	<i>8.20</i>	<i>20.4</i>	<i>11.5</i>	<i>0.65</i>	<i>974</i>	<i>0.42</i>		<i>Sewer smell.</i>

JOB NAME:	PURGE METHOD: <i>Manual Bailing</i>
SITE ADDRESS: <i>7101 Edge water</i>	SAMPLED BY: <i>Eloy Cisneros & Dave DeMent</i>
JOB #: <i>6442-1.0</i>	LABORATORY:
DATE: <i>11/20/97</i>	ANALYSIS:
Onsite Drum Inventory SOIL:	MONITORING <input checked="" type="checkbox"/> DEVELOPING <input type="checkbox"/>
EMPTY: WATER:	SAMPLING <input checked="" type="checkbox"/> (<i>Wells 8, 9 & 10</i>)

	PURGE VOL.	PURGE WATER READINGS						OBSERVATIONS
		(Gal)	pH	Temp.(C)	Cond.	Sal.	Turb.	
WELL: <i>MW-10</i>								<input type="checkbox"/> Froth
DEPTH OF BORING: <i>13.31'</i>	<i>0.9</i>	<i>8.41</i>	<i>20.7</i>	<i>7.50</i>	<i>0.40</i>	<i>999</i>	<i>1.03</i>	<input type="checkbox"/> Sheen
DEPTH TO WATER: <i>7.70'</i>	<i>1.8</i>	<i>8.42</i>	<i>20.7</i>	<i>7.27</i>	<i>0.39</i>	<i>999</i>	<i>1.1</i>	<input checked="" type="checkbox"/> Odor Type <i>Sewer?</i>
WATER COLUMN: <i>5.61'</i>	<i>2.7</i>	<i>8.51</i>	<i>20.8</i>	<i>6.74</i>	<i>0.36</i>	<i>999</i>	<i>1.2</i>	<input type="checkbox"/> Free Product
WELL DIAMETER: <i>2"</i>								Amount _____ Type _____
WELL VOLUME: <i>≈ 0.9 gal</i>								<input type="checkbox"/> Other
COMMENTS: <i>Depth taken at 11:48</i>								<i>Highly turbid Purge Water.</i>
<i>Sample collected at 13:00</i>	<i>3.6</i>	<i>8.66</i>	<i>20.7</i>	<i>6.03</i>	<i>0.32</i>	<i>999</i>	<i>0.9</i>	
WELL: <i>MW-10</i>	(Gal)	pH	Temp.(C)	Cond.	Sal.	Turb.	D.O.	<input type="checkbox"/> Froth
DEPTH OF BORING:								<input type="checkbox"/> Sheen
DEPTH TO WATER:								<input type="checkbox"/> Odor Type _____
WATER COLUMN:								<input type="checkbox"/> Free Product
WELL DIAMETER:								Amount _____ Type _____
WELL VOLUME:								<input type="checkbox"/> Other
COMMENTS:								
WELL:	(Gal)	pH	Temp.(C)	Cond.	Sal.	Turb.	D.O.	<input type="checkbox"/> Froth
DEPTH OF BORING:								<input type="checkbox"/> Sheen
DEPTH TO WATER:								<input type="checkbox"/> Odor Type _____
WATER COLUMN:								<input type="checkbox"/> Free Product
WELL DIAMETER:								Amount _____ Type _____
WELL VOLUME:								<input type="checkbox"/> Other
COMMENTS:								

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project#: 95807

Project: OAKLAND MSC
Received: November 20, 1997

re: One sample for Gasoline BTEX analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-8

Spl#: 158712

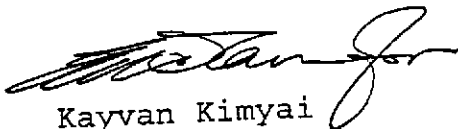
Matrix: WATER

Run#: 9897


Analyzed: November 26, 1997

Sampled: November 20, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	83	1
BENZENE	N.D.	0.50	N.D.	99	1
TOLUENE	N.D.	0.50	N.D.	94	1
ETHYL BENZENE	N.D.	0.50	N.D.	95	1
XYLENES	N.D.	0.50	N.D.	92	1



Kayvan Kimyai
Chemist



Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project#: 95807

Project: OAKLAND MSC
Received: November 20, 1997

re: One sample for Gasoline BTEX analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-9

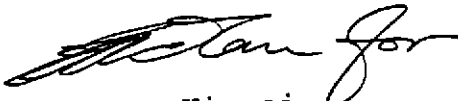
Spl#: 158713

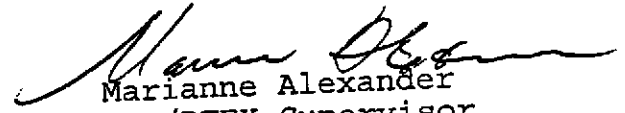
Matrix: WATER
Run#: 9942

Analyzed: November 27, 1997

Sampled: November 20, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	300	50	N.D.	90	1
BENZENE	20	0.50	N.D.	102	1
TOLUENE	N.D.	0.50	N.D.	97	1
ETHYL BENZENE	N.D.	0.50	N.D.	99	1
XYLENES	1.8	0.50	N.D.	95	1


Kayvan Kimyai
Chemist


Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project#: 95807

Project: OAKLAND MSC
Received: November 20, 1997

re: One sample for Gasoline BTEX analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-10

Spl#: 158714

Matrix: WATER

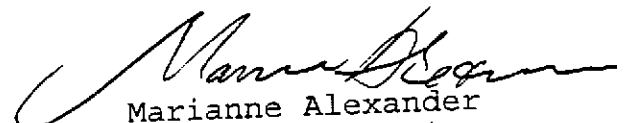
Sampled: November 20, 1997

Run#: 9942

Analyzed: November 27, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	90	1
BENZENE	N.D.	0.50	N.D.	102	1
TOLUENE	N.D.	0.50	N.D.	97	1
ETHYL BENZENE	N.D.	0.50	N.D.	99	1
XYLENES	N.D.	0.50	N.D.	95	1


Kayvan Kimyai
Chemist


Marianne Alexander
Gas/BTEX Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: 1 sample for TEPH analysis.
Method: EPA 8015M

Sampled: November 20, 1997
Matrix: WATER
Run#: 9854

Extracted: November 24, 1997
Analyzed: November 24, 1997

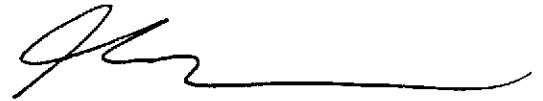
Spl#	CLIENT SPL ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
158712	MW-8	N.D.	200	N.D.

Note: Hydrocarbon reported is in the late Diesel range and does not match our Diesel standard. Silica gel cleanup.

Reporting Limits	53	53	530
Blank Result	N.D.	N.D.	N.D.
Blank Spike Result (%)	--	71.5	--



Bruce Havlik
Chemist



Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: 1 sample for TEPH analysis.
Method: EPA 8015M

Sampled: November 20, 1997 Matrix: WATER
Run#: 9854


Extracted: November 24, 1997
Analyzed: November 25, 1997

Spl#	CLIENT SPL ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
158713	MW-9	N.D.	1000	780

Note: Hydrocarbon reported as Diesel does not match the pattern of our Diesel standard. Silica gel cleanup.

Reporting Limits
Blank Result
Blank Spike Result (%)

51	51	510
N.D.	N.D.	N.D.
--	71.5	--


Bruce Havlik
Chemist


Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: 1 sample for TEPH analysis.
Method: EPA 8015M

Sampled: November 20, 1997 Matrix: WATER Run#: 9854 Extracted: November 24, 1997
Analyzed: November 25, 1997

Spl#	CLIENT SPL ID	Kerosene (ug/L)	Diesel (ug/L)	Motor Oil (ug/L)
158714	MW-10	N.D.	370	570

Note: Hydrocarbon reported as Diesel is in the late Diesel range and does not match our Diesel standard. Silica gel cleanup.

Reporting Limits	51	51	510
Blank Result	N.D.	N.D.	N.D.
Blank Spike Result (%)	--	71.5	--



Bruce Havlik
Chemist



Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 21, 1997

Project#: 95807

re: One sample for Soluble Miscellaneous Metals analysis.
Method: EPA 3005A/6010A Nov 1990 *Soluble*

Client Sample ID: MW-8

Spl#: 158715

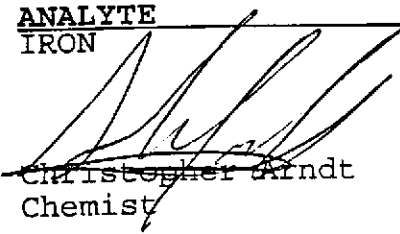
Sampled: November 20, 1997

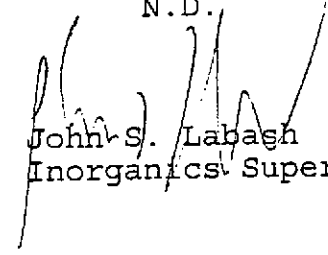
Matrix: WATER

Run#: 9957

Analyzed: December 2, 1997

<u>ANALYTE</u>	<u>RESULT</u> (mg/L)	<u>REPORTING</u> <u>LIMIT</u> (mg/L)	<u>BLANK</u> <u>RESULT</u> (mg/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
IRON	N.D.	1.0	N.D.	101	10


~~Christopher Arndt~~
Chemist


John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project#: 95807

Project: OAKLAND MSC
Received: November 21, 1997

re: One sample for Soluble Miscellaneous Metals analysis.
Method: EPA 3005A/6010A Nov 1990

Client Sample ID: MW-9

Spl#: 158716

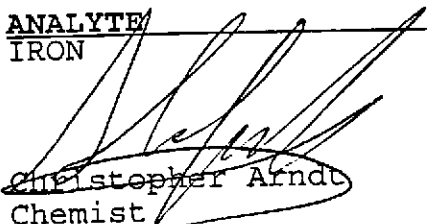
Matrix: WATER

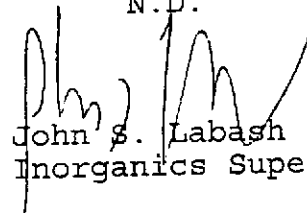
Sampled: November 20, 1997

Run#: 9957

Analyzed: December 2, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	N.D.	1.0	N.D.	101	10


Christopher Arndt
Chemist


John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 21, 1997

Project#: 95807

re: One sample for Soluble Miscellaneous Metals analysis.
Method: EPA 3005A/6010A Nov 1990

Client Sample ID: MW-10

Spl#: 158717

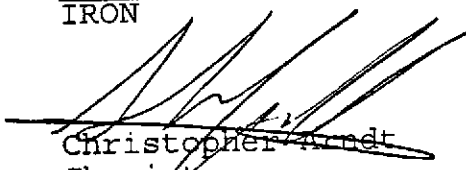
Matrix: WATER

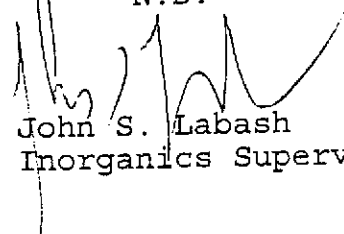
Sampled: November 20, 1997

Run#: 9957

Analyzed: December 2, 1997

<u>ANALYTE</u>	<u>RESULT</u> (mg/L)	<u>REPORTING</u> <u>LIMIT</u> (mg/L)	<u>BLANK</u> <u>RESULT</u> (mg/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
IRON	N.D.	1.0	N.D.	101	10


Christopher Trandt
Chemist


John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: One sample for Miscellaneous Metals analysis.
Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: MW-8

Spl#: 158712

Matrix: WATER

Extracted: November 25, 1997

Sampled: November 20, 1997

Run#: 9894

Analyzed: November 26, 1997

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	22	0.10	N.D.	104	1

Christopher Arndt
Christopher Arndt
Chemist

John S. Labash
John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: One sample for Miscellaneous Metals analysis.
Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: MW-9

Spl#: 158713

Matrix: WATER

Extracted: November 25, 1997

Sampled: November 20, 1997

Run#: 9894

Analyzed: November 26, 1997

<u>ANALYTE</u>	<u>RESULT</u> (mg/L)	<u>REPORTING</u> <u>LIMIT</u> (mg/L)	<u>BLANK</u> <u>RESULT</u> (mg/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
IRON	260	0.10	N.D.	104	1

Amended For
Christopher Arndt
Chemist

John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer

Project: OAKLAND MSC
Received: November 20, 1997

Project#: 95807

re: One sample for Miscellaneous Metals analysis.
Method: EPA 3010A/3050A/6010A Nov 1990

Client Sample ID: MW-10

Spl#: 158714

Matrix: WATER

Extracted: November 25, 1997

Sampled: November 20, 1997

Run#: 9894

Analyzed: November 26, 1997

<u>ANALYTE</u>	<u>RESULT</u> (mg/L)	<u>REPORTING</u> <u>LIMIT</u> (mg/L)	<u>BLANK</u> <u>RESULT</u> (mg/L)	<u>BLANK</u> <u>SPIKE</u> (%)	<u>DILUTION</u> <u>FACTOR</u>
IRON	230	0.10	N.D.	104	1

Annabelle Fox
Christopher Arndt
Chemist

John S. Labash
John S. Labash
Inorganics Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 1, 1997

Submission #: 9711316

DOVE ENGINEERING GROUP

Atten: Chris Palmer


Project: OAKLAND MSC
Received: November 20, 1997


Project#: 95807

re: 3 samples for pH analysis.
Method: 9040/9045

Sampled: November 20, 1997 Matrix: WATER Run#: 9833 Extracted: November 21, 1997
Analyzed: November 21, 1997

Spl#	CLIENT SPL ID	pH (Units)	REPORTING LIMIT (Units)	BLANK RESULT (Units)	BLANK SPIKE (%)	DILUTION FACTOR
158712	MW-8	7.45	1-14	7.00	--	--
158713	MW-9	7.44	1-14	7.00	--	--
158714	MW-10	7.74	1-14	7.00	--	--


Carolyn House
Extractions Supervisor


Michael Verona
Operations Manager



North State Environmental
Chemical Waste Disposal - Trucking - Consulting

C E R T I F I C A T E O F A N A L Y S I S

Job Number: 97-1144
Client : Chromalab
Project : 9711316

Date Sampled : 11/20/97
Date Analyzed: 11/30/97
Date Reported: 12/02/97

Volatile Organics by GC/MS Method 8260

Laboratory Number	97-1144-01	97-1144-02	97-1144-03
Client ID	MW-8	MW-9	MW-10
Matrix	WATER	WATER	WATER
Analyses	ug/L	ug/L	ug/L
Methanol	ND<1000	ND<1000	ND<1000
Ethanol	ND<500	ND<500	ND<500
Methyl-t-butyl Ether (MTBE)	2	ND<1	ND<1
Di-isopropyl Ether (DIPE)	ND<5	350	1
tert-Butyl Alcohol (TBA)	ND<5	40	ND<5
Ethyl-t-Butyl Ether (ETBE)	ND<5	43	ND<5
n-Amyl Methyl Ether (TAME)	ND<1	ND<1	ND<1
SUR-Dibromofluoromethane	105% Rec	104% Rec	110% Rec
SUR-Toluene-d8	115% Rec	116% Rec	109% Rec
SUR-4 Bromofluorobenzene	123% Rec	128% Rec	120% Rec



North State Environmental
Chemical Waste Disposal - Trucking - Consulting

C E R T I F I C A T E O F A N A L Y S I S

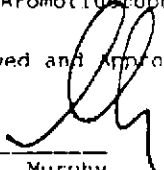
Job Number: 97-1144
Client : Chromalab
Project : 9711316

Date Sampled : 11/20/97
Date Analyzed: 11/30/97
Date Reported: 12/02/97

Volatile Organics by GC/MS Method 8260 Quality Control/Quality Assurance Summary

Laboratory Number	97-1144	MS/MSD	RED
Client ID	Blank	Recovery	
MATRIX	WATER	WATER	
Analyte	Results ug/L	Recoveries	
Methanol	ND<1000		
Ethanol	ND<500		
Methyl t-Butyl Ether	ND<1		
Di isopropyl Ether	ND<5		
tertiary Butyl Alcohol	ND<5		
Ethyl-t-Butyl Ether	ND<5		
t-Amyl Methyl Ether	ND<1		
1,1-Dichloroethene	ND<1	48	17
Benzene	ND<1	84	9
Trichloroethene	ND<1	80	12
Toluene	ND<1	118	10
Chlorobenzene	ND<1	110	14
SDB-Dibromofluorobenzene	108/96		
SDB-Toluene-d8	95/89		
SDB-4-Aromofluorobenzene	91/89		

Reviewed and Approved


John A. Murphy
Laboratory Director

CHROMALAB, INC.

Environmental Services (SDB)

December 16, 1997

Submission: 9711316

DOVE ENGINEERING

Atten: Chris Palmer

Project: Oakland MSC

Received: November 20, 1997

re: 3 samples for Oxidation/Reduction Potential.

Method: EPA SM 2580B

Matrix: Water

Sampled: November 20, 1997 Run: 11/25/97 Analyzed: November 25, 1997

<u>Spl #</u>	<u>Sample ID</u>	<u>RESULT</u> <u>(mV)</u>
158712	MW-8	262
158713	MW-9	202
158714	MW-10	226

Reference Material, Zobel's Solution: 246 mV

Thanks for choosing ChromaLab.



Gary Cook
CHROMALAB

C E R C O analytical, inc.

3942-A Valley Avenue
Pleasanton, CA 94566
Tel: 510.462.2771
Fax: 510.462.2775

Ms. Paula Neale
Clayton Environmental Consultants, Inc.
P.O. Box 9019
Pleasanton, CA 94566

Sample Source:
Project No. 9711237
P.O. No. 9711237
Date Received: 11/21/97
Matrix: Water

November 24, 1997
Job No. 9711114
Sample No. 001-003
Cust. No. 10444

Lab No.	Client I.D.	Dissolved Oxygen mg/L	Detection Limit mg/L	Method Number	Date Sampled	Date Analyzed
001	MW8	4	1	SM 4500G	11/20/97	11/21/97
002	MW9	N.D.	1	SM 4500G	11/20/97	11/21/97
003	MW10	N.D.	1	SM 4500G	11/20/97	11/21/97

Albert C. Oetting
Albert C. Oetting
Laboratory Director

California State Certified Laboratory No. 2153

San Francisco Regional Office

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

December 2, 1997

*TO: Kris Palmer
Arre Engineering
fax# 553-9230
6 pages*

Ms. Criselda Laluces
CHROMALAB, INC.
1220 Quarry Lane
Pleasanton, CA 94566

Client Ref.: 9711316
Clayton Project No.: 97112.37

Dear Ms. Laluces:

Attached is our analytical laboratory report for the samples received on November 21, 1997. Dissolved Oxygen results are provided by Cerco Analytical. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after January 1, 1998, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Client Services at (510) 426-2657.

Sincerely,



Andrew C. Bradeen
Director, Laboratory Services
San Francisco Regional Office

ACB/las

Attachments

CHROMALAB, INC.

Environmental Services (SDB)

Date:

12/30/07

Attention: Chris Palmer
Dove Engineering
7677 Rockport #105
Oakland, CA 94621

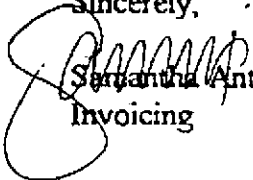
Dear Client,

Enclosed are the hardcopy subcontract reports for ChromaLab submission number 07113112. You were mailed the faxed copies along with your invoice because the subcontract hardcopies were not yet available.

These are for your records only. We apologize for any inconvenience.

If you have any questions or need more information, please do not hesitate to call me at (510) 484-1919 extension 110.

Sincerely,


Samantha Antone
Invoicing

Enclosures

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

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9711316
Clayton Project No. 97112.37

Sample Identification: MW 8
Lab Number: 9711237-01
Sample Matrix/Media: WATER

Date Sampled: 11/20/97
Date Received: 11/21/97

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Alkalinity, Tot. (CaCO3)	380	5	mg/L	--	12/02/97	--	EPA 310.1
Nitrate-N	<0.05	0.05	mg/L	--	11/21/97	--	EPA 353.2
Sulfate	1200	0.1	mg/L	--	11/24/97	--	EPA 300.0

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
 for
 CHROMALAB, INC.
 Client Reference: 9711316
 Clayton Project No. 97112.37

Sample Identification: MW 9
 Lab Number: 9711237-02
 Sample Matrix/Media: WATER

Date Sampled: 11/20/97
 Date Received: 11/21/97

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Alkalinity, Tot. (CaCO ₃)	1300	5	mg/L	--	12/02/97	--	EPA 310.1
Nitrate-N	<0.05	0.05	mg/L	--	11/21/97	--	EPA 353.2
Sulfate	1.0	0.1	mg/L	--	11/24/97	--	EPA 300.0

VD: Not detected at or above limit of detection
 --: Information not available or not applicable

Analytical Results
for
CHROMALAB, INC.
Client Reference: 9711316
Clayton Project No. 97112.37

Sample Identification: MW 10
Lab Number: 9711237-03
Sample Matrix/Media: WATER

Date Sampled: 11/20/97
Date Received: 11/21/97

Analyte	Concentration	Method Detection Limit	Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
Alkalinity, Tot. (CaCO ₃)	870	5	mg/L	--	12/02/97	--	EPA 310.1
Nitrate-N	<0.05	0.05	mg/L	--	11/21/97	--	EPA 353.2
Sulfate	22	0.1	mg/L	--	11/24/97	--	EPA 300.0

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
 for
 CHROMALAB, INC.
 Client Reference: 9711316
 Clayton Project No. 97112.37

Sample Identification: METHOD BLANK
 Lab Number: 9711237-04
 Sample Matrix/Media: WATER

Date Sampled: --
 Date Received: --

Analyte	Concentration	Method Detection		Units	Date Prepared	Date Analyzed	Prep Method	Method Reference
		Limit						
Alkalinity, Tot. (CaCO ₃)	<5	5		mg/L	--	12/02/97	--	EPA 310.1
Nitrate-N	<0.05	0.05		mg/L	--	11/21/97	--	EPA 353.2
Sulfate	<0.1	0.1		mg/L	--	11/24/97	--	EPA 300.0

ND: Not detected at or above limit of detection

--: Information not available or not applicable



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11316

MICROBIOLOGICAL REPORT

CHROMALAB, INC.
 1220 QUARRY LANE
 PLEASANTON, CA 94566

ATTN: CHRIS

REPORT DATE: 12/10/97
 DATE INITIATED: 11/25/97
 DATE COMPLETED: 12/09/97
 PROJECT #: 97201893
 REFERENCE#: 243-22
 PO #: N/A

SAMPLE(S)

<u>ACC #</u>	<u>PRODUCT</u>	<u>LOT#</u>
97201893	SPL 158712 CON	MW-8
97201894	SPL 158713 CON	MW-9
97201895	SPL 158714 CON	MW-10

TEST PERFORMED:

Hydrocarbon Degraders (CFU/gm)

BTS #

M229

RESULTS:

	<u>ACC #</u>	<u>RESULTS</u>	<u>REPORTING LIMIT</u>
	97201893	430	10 CFU/gm
Hydrocarbon Degraders			
	97201894	1.2x10 ⁴	10 CFU/gm
Hydrocarbon Degraders			
	97201895	<10	10 CFU/gm
Hydrocarbon Degraders			

John Lawson
 John Lawson, B.S.
 Microbiology Supervisor

Ludmila
 Ludmila Masovich
 Analyst

Microbiology • Analytical Chemistry • Environmental

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Environmental Services (SDB) (DOHS 1094)

DATE _____ PAGE _____ OF _____

PROJ. MGR Chris Palmer
 COMPANY DOVE Engineering
 ADDRESS 7677 Oakport Drive
OAKLAND CA 94621

SAMPLERS (SIGNATURE) [Signature] (PHONE NO.) (510) 553-7029
 (FAX NO.) 553-9230

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (TEPH) (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PER OXYGENATES (EPA 608-8080) 8260	PESTICIDES Silica gel (EPA 608-8080) Clean up	TOTAL RECOVERABLE HYDROCARBONS (EPA 418-F)	Fe ₂	Fe ₃	Fe ₂ Fe ₃ METALS - Cu, Cr, Pb, Zn, Ni	GHM METALS (17) pH	PRIORITY POLLUTANT METALS (13) NO ₃	TOTAL LEAD SO ₄	EXTRACTION ALKALINITY (ICLIP-5164) 310.1	36.1. Dissolved Oxygen 3250.8	Oxidation Reduction	Hydrocarbon Degrading BACTERIA	NUMBER OF CONTAINERS	
MW-8	11/20/97	15:00	Water	Hcy/Cold	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	18
MW-9	↓	13:50	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	18
MW-10	↓	13:00	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	18

PROJECT INFORMATION

PROJECT NAME OAKLAND MSC
 PROJECT NUMBER 95807
 P.O. # 95807-C

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS 36
 HEAD SPACE D/D
 REC'D GOOD CONDITION/COLD
 CONFORMS TO RECORD

TAT STANDARD 5-DAY 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:
Please perform Silica gel cleanup for TEPH
Watch holding time on pH, ORP,
& DO

RELINQUISHED BY <u>[Signature]</u> 15:35 (SIGNATURE) (TIME) <u>David DeMont</u> 11/20/97 (PRINTED NAME) (DATE) <u>ACC Environmental</u> (COMPANY) <u>for DOVE</u>	RELINQUISHED BY 2.	RELINQUISHED BY <u>[Signature]</u> 1738 (SIGNATURE) (TIME) <u>B. Moran</u> 11-20-97 (PRINTED NAME) (DATE) <u>Chromalab</u> (COMPANY)
RECEIVED BY <u>[Signature]</u> 1535 (SIGNATURE) (TIME) <u>B. Moran</u> 11-20-97 (PRINTED NAME) (DATE) <u>Chromalab</u> (COMPANY)	RECEIVED BY 1.	RECEIVED BY (LABORATORY) <u>[Signature]</u> 1738 (SIGNATURE) (TIME) <u>Mike Narango</u> 11/20/97 (PRINTED NAME) (DATE) (LAB)

CHROMALAB, INC.

Environmental Service (SDB)

Sample Receipt Checklist

Client Name: DOVE ENGINEERING GROUP

Date/Time Received: 11/20/97 | 1535

Reference/Submis: 36785 | 9711316

Received by: BPM

Checklist completed by: Chris Kowalsky

Date: 11/24/97

Reviewed by: MN | 11/24/97

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: 4.5 °C Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - pH acceptable upon receipt? YCS Adjusted? Checked by CK 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: _____