Soil and Groundwater Investigation Report

City of Oakland, Municipal Service Center

Uribe & Associates

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Introduction

This report describes field investigation activities conducted by Uribe & Associates (U&A) in the area of the City of Oakland's Municipal Service Center (MSC), in October, November, and December of 1996. The purpose of the field investigation was to obtain data relevant to an ongoing study of potential contaminant migration from the MSC to San Leandro Bay and/or Damon Slough. Field investigation activities included the installation of twelve temporary well points, the collection and analysis of soil samples from selected well borings, a water level survey of ten new well points and five of seven existing monitoring wells, and the collection and analysis of groundwater samples from eleven of the temporary wells.

Site Description and Background

The MSC is located at 7101 Edgewater Drive in Oakland, California. The site comprises approximately 17 acres of land that are bounded by San Leandro Bay (Bay) to the southwest and Damon Slough to the northwest. The site is used by the City of Oakland for vehicle and equipment fueling, maintenance and storage. The site consists of offices including the Public Works Building and warehouse structures used for maintenance. Areas of the property not occupied by buildings are paved. Three currently in-use USTs, as many as 11 out of service USTs, several dry wells/sumps, and an abandoned pressurized underground gasoline pipeline network are located at the site (Woodward-Clyde, March 14, 1996).

The site slopes southwesterly toward the Bay, and is located on reclaimed tidal marsh and open water areas of the Bay. The subsurface is made up of fill overlying Bay Mud. Beneath the Bay Mud are alluvial and older bay deposits ranging from silty clays to clean sands. Bedrock is estimated to be approximately 800 feet below ground surface (bgs). Measured depths to groundwater have ranged from 4 to 12 feet bgs (Woodward-Clyde, March 14, 1996).

Previous soil and groundwater investigations found elevated levels of petroleum hydrocarbons and related constituents and priority pollutant metals in soils and groundwater at the site. Concentrations of benzene, copper, nickel, and lead in groundwater have exceeded the State of

California Drinking Water Maximum Contaminant Levels (MCLs) (Woodward-Clyde, March 14, 1996).

The MSC is restricted to the area inside the fenceline illustrated in Figures 1 through 5. The strip of land between the MSC and the Bay on the south and between the MSC and Damon Slough on the north is part of the Martin Luther King Regional Park. An encroachment permit was obtained from the East Bay Regional Park District for work involving temporary monitoring wells B35 through B46.

Field Investigation

Soil Investigation

Soil borings for wells B36, B37, B38, B40, B41, B42, B43, B45, and B46 were advanced using a direct push drilling rig, operated by VBI, Inc., on October 23, 24, and 25, 1996. The borings for wells B35, B39 and B44 were advanced using a hollow stem auger rig and soil samples were collected for analysis from these three borings using a split spoon sampler. The hollow stem auger borings were performed on November 8, 1996, by HEW Drilling Company, Inc. Boring logs are included as Attachment A. Due to difficulties encountered during drilling, lithologic logs were not prepared for borings B36, B37, B38, B40, and B41.

Temporary well points were installed in the borings. Temporary well points B36, B37, B38, B40, B41, B42, B43, B45, and B46 consisted of 5 to 10 feet of 1-inch diameter slotted PVC casing and blank PVC to ground surface. Temporary well points B35, B39 and B44 consisted of 10 feet of 2-inch diameter slotted PVC casing and blank PVC to ground surface. Each two-inch diameter well was constructed with the sand pack extending one foot above the top of the screen which was capped by bentonite grout. Each well was sealed with an expansion cap. Following well installation, the top of the casing elevation and location of each temporary well point was surveyed by Chaudhary & Associates, a licensed surveyor. Depths from the top of the casing (TOC) to the bottom of the well were measured on October 28 and November 20. Total depths and screened intervals are as follows:

Well	Depth to Bottom of Well	Screened Interval
B35	15.07 feet	15.07 - 5.07 feet.
B36	15.94 feet	15.94 - 5.94 feet
B37	6.93 feet	6.93 - 1.93 feet
B38	15.85 feet	15.85 - 5.85 feet
B39	14.10 feet	14.10 - 4.10 feet
B40	10.71 feet (depth to bend in casing)	15 - 5 feet
B41	12.55 feet	12.55 - 7.55 feet
B42	12.78 feet (depth to bend in casing)	15 - 5 feet
B43	15.82 feet	15.82 - 5.82 feet
B44	14.6 feet	14.6 - 4.6 feet
B45	9.75 feet (depth to bend in casing)	13.5 - 3.5 feet
B46	18.66 feet	18.66 - 8.66 feet

On November 8, 1996, soil samples were collected for analysis during the drilling of borings B35, B39, and B44. Sample depths, lithology and moisture are presented in Table 1. Analytical results are summarized in Table 2. Sample B-39-2 was analyzed for total petroleum hydrocarbons as diesel (TPH-D), total petroleum hydrocarbons as gasoline (TPH-G), and benzene, toluene, ethyl benzene, and total xylenes (BTEX). Sample B-44-4 was analyzed for permeability (ASTM D-5084). The remaining soil samples were analyzed for total organic carbon (TOC), total phosphorous, total kjeldahl nitrogen (TKN), heterotrophic plate count, hydrocarbon degraders, and soil pH. The following is a summary of analytical methods:

Soil Parameter	Analysis Method
Total Organic Carbon (TOC)	EPA method 9060
pH	EPA method 9040
Total Phosphorous	EPA method 365.3
Total Kjeldahl Nitrogen (TKN)	EPA method 351.3
TPH-D	EPA 3510/8015M
TPH-G and BTEX	EPA 5030/8015M/8020A
Heterotrophic Plate Count	BioScreen Testing Services # 227
Hydrocarbon Degraders	BioScreen Testing Services # 227

Heterotrophic Plate Count and Hydrocarbon Degrader counts were performed by BioScreen Testing Services, Inc. in Torrance, California. TOC, TKN, and Total Phosphorous analyses were performed by Advanced Technology Laboratories in Signal Hill, California. Falling head permeability was measured at Cooper Testing Laboratories in Mountain View, California. The remaining analyses were performed by Chromalab, Inc. in Pleasanton, California.

Nine of the wells, B36, B37, B38, B40, B41, B42, B43, B45, and B46, were destroyed on 4/28/97 under permit from Zone 7, Water Resources Management Agency. The remaining three wells, B35, B39 and B44 were converted to permanent wells on 5/2/97, also under permit.

Water Level Survey

U&A conducted a water level survey on November 15, 21 and 26, 1996, at intermediate rising tide, low tide, and high tide, respectively. Water levels were measured with a water level meter and recorded as depth to groundwater below top-of-casing (TOC). Water level measurements were taken on all three days for temporary wells B35, B36, B38 through B44, and B46, and for existing wells MW-1, MW-2, and MW-5 through MW-7. Water level measurements were not obtained at temporary well B37, as this well is dry, or at temporary well B45, because the casing of this well is bent at a depth above the water table. In addition, water levels were not obtained at MW-3 and MW-4, because these wells had not been surveyed for vertical control. Tables 3, 4, and, 5 summarize the water level measurements. Water level data for intermediate rising tide, low tide, and high tide are plotted on Figures 1, 2 and 3, respectively.

The second column of the groundwater elevation tables is labeled, "correction for survey discrepancy". The TOC elevations for wells B35 through B46 were determined in a survey performed by Chaudhary & Associates, while the TOC elevations for the monitoring wells MW-1 through MW-7 were determined in a survey performed by Bates and Bailey. U&A staff determined that the surveyed heights for the wells surveyed by Chaudhary and Associates and the wells surveyed by Bates and Bailey were not consistent. Based on field measurements, U&A staff determined that there was an approximately 3.25 foot discrepancy between the TOC elevations determined by the two surveyors. The TOC heights for wells B35 through B46 were adjusted by 3.25 feet for consistency with the TOC heights for wells MW-1 through MW-6.

Based on the water level measurements, the groundwater flow direction is to the southwest over the majority of the site. However in the northern quarter of the site, adjacent to Damon Slough, the groundwater flow direction is to the north. The groundwater gradient is influenced by tidal action, as is illustrated in the summary of gradients given below. The first column was calculated from data for MW-2, B44, and B46. The second and third columns are based on the contour lines in Figures 2 and 3.

Groundwater Gradients at MSC

	Northern Corner of Site (Damon Slough)	**East of Public Works Building (San Leandro Bay)**	**Southern Corner of Site (San Leandro Bay)**
Low Tide	1×10^{-3}	3×10^{-2}	9×10^{-3}
Hi Tide	6×10^{-4}	1×10^{-2}	3×10^{-3}

The degree of tidal influence on individual well points varied greatly, as shown below:

	Depth to Water			
	Low Tide	Rising Tide	High Tide	
Well	11/21/96	11/15/96	11/26/96	Range
B35	9.46	9.66	9.33	0.33
B36	12.13	12.08	9.52	2.61
B37	Dry			
B38	11.74	11.79	11.72	0.07
B39	8.35	8.60	8.32	0.28
B40	8.12	8.30	8.28	0.18
B41	9.20	9.53	9.31	0.33
B42	8.37	8.72	8.38	0.35
B43	8.58	7.83	6.78	1.80
B44	7.90	7.93	7.98	0.08
B45	Not Measured			
B46	8.01	9.01	8.06	0.95
MW-1	5.58	6.03	6.04	0.46
MW-2	7.25	7.34	7.58	0.33
MW-5	6.32	6.75	6.46	0.43
MW-6	8.17	8.23	7.99	0.24
MW-7	6.83	7.33	7.09	0.50

The absolute depths to water cannot be directly compared, because these measurements were collected on three separate days. However, water levels in well points B36 and B43 appear to indicate a strong tidal response. In the remaining wells, the greatest depths to water were measured at the intermediate or high tide, rather than at the low tide. This may suggest that in those wells, water levels are more strongly affected by other factors, such as rainfall and evapotranspiration. This variability also reflects the wide range in permeability of the fill materials which make up this site.

Groundwater Investigation

Groundwater sampling activities were conducted on November 7 and 20, and December 11, 1996. Samples were collected during falling tide so that the samples would be influenced by water moving from the site toward the Bay and Damon Slough. Samples were obtained from temporary well points B35, B36, and B38 through B46. Samples were not collected from B37 because this well was dry.

Samples B-35-1, B-39-1, and B-44-1 were analyzed for total kjeldahl nitrogen (TKN), chloride, nitrate as nitrogen, sulfate, total phosphorous, and dissolved iron. Samples B-35-1, B-36-1, B-38-1, B-39-1, B-40-1, B-41-1, B-42-1, B-43-1, B-44-1, and B-45-1, and B-46-1 were analyzed for TPH-G and BTEX. Samples B-35-1, B-36-1, B-38-1, B-39-1, and B-44-1 were analyzed for TPH-D. Samples B-35-1, B-39-1, B-41-2, B-42-2, B-43-2, B-44-1, B-45-2, and B-46-2 were analyzed for TPH-D after cleaning the samples with silica gel. The analytical methods are summarized as follows:

Groundwater Parameter	**Analysis Method**
Dissolved Iron	EPA method 3005A/6010A
Chloride	EPA method 300
Nitrate as Nitrogen	EPA method 300
Sulfate	EPA method 300
Total Phosphorous	EPA method 365.3
Total Kjeldahl Nitrogen	EPA method 351.3
TPH-D	EPA 8015M
TPH-D with silica gel cleanup	EPA 3660M/8015M
TPH-G and BTEX	8015M/8020A

Chloride, Iron, Nitrate as Nitrogen, TKN, and Total Phosphorous analyses were performed by Advanced Technology Laboratories in Signal Hill, California. The remaining analyses were performed by Chromalab, Inc. in Pleasanton, California. In addition to the laboratory analysis, field measurements were performed by U&A staff on three samples collected on November 20, 1996 (See Table 6). The field analyses included temperature, pH, conductivity, dissolved oxygen, and oxidation-reduction (redox) potential.

Analytical Results

Results of Soil Analyses

Physical descriptions of soil samples are summarized in Table 1. Results of laboratory analyses are summarized in Table 2. Sample chain-of-custody forms and laboratory analytical reports are included in Attachment B.

One soil sample was analyzed for TPH-D, TPH-G, and BTEX (B-39-2). TPH-G, benzene, toluene, and ethyl benzene were not detected. Xylenes were detected at 0.016 mg/kg and 120 mg/kg of hydrocarbons were detected in the diesel range. The laboratory reported that the hydrocarbons in the diesel range did not match a diesel standard and occurred late in the diesel range. In addition, the laboratory reported hydrocarbons in the motor oil range in this sample. Because this sample was not cleaned with silica gel prior to analysis, the hydrocarbons may be of non-petroleum origin.

The presence of hydrocarbon degraders did not correlate with the total microbiological activity as measured by the heterotrophic plate count. In the two samples from B35, hydrocarbon degraders were only present in the sample with the lowest heterotrophic plate count. In the three samples from B39, heterotrophic plate counts ranged from less than 10 to 1,000 CFU/mg (colony forming units per milligram sample), while the hydrocarbon degraders were consistently measured at greater than 100,000 CFU/mg. In the three samples from B44, heterotrophic plate counts were consistently greater than 100,000 CFU/mg, while the hydrocarbon degraders were all 10 CFU/mg or less. The presence of hydrocarbon degraders also does not correlate with the presence of TPH-G and/or BTEX in groundwater samples that were in contact with soils adjacent to the sample locations from which the soil samples were collected for hydrocarbon degrader analysis.

Measured soil pH was between 7.3 and 8.3, with the exception of sample B-35-1, which had a pH of 11.3. The only permeability measurement in B-44-4 was measured to be 1×10^{-7} cm/sec.

Results of Groundwater Analyses

Field measurements of groundwater samples are summarized in Table 6 and laboratory analyses are summarized in Table 7. Results for TPH-D, TPH-G, and BTEX are presented on Figure 4 and results for inorganic chemicals are presented on Figure 5. Sample chain-of-custody forms and laboratory analytical reports are included in Attachment B.

Measured pH values were neutral to very slightly basic. Conductivity values paralleled the chloride concentrations. Dissolved oxygen levels and redox potentials do not appear to correlate with other measured parameters. TKN concentrations in groundwater samples appear to parallel the TKN concentrations in the soil samples taken from approximately the same depth interval (approximately 9 feet bgs), while nitrate was not detected in groundwater samples. Sulfate, phosphorous, and iron concentrations do not appear to correlate with other measurements.

The appearance of a sheen on purge water (samples B-39-1 and B-44-1) appears to correlate with the presence of detectable BTEX. Although benzene was detected in sample B-35-1, which had no reported sheen, the benzene concentration in sample B-35-1, was an order of magnitude lower than in samples B-39-1 and B-44-1. BTEX compounds were also detected in sample B-38-1, however, sheen information is not available for this sample. TPH-G was only detected in samples B-38-1 and B-39-1, and BTEX compounds were also detected in these samples.

TPH-D was detected in samples B-35-1, B-36-1, B-38-1, B-39-1, B-41-2, and B-44-1. The laboratory reported that the detected hydrocarbons did not match a diesel standard and were detected late in the diesel range. In addition, when the sample extracts for B-35-1, B-39-1 and B-44-1 were cleaned with silica gel, TPH-D was not detected in the cleaned samples. These results indicate that the hydrocarbons reported in the diesel range are likely to be either of non-petroleum origin or to represent heavily degraded petroleum products. Hydrocarbons in the motor oil range were reported in samples B-35-1, B-36-1, B-38-1, B-39-1, B-42-1, and B-44-1, but motor oil hydrocarbons were never detected in samples that were re-analyzed after cleaning with silica gel. Therefore, the hydrocarbons detected in the motor oil range are also likely to be non-petroleum hydrocarbons. Five additional samples (B-41-2, B-42-2, B-43-2, B-45-2, and B-46-2) were collected and cleaned with silica gel prior to analysis. Hydrocarbons in the diesel range were only detected in one of the five samples (B-41-2), and the detected hydrocarbons did not match a diesel standard and were detected late in the diesel range. The results of the five additional samples further support the absence of actual petroleum hydrocarbons in the TPH-D range.

Comparison of Results to California Maximum Contaminant Levels (MCL) for Drinking Water

MCL values for benzene, toluene, ethyl benzene, and total xylenes are 1 µg/L, 150 µg/L, 700 µg/L, and 1,750 µg/L, respectively. Benzene is the only BTEX compound that was detected at

concentrations greater than the respective MCL. Benzene MCL exceedances were detected in samples from wells B38, B39, and B44. No other organic or inorganic compounds were present at levels greater than MCLs.

References Cited

Woodward-Clyde Consultants, March 14, 1996, Progress Report, City of Oakland Municipal Service Center, 7101 Edgewater Drive, Oakland, California.

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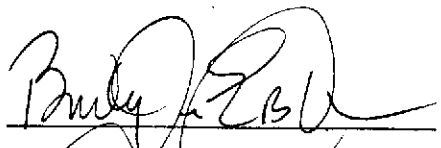

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Table 1: Physical Description of
Soil Samples Collected November 8, 1996
City of Oakland Municipal Service Center

Sample I.D.	Depth (feet)	Lithology	Moisture
B-35-1	8.0 - 8.5	Fill	Moist
B-35-2	15.0 -15.5	Fill	Wet
B-39-1	8.5 - 9.0	Fill	Very moist to wet
B-39-2	9.0 - 9.5	Fill	Very moist to wet
B-39-3	10.0 - 10.5	Fill	Wet
B-39-4	19.5 - 20.0	Silty Sand	Wet
B-44-1	6.5 - 7.0	Fill	Moist
B-44-2	7.0 - 7.5	Fill	Very Moist
B-44-3	19.5 - 20.0	Bay Mud	Wet
B-44-4	20.0 - 20.5	Bay Mud	Wet

Table 2: Analytical Results for Soil Samples
City of Oakland Municipal Service Center

Sample I.D.	TPH-D (mg/kg)	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Total Xylenes (mg/kg)	TKN (mg/kg)	Total Organic Carbon (mg/kg)	Total Phosphorous (mg/kg)	Heterotrophic Plate Count (CFU/mg)	Hydrocarbon Degraders (CFU/mg)	Falling Head Permeability ASTM D5084 (cm/sec)	Soil pH
B-35-1	--	--	--	--	--	--	48	525	795	1.00E+01	7.00E+04	--	11.3
B-35-2	--	--	--	--	--	--	284	19,300	1,420	4.20E+05	<10	--	8.09
B-39-1	--	--	--	--	--	--	432	8,440	470	1.08E+03	4.30E+05	--	8.78
B-39-2[1,2]	120	ND	ND	ND	ND	0.016	--	--	--	--	--	--	--
B-39-3	--	--	--	--	--	--	368	7,290	400	8.00E+02	2.40E+05	--	7.77
B-39-4	--	--	--	--	--	--	592	7,700	615	<10	3.20E+05	--	7.61
B-44-1	--	--	--	--	--	--	1,210	10,900	820	6.10E+05	<10	--	7.31
B-44-2	--	--	--	--	--	--	332	2,320	475	2.70E+05	<10	--	7.98
B-44-3	--	--	--	--	--	--	635	11,200	1,230	6.10E+05	1.00E+01	--	8.3
B-44-4	--	--	--	--	--	--	--	--	--	--	--	1.00E-07	--
Reporting Limit	20	0.005	0.005	0.005	0.005	0.005	0.8	30	0.5	10	10	NA	NA

[1] Hydrocarbon in the Motor oil range was found in these samples

[2] Hydrocarbon reported is in the late Diesel range and does not match the pattern of Chromalab's Diesel standard

Table 3: Groundwater Elevation Data
City of Oakland, Municipal Service Center
Intermediate Rising Tide (3.09 to 6.49 feet above MSL)

Well	TOC Elevation (feet above MSL)	TOC Corrected for Survey Discrepancy (3.25 feet)	Depth to Water (feet below TOC)	Water Surface Elevation (feet above MSL)
B35	12.32	9.07	9.66	-0.59
B36	13.06	9.81	12.08	-2.28
B38	14.16	10.91	11.79	-0.88
B39	10.86	7.61	8.60	-1.00
B40	11.29	8.04	8.30	-0.27
B41	11.33	8.08	9.53	-1.46
B42	10.86	7.61	8.72	-1.12
B43	9.10	5.85	7.83	-1.99
B44	10.71	7.46	7.93	-0.47
B46	10.87	7.62	9.01	-1.40
MW-1	6.83	NA	6.03	0.80
MW-2	7.27	NA	7.34	-0.07
MW-5	8.15	NA	6.75	1.40
MW-6	7.93	NA	8.23	-0.30
MW-7	8.15	NA	7.33	0.82

NA = Not Applicable

Table 4: Groundwater Elevation Data
City of Oakland, Municipal Service Center
Low Tide (0.23 feet above MSL)

Well	TOC Elevation (feet above MSL)	TOC Corrected for Survey Discrepancy (3.25 feet)	Depth to Water (feet below TOC)	Water Surface Elevation (feet above MSL)
B35	12.32	9.07	9.46	-0.40
B36	13.06	9.81	12.13	-2.33
B38	14.16	10.91	11.74	-0.83
B39	10.86	7.61	8.35	-0.75
B40	11.29	8.04	8.12	-0.08
B41	11.33	8.08	9.20	-1.13
B42	10.86	7.61	8.37	-0.77
B43	9.10	5.85	8.58	-2.74
B44	10.71	7.46	7.90	-0.44
B46	10.87	7.62	8.01	-0.40
MW-1	6.83	NA	5.58	1.25
MW-2	7.27	NA	7.25	0.02
MW-5	8.15	NA	6.32	1.83
MW-6	7.93	NA	8.17	-0.24
MW-7	8.15	NA	6.83	1.32

NA = Not Applicable

Table 5: Groundwater Elevation Data
City of Oakland, Municipal Service Center
High Tide (6.85 feet above MSL)

Well	TOC Elevation (feet above MSL)	TOC Corrected for Survey Discrepancy (3.25 feet)	Depth to Water (feet below TOC)	Water Surface Elevation (feet above MSL)
B35	12.32	9.07	9.33	-0.26
B36	13.06	9.81	9.52	0.29
B38	14.16	10.91	11.72	-0.82
B39	10.86	7.61	8.32	-0.72
B40	11.29	8.04	8.28	-0.24
B41	11.33	8.08	9.31	-1.24
B42	10.86	7.61	8.38	-0.78
B43	9.10	5.85	6.78	-0.94
B44	10.71	7.46	7.98	-0.52
B46	10.87	7.62	8.06	-0.45
MW-1	6.83	NA	6.04	0.79
MW-2	7.27	NA	7.58	-0.31
MW-5	8.15	NA	6.46	1.69
MW-6	7.93	NA	7.99	-0.06
MW-7	8.15	NA	7.09	1.06

NA = Not Applicable

Table 6: Analytical Results for Field Analyses of Groundwater Samples
City of Oakland Municipal Service Center

Sample I.D.	Sample Date	Sample Time	Temp. (°C)	pH	Conductivity (mhos/cm)	Dissolved Oxygen (µg/L)	Redox Potential (mV)	Well Volume (gal)	Cumulative Volume Removed (gal)	Remarks
B-35-1	11/20/96	3:23 PM	19.9	6.98	1,140	0.5	50	0.9	2.7	No sheen in purge water; sample slightly cloudy, light brown, little sediment.
B-39-1	11/20/96	2:48 PM	20.4	7.07	660	0.4	-73	0.9	2.7	Sheen on purge water; sample murky, dark brown; sediment reacted with HCl preservative in VOA vile producing bubbles.
B-44-1	11/20/96	2:00 PM	20.3	8.8	550	0.9	-54	1.1	3.3	Sheen on purge water; sample thick and dark brown, full of sediment.

Table 7: Analytical Results for Groundwater Samples
City of Oakland Municipal Service Center

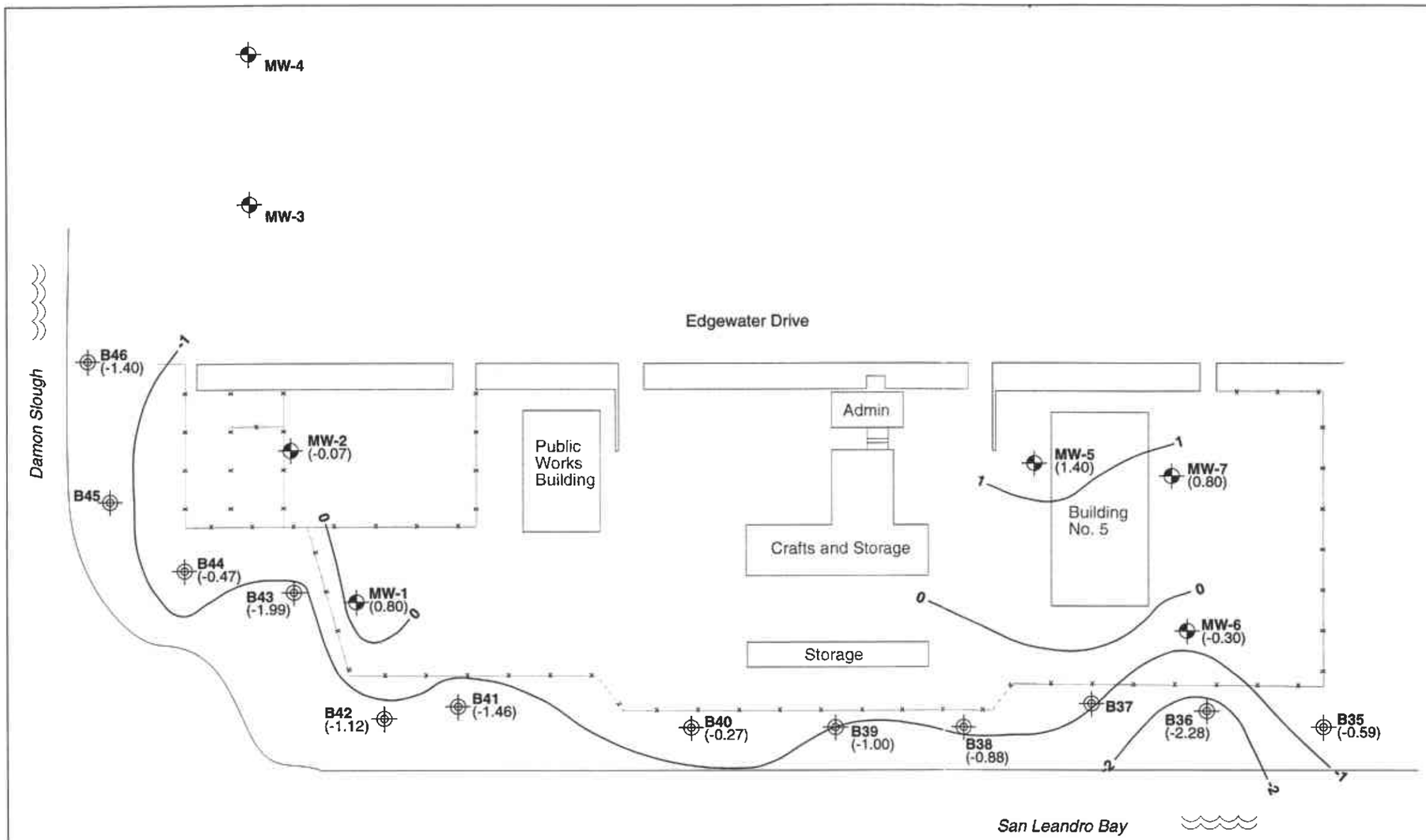
Sample I.D.	Sample Date	Sample Time	TPH-D (µg/L)	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)	TKN (mg/L)	Chloride (mg/L)	Nitrate as Nitrogen (mg/L)	Sulfate (mg/L)	Total Phosphorous (mg/L)	Dissolved Iron (mg/L)
B-35-1[1,2]	11/28/96	3:23 PM	880	ND	0.66	ND	ND	ND	4.2	7490	ND	478	0.3	ND
B-35-1[4]	11/28/96	3:23 PM	ND											
B-36-1[1,2]	11/7/96	4:25 PM	200	ND	ND	ND	ND	ND						
B-38-1[1,2]	11/7/96	4:15 PM	770	180	24	1	ND	0.71						
B-39-1[1,2]	11/20/96	2:48 PM	1900	240	21	0.81	1.8	2.2	13	2230	ND	ND	2.2	0.24
B-39-1[4]	11/20/96	2:48 PM	ND											
B-40-1[2]	11/7/96	3:45 PM	1300	ND	ND	ND	ND	ND						
B-40-1D	11/7/96	3:45 PM		ND	ND	ND	ND	ND						
B-41-1	11/7/96	3:24 PM		ND	ND	ND	ND	ND						
B-41-2[2,3]	12/11/96	9:05 AM	290											
B-42-1[1]	11/7/96	3:07 PM		ND	ND	ND	ND	ND						
B-42-2[3]	12/11/96	8:49 AM	ND											
B-43-1	11/7/96	2:32 PM		ND	ND	ND	ND	ND						
B-43-2[3]	12/11/96	8:29 AM	ND											
B-44-1[1,2]	11/20/96	2:00 PM	940	ND	49	0.59	0.54	1.2	40	1940	ND	52	3.4	ND
B-44-1[4]	11/20/96	2:00 PM	ND											
B-45-1	11/7/96	2:11 PM		ND	ND	ND	ND	ND						
B-45-2[3]	12/11/96	8:20 AM	ND											
B-46-1	11/7/96	1:38 PM		ND	ND	ND	ND	ND						
B-46-2[3]	12/11/96	7:34 AM	ND											
Reporting Limits	NA	NA	50	50	0.5	0.5	0.5	0.5	0.03	0.5	0.5	3	0.01	0.1

[1] Hydrocarbon in the Motor oil range was found in these samples

[2] Hydrocarbon reported is in the late Diesel range and does not match the pattern of Chromalab's Diesel standard

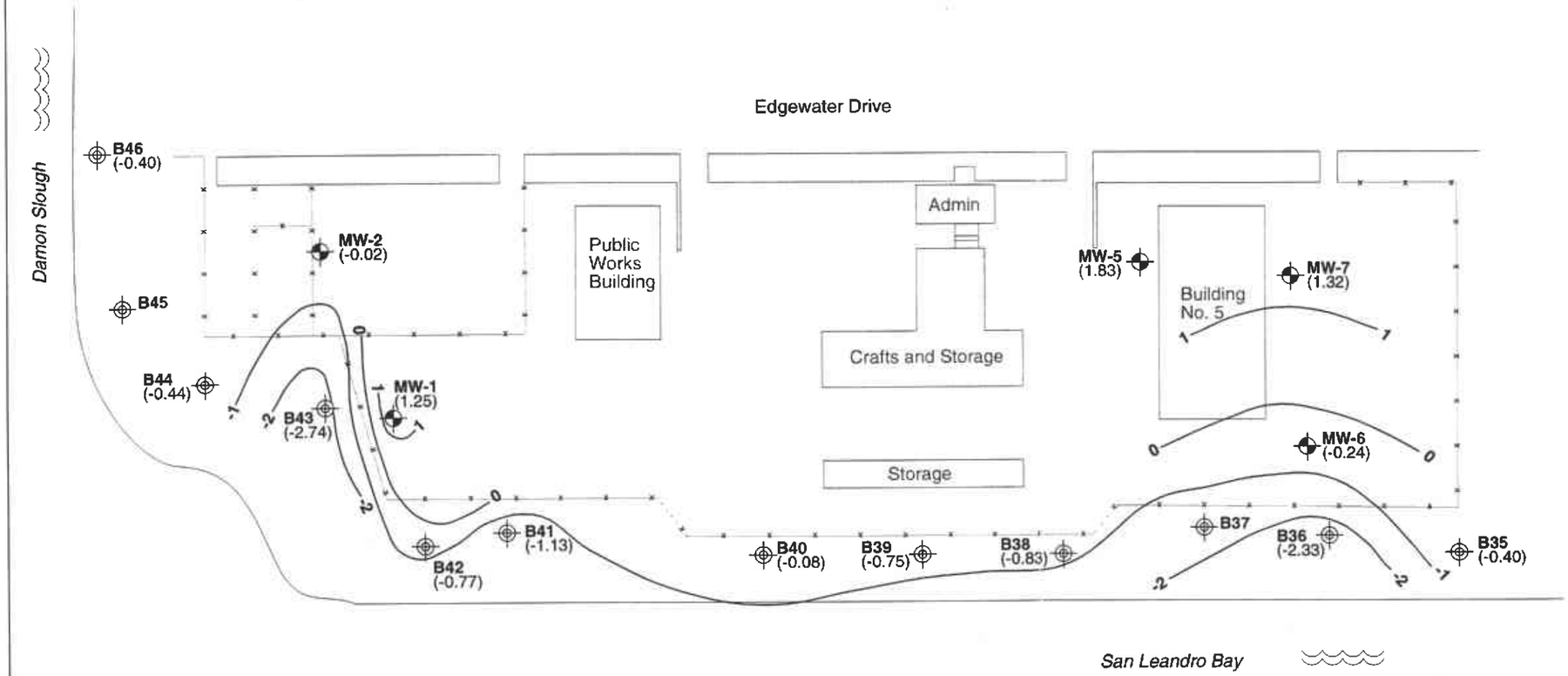
[3] Silica gel cleanup procedure was used for these samples

[4] These samples were cleaned with silica gel and reanalyzed



U&A / Uribe & Associates	City of Oakland Municipal Service Center Project No. 214-01	GROUNDWATER ELEVATION CONTOUR MAP Intermediate Rising Tide (3.09 to 6.49 ft. above MSL) November 15,1996	Figure 1

frank's wip\214-01\fig 1 JTK 01/08/97



0 100 200
feet

LEGEND

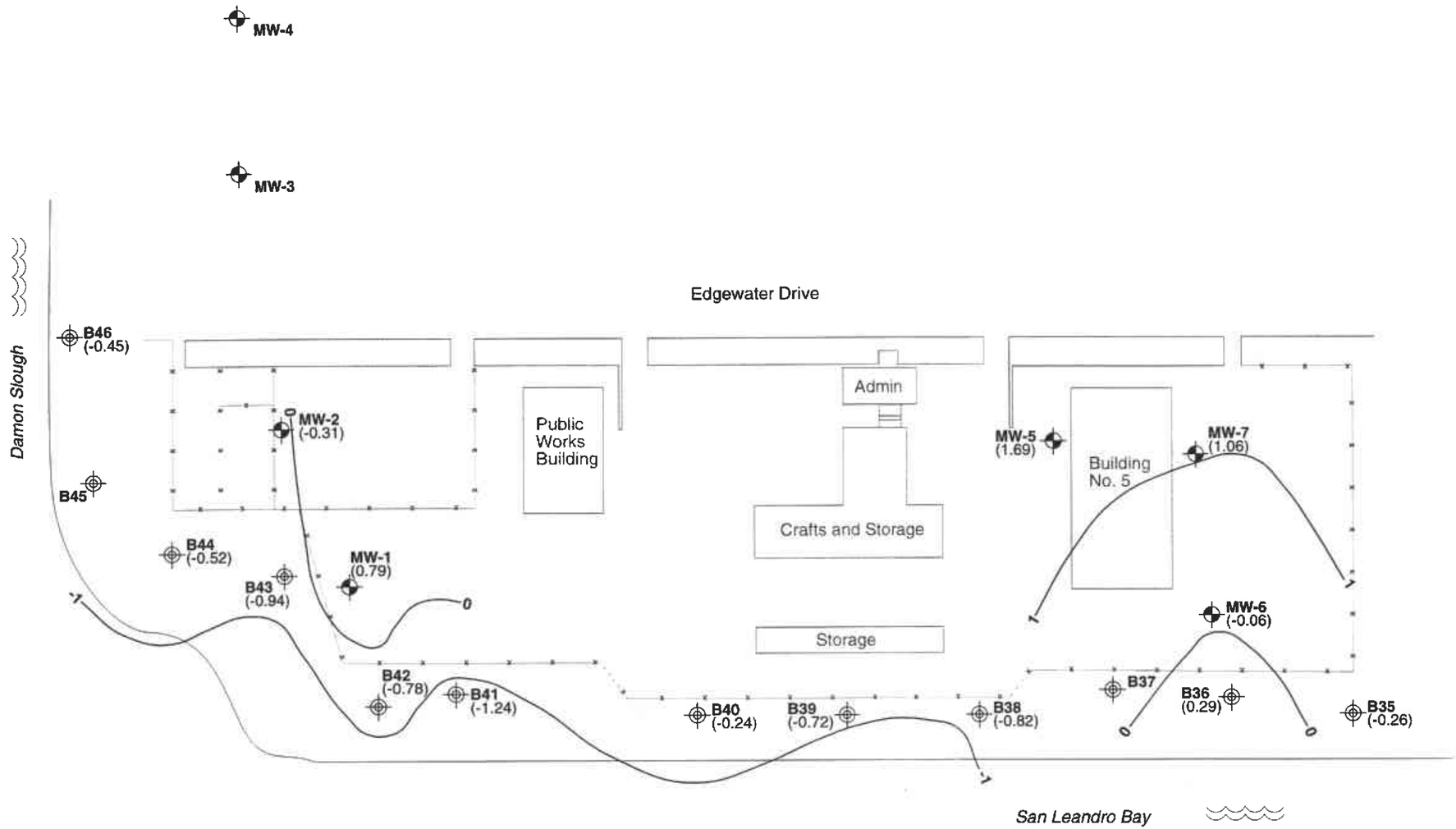
MW-1 (1.25) Existing Monitoring Well Location (Elevation of groundwater in feet, MSL)

B35 Temporary Well Points (Elevation of groundwater in feet, MSL)

(-0.40) Elevations based on survey by Chaudhary & Associates on 11/18/97 adjusted to elevations for existing wells as reported in "Progress Report City of Oakland Municipal Service Center" Woodward - Clyde, March 1996

U&A Uribe & Associates	City of Oakland Municipal Service Center Project No. 214-01	GROUNDWATER ELEVATION CONTOUR MAP Low Tide (0.23 ft. above MSL) November 21,1996	Figure 2

frank's wip\214-01\fig 2 RB 01/28/97



LEGEND

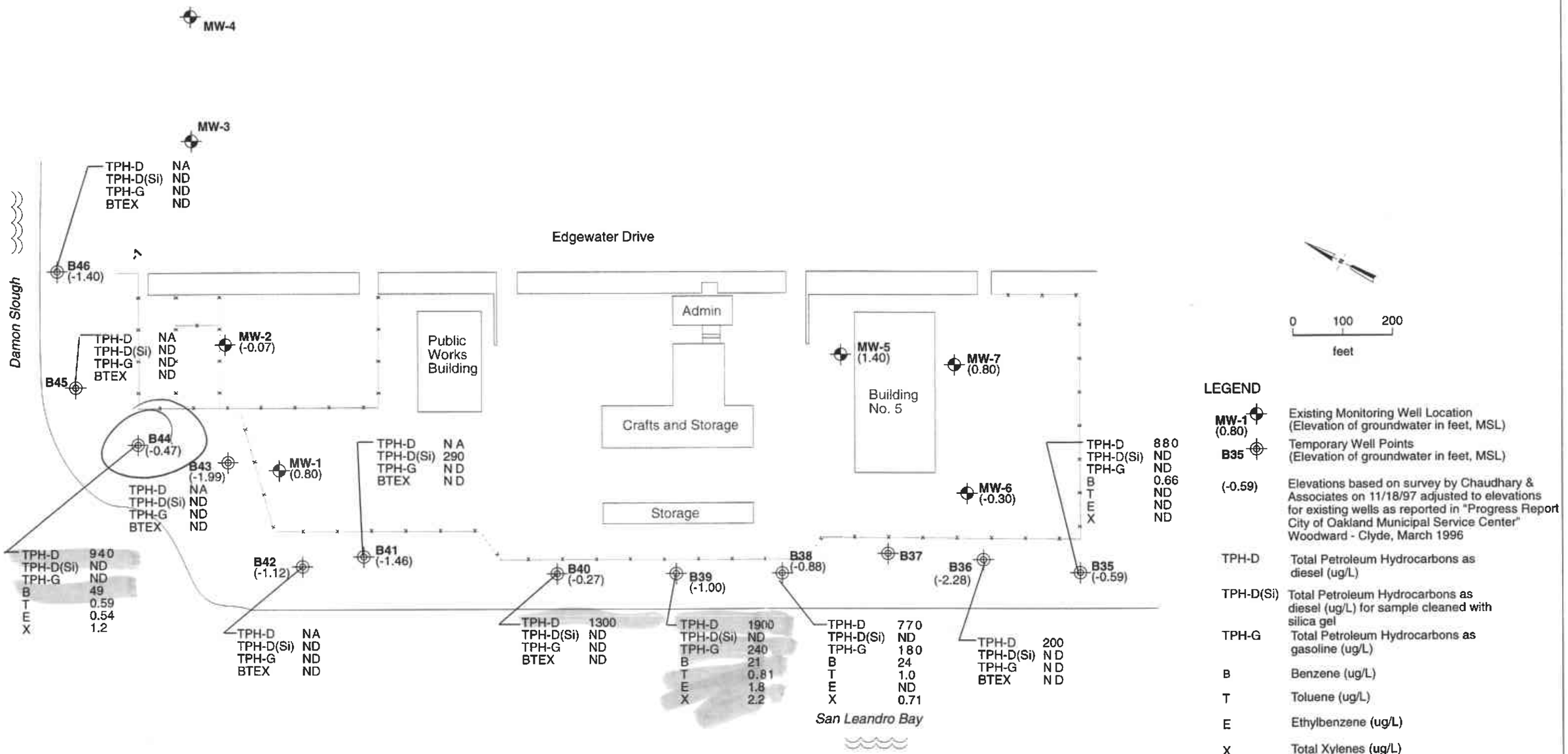
MW-1 (0.79) Existing Monitoring Well Location (Elevation of groundwater in feet, MSL)

B35 Temporary Well Points (Elevation of groundwater in feet, MSL)

(-0.26) Elevations based on survey by Chaudhary & Associates on 11/18/97 adjusted to elevations for existing wells as reported in "Progress Report City of Oakland Municipal Service Center" Woodward - Clyde, March 1996

U&A Uribe & Associates	City of Oakland Municipal Service Center Project No. 214-01	GROUNDWATER ELEVATION CONTOUR MAP High Tide (6.85 ft. above MSL) November 26,1996	Figure 3

frank's wip\214-01\fig 3 JTK 01/08/97



LEGEND

MW-1 (0.80)	Existing Monitoring Well Location (Elevation of groundwater in feet, MSL)
B35	Temporary Well Points (Elevation of groundwater in feet, MSL)
(-0.59)	Elevations based on survey by Chaudhary & Associates on 11/18/97 adjusted to elevations for existing wells as reported in "Progress Report City of Oakland Municipal Service Center" Woodward - Clyde, March 1996
TPH-D	Total Petroleum Hydrocarbons as diesel (ug/L)
TPH-D(Si)	Total Petroleum Hydrocarbons as diesel (ug/L) for sample cleaned with silica gel
TPH-G	Total Petroleum Hydrocarbons as gasoline (ug/L)
B	Benzene (ug/L)
T	Toluene (ug/L)
E	Ethylbenzene (ug/L)
X	Total Xylenes (ug/L)
ND	Not detected
NA	Not analyzed

U&A

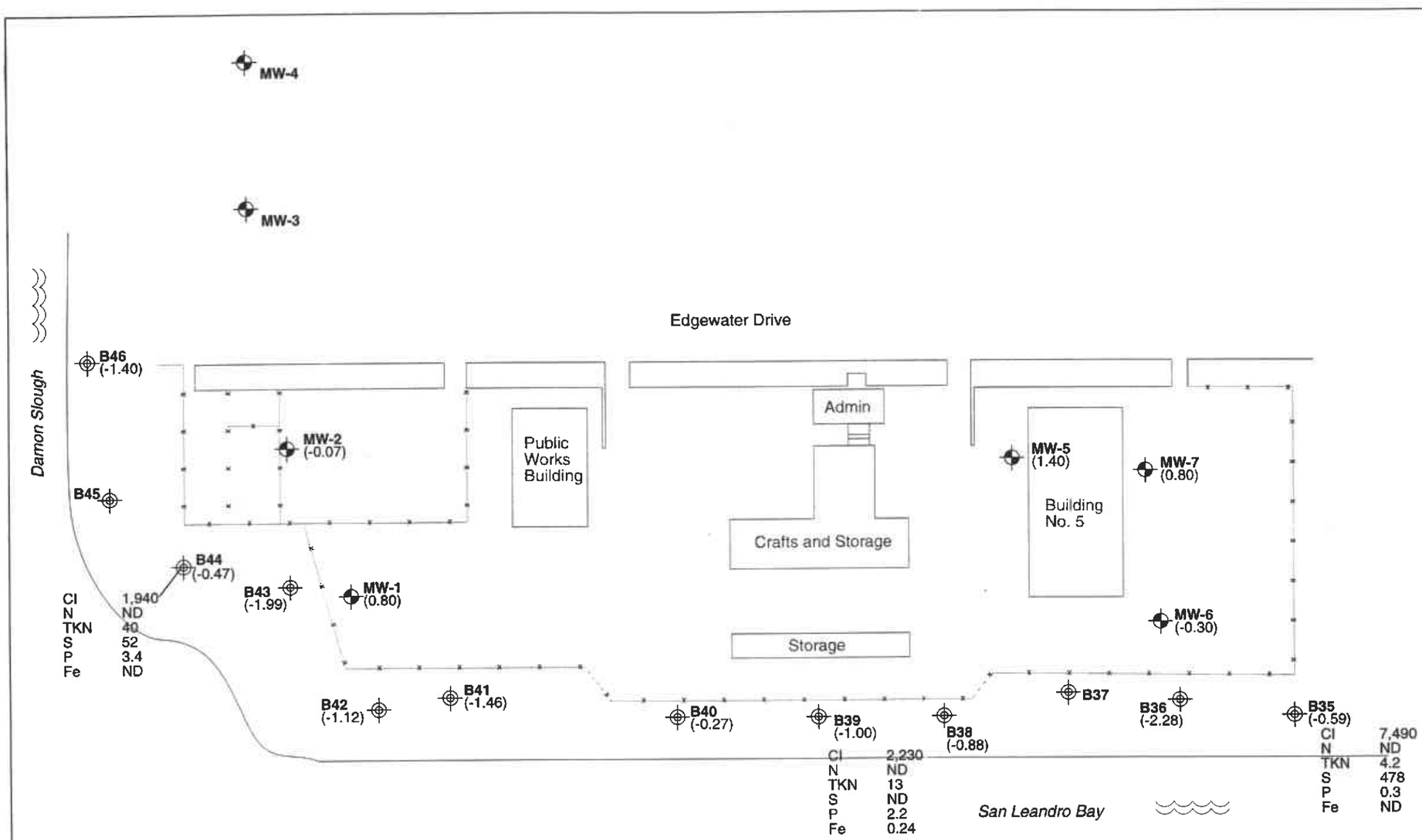
City of Oakland
Municipal Service Center
Project No. 214-01

Uribe & Associates

CONCENTRATIONS OF TPH-D, TPH-G, AND BTEX IN GROUNDWATER

Figure 4

frank's wip\214-01\fig 4 RB 01/27/97



LEGEND

MW-1 (0.80) Existing Monitoring Well Location (Elevation of groundwater in feet, MSL)

B35 Temporary Well Points (Elevation of groundwater in feet, MSL)

(-0.59) Elevations based on survey by Chaudhary & Associates on 11/18/97 adjusted to elevations for existing wells as reported in "Progress Report City of Oakland Municipal Service Center" Woodward - Clyde, March 1996

CL Chloride (mg/L)

N Nitrate as nitrogen (mg/L)

TKN Total Kjeldahl Nitrogen (mg/L)

S Sulfate (mg/L)

P Total Phosphorous (mg/L)

Fe Iron (mg/L)

U&A | City of Oakland Municipal Service Center Project No. 214-01

Uribe & Associates

ANALYTICAL RESULTS FOR TKN, CHLORIDE, NITRATE, SULFATE TOTAL PHOSPHOROUS, AND IRON IN GROUNDWATER

Figure 5

frank's wip\214-01\fig 5 RB 01/24/97

Attachment A

Soil Boring Logs

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland/Woodward Lyde	JOB NO: 214-01	BOREHOLE NUMBER: B35	
PROJECT: Martin Luther King Shoreline		LOCATION: South End MSC	
DRILLING CO: HEW		HOLE DIAMETER: 8"	ELEVATION:
DRILLING METHOD: HSA		DATE: 11/8/96	
SAMPLING METHOD: Split Spoon		RECORDED BY:	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE I.D. #	SAMPLE TIME
1				Brown Gravelly Sand fill damp		
2						
3						
4						
5				V. Difficult drilling at 5'		
6						
7				Augers still grinding 7-8'		
8						
9	14 50/2"	X /		SANDY GRAVEL W/ CLAY, concrete fragments reinforcing wire, moist, PID=0	B35-1	1424
10						
11		▽	Approx	Approx. first water		
12						
13						
14						
15	4 4 5	X X X		DARK GRAY CLAYEY GRAVEL W/SAND Wet, fill	B35-2	1437 1437
16						
17						
18						
19						
20	7 9 9	/ /		Poor Recovery, Wet clayey gravel + sand as above, Cobble lodged in Sampler PID=0		

START 1406
End 1500

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland/Woodward Clyde	JOB NO: 219.07	BOREHOLE NUMBER: B39	
PROJECT: Martin Luther King Shoreline		LOCATION: Nr. Pump station	
DRILLING CO: HEW		HOLE DIAMETER: 8"	ELEVATION:
DRILLING METHOD: HSA		DATE: 11/8/96	
SAMPLING METHOD: split spoon		RECORDED BY:	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE I.D. #	SAMPLE TIME
1				Brown sandy gravel w/ clay		
2						
3				Yellow gravelly sand, dry, loose		
4						
5						
6						
7				Augers grinding 5-7' bgs		
8						
9	3 2 2	X X X	V. Moist	DARK GRAY GRAVELLY SAND w/ CLAY MIXED, V. MOIST TO WET, Slight Diesel Odor PID = 20	B39-1 B39-2*	1200
10	7	X	▽			
11	10 17	X. X	Wet	As above, wet, PID = 2.0	B39-3	1220
12						
13						
14						
15	3 2 3	\ \ \	Wet	Poor Recovery - silt, clay, angular rock fragments, wet, PID = 0		1230
16						
17						
18						
19						
20	3 5 8	X X X	WET	As above, in contact w/ DARK GRAY SILTY SAND, Rootlets, PID = 0	B39-4	1250

* Partial Rec. in TOP + BOTTOM LINERS

Start 1150
End 1300

FILLED 2" BRASS SLEEVE BY DRIVING INTO 2.5" CORE

Term. Boring @ 20.5'

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland	JOB NO: 214-01	BOREHOLE NUMBER: B42	
PROJECT: MSC GW investigation		LOCATION: West of MSC	
DRILLING CO: VBI		HOLE DIAMETER: 1.5 in	ELEVATION:
DRILLING METHOD: Direct Push		DATE: 10/24/96	
SAMPLING METHOD: 0.5 dia. plastic sampler		RECORDED BY: Daring Wu	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE OVM I.D.#	SAMPLE TIME
				Prepunch 0-6 in.		
1				(GP)		
	Prepunch	X		Brown Sandy Gravel: 50-60% fine to mid gravel, 20-30% Sand, 5-10% fines loose, dry, plant root.	0.0.	
2	↓	X				
		X				
3	↓	//////				
4						
5						
		X		Brown poorly graded Sand (SP), 80-90% fine to mid sand, 5-10% fines, loose, moist	0.0	
6		//////				
7						
	↓ Power Punch			Refusal. Change to power punch to 15 ft bgs. No functional Sampling.		
8						
9						
				Move South by 15 ft Power punch, Refusal at 4 ft.		
10						
11						
				Move to East 10 ft. Power punch to 15 ft. Install well point		
12						
13						
14						
15						
16						
17						
18						
19						
20						

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland	JOB NO: 214-0	BOREHOLE NUMBER: B43	
PROJECT: MSC GW Investigation		LOCATION: West of MSC	
DRILLING CO: VBI		HOLE DIAMETER: 1.5	ELEVATION:
DRILLING METHOD: Direct Push		DATE: 10/23/96	
SAMPLING METHOD: Plastic Tubing		RECORDED BY: Daning Wu	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE OVM I.D. #	SAMPLE TIME
1		X		Yellowish brown Sandy Gravel (GP)	0.0	
		X		40-50% fine gravel, 30% Sand,		
2		X		5-10% fine, loose, dry.		
3		1116				
4					0.0	
5		X		Brown Gravelly Sand (SP): 60-70%		
		X		fine to mid sand, 15-20% fine		
6		X		gravel, 5-10% fines moist, Loose		
7		1111		fills		
8				Yellowish brown clayey Sand, 60-70%	0.0	
9		X	▽	Sand, 20-30% clay, wet, Soft, low		
		X		plasticity.		
10		1111		Dark Gray Sandy clay, 50-60%	0.0	
		1111		clay 20-30% fine sand, wet, Soft		
11				med. plasticity — Bay Mud		
				(Hand push, refusal)		
12				change smaller - dia. head		
13				~~Refusal at 10.2 ft bgs.~~		
		/		Power Punch to 15 ft bgs.		
14				~~Install well at 15 ft bgs.~~		
15						
16						
17						
18						
19						
20						

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland / Woodward Clyde | JOB NO: 2114-01 | BOREHOLE NUMBER: B44

PROJECT: Martin Luther King Shoreline | LOCATION: Near Restrooms

DRILLING CO: HEW | HOLE DIAMETER: 8" | ELEVATION:

DRILLING METHOD: HSA | DATE: 11/8/96

SAMPLING METHOD: 2.5" Split Spoon | RECORDED BY:

REGISTERED GEOLOGIST:

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE I.D. #	SAMPLE TIME
1				Brown Clayey Sand + Gravel (Fill), damp, PID = 0	—	0920
2						
3						
4				Change in cuttings to DARK GRAY SILTY CLAY		0925
5						
6				→ Measured water at 7.32' below top of csg @ 1115, ~7.8' below grnd. surf.		
7	5	X			B44-1	0930
	3	X			B44-2	0930
8	4	X		DARK GRAY CLAYEY SAND, MOIST TO WET SOFT, PID = 0		
	4					
9	5			SAND, GLASS, CONCRETE FRAGS - FILL → NO REC. -		
	5					
10	3	X		DARK GRAY FILL AS ABOVE, wet		
	2	X				
11	2			GRAY FAT CLAY (CH) wet, soft, plastic, PID = 0		
12						
13				HIT OBSTRUCTION at ~13', drilled past, hit another at ~14'		
14						
15				V. Difficult Drilling at 15'		
	1	—		POOR RECOVERY - wet mixture of sand, GRAVEL, CLAY		
16	1	—				
	2	—				
17						
18						
19						
20	1	X		GRAY SILTY CLAY, ~10% plant fragments, H_2S odor, Bay Mud	B44-3	1026
	1	X			B44-4	
	1	X		Terminated Boring at 20.5'		

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES

BOREHOLE LOG FORM

CLIENT: City of Oakland	JOB NO: 2190	BOREHOLE NUMBER: B45	
PROJECT: MSC GW Investigation		LOCATION: North of M.L.K Park.	
DRILLING CO: VBI		HOLE DIAMETER: 1.5in	ELEVATION:
DRILLING METHOD: Direct Push		DATE: 10/23/96	
SAMPLING METHOD: plastic Tube		RECORDED BY: Daming Wu	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE I.D. # VM	SAMPLE TIME
1	X					
2	X			Brown Sandy gravel, 50-60% fine gravel, 30% fine to med Sand, 5-10% fines, loose, dry.		
3	///////					
4				~~Refusal. Solid rock. Clean rig try again.~~		
5						
6				Drive through slowly. Sample ~~cannot be collected due to limitation of rig.~~		
7						
8				~~Hard Rock~~		
9				~~(near refusal, difficult to go through)~~		
10			▽	~~Soft Soil (rig go through smoothly)~~		
11	GW at 10 ft bgs. (Detected by Sounder)			~~Difficult to go through~~		
12				Soft. — rig go through smoothly.		
13						
14				~~Refusal at 13.5 ft bgs.~~		
15				~~Drilling Stopped.~~ Installation of Piezometer		
16						
17						
18				(7900 ~~Edgewater~~ Spring)		
19						
20						

URIBE & ASSOCIATES - ENVIRONMENTAL CONSULTING SERVICES — BOREHOLE LOG FORM

CLIENT: City of Oakland	JOB NO: ~~B46~~ 214-01	BOREHOLE NUMBER: B47	
PROJECT: MSC GW Investigation		LOCATION: North of M. L. K. Park	
DRILLING CO: VBI		HOLE DIAMETER: 1.5 in	ELEVATION:
DRILLING METHOD: Direct Push		DATE: 10/23/96	
SAMPLING METHOD:		RECORDED BY: Daning Wu	
		REGISTERED GEOLOGIST:	

DEPTH (Feet)	BLOWS/ 6 INCH	CORE RECOV.	MOISTURE CONTENT	LITHOLOGIC DESCRIPTIONS / REMARKS	SAMPLE I.D. # OVM	SAMPLE TIME
1				Brown Gravelly Sand (SP) 40-45% sand, 30-35% fine gravel, 20% fines, loose, moist, containing 2 in layer of dark gray clay at 0.4 ~~feet~~ bgs. plant roots	0.0	
2						
3						
4				Brown Sand W/ clay (SP): 70--80% sand, 15% clay/silt, 5-10% fine gravel, clay clusters, loose moist.	0.0	
5						
6				feet (CH) Dark gray clay: >90% clay, 5-10% sand high plastic, firm, moist ~~material~~ (Bay Mud Unit)		
7						
8						
9				Gravelly Dark gray clay: ~~60-70% clay, 15-20%~~ fine gravel, 5-10% sand, ~~containing sand lens~~, plastic, firm, wet, (Bay Mud)	0.0	
10	refusal			Hit Solid rock. No further drilling conducted. Pull rig out.		
11				bottom of Borehole at 9.5 feet bgs		
12				No groundwater seen.		
13						
14				Move borehole ~~15~~ ft to NE. redrill at 11:30am. No sample will be collected at redrill. Direct push to GW. and then put in PVC	prepunch to 14 ft bgs Install well at 18 ft bgs	
15						
16						
17				→ N entrance		
18						
19				~~B46~~ B46R 15ft		
20						

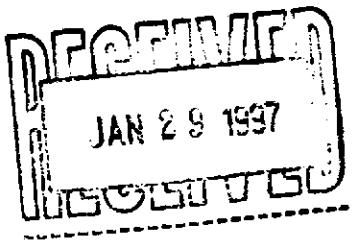
Attachment B

Chain of Custody Forms and Laboratory Analytical Results

Jim D

CHROMALAB, INC.

Environmental Services (SDB)



January 28, 1997

Jim Durkin
URIBE & ASSOCIATES
2830 Lakeshore Ave., Suite 200
Oakland, CA 94610-3614

Dear Mr. Durkin,

Enclosed are the hardcopy subcontract reports for submission # 9611263. You were mailed the faxed copies along with the Chromalab reports and invoice on December 31 because the subcontract hardcopies were not yet available.

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

Sincerely,

Samantha Antone
Invoicing

1/28/97

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

BioScreen® Testing Services, Inc.

3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514
PROJECT #: 9611263
REFERENCE: 75-105
P.O.#: N/A

ATTN: MIMIE PAK

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01081	SOIL	B-39-1
S01082	SOIL	B-39-3
S01083	SOIL	B-39-4
S01084	SOIL	B-35-1

TEST PERFORMED:	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/ml)	M229

RESULTS:

ACC # S01081

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.075×10^3	10 CFU/ml
Hydrocarbon Degraders	4.3×10^5	10 CFU/ml

ACC # S01082

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	8.0×10^2	10 CFU/ml
Hydrocarbon Degraders	2.4×10^5	10 CFU/ml

ACC # S01083

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	<10	10 CFU/ml
Hydrocarbon Degraders	3.2×10^5	10 CFU/ml

ACC # S01084

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.0×10^1	10 CFU/ml
Hydrocarbon Degraders	7.0×10^4	10 CFU/ml

Jeane Huang, Ph.D.
Technical Director

John Lawson, B.S.
Microbiology Supervisor

BioScreen® Testing Services, Inc.

3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

ATTN: MIMIE PAK

REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514a
PROJECT #: 9611263
REFERENCE: 75-105
P.O.#: N/A

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01085	SOIL	B-35-2
S01086	SOIL	B-44-1
S01087	SOIL	B-44-2
S01088	SOIL	B-44-3

TEST PERFORMED:	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/ml)	M229

RESULTS:

ACC # S01085

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	4.2×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01086

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01087

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	2.7×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01088

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/ml
Hydrocarbon Degraders	10	10 CFU/ml

Jeane Huang, Ph.D.
Technical Director

John Lawson, B.S.
Microbiology Supervisor

BioScreen® Testing Services, Inc.

3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

ATTN: MIMIE PAK

REISSUE DATE: 01/31/97
REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514
PROJECT #: 9611263
REFERENCE: 75-105
P.O.#: N/A

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01081	SOIL	B-39-1
S01082	SOIL	B-39-3
S01083	SOIL	B-39-4
S01084	SOIL	B-35-1

TEST PERFORMED:	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/gm)	M229

RESULTS:

ACC # S01081

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.075×10^3	10 CFU/gm
Hydrocarbon Degraders	4.3×10^5	10 CFU/gm

ACC # S01082

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	8.0×10^2	10 CFU/gm
Hydrocarbon Degraders	2.4×10^5	10 CFU/gm

ACC # S01083

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	<10	10 CFU/gm
Hydrocarbon Degraders	3.2×10^5	10 CFU/gm

ACC # S01084

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.0×10^1	10 CFU/gm
Hydrocarbon Degraders	7.0×10^4	10 CFU/gm

Jeane Huang, Ph.D.
Quality Assurance Director

John Lawson, B.S.
Microbiology Supervisor

BioScreen® Testing Services, Inc.

3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

ATTN: MIMIE PAK

REISSUE DATE: 01/30/97
REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514a
PROJECT #: 9611263
REFERENCE: 75-105

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01085	SOIL	B-35-2
S01086	SOIL	B-44-1
S01087	SOIL	B-44-2
S01088	SOIL	B-44-3

TEST PERFORMED:	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/gm)	M229

RESULTS:

ACC # S01085

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	4.2×10^5	10 CFU/gm
Hydrocarbon Degraders	<10	10 CFU/gm

ACC # S01086

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/gm
Hydrocarbon Degraders	<10	10 CFU/gm

ACC # S01087

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	2.7×10^5	10 CFU/gm
Hydrocarbon Degraders	<10	10 CFU/gm

ACC # S01088

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/gm
Hydrocarbon Degraders	10	10 CFU/gm

Jeane Huang, Ph.D.
Quality Assurance Director

John Lawson, B.S.
Microbiology Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 15, 1996 Submission #: 9611103

URIBE & ASSOCIATES
2930 Lakeshore Avenue, Suite 200
Oakland, CA 94610-3614

Attn: Bradley Erskine

RE: Analysis for project 214-01.

REPORTING INFORMATION

Samples were received cold and in good condition on November 8, 1996. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Motor oil was found in sample B36-1.
Motor oil was found in sample B38-1.

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 15, 1996 *Submission #:* 9611103

URIBE & ASSOCIATES

Atten: Bradley Erskine

Project: Not provided *Project#:* 214-01
Received: November 8, 1996

re: 3 samples for TPH - Diesel analysis.
Method: *EPA 3510/8015M*

Matrix: WATER *Extracted:* November 13, 1996
Sampled: November 7, 1996 *Run#:* 4020 *Analyzed:* November 14, 1996

Spl# CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
106722 B40-1	1300	50	N.D.	78.5	1
Note: Hydrocarbon reported does not match the pattern of our Diesel standard.					
106724 B38-1	770	50	N.D.	78.5	1
Note: Hydrocarbon reported does not match the pattern of our Diesel standard.					
106725 B36-1	200	50	N.D.	78.5	1
Note: Hydrocarbon reported is in the late Diesel range and does not match our Diesel standard.					

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

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

CHROMALAB, INC.

Environmental Services (SDB)

November 15, 1996 *Submission #:* 9611103

URIBE & ASSOCIATES

Atten: Bradley Erskine

Project: Not provided *Project#:* 214-01
Received: November 8, 1996

re: 9 samples for Gasoline and BTEX compounds analysis.
Method: *EPA 5030/8015M/8020A*

Matrix: WATER
Sampled: November 7, 1996 *Run#:* 4050 *Analyzed:* November 15, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
106718	B45-1	N.D.	N.D.	N.D.	N.D.	N.D.
106720	B42-1	N.D.	N.D.	N.D.	N.D.	N.D.
106722	B40-1	N.D.	N.D.	N.D.	N.D.	N.D.

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 180 ug/L.

Matrix: WATER
Sampled: November 7, 1996 *Run#:* 4051 *Analyzed:* November 15, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
106717	B46-1	N.D.	N.D.	N.D.	N.D.	N.D.
106719	B43-1	N.D.	N.D.	N.D.	N.D.	N.D.
106721	B41-1	N.D.	N.D.	N.D.	N.D.	N.D.
106724	B38-1	180	24	1.0	N.D.	0.71
106725	B36-1	N.D.	N.D.	N.D.	N.D.	N.D.

Matrix: WATER
Sampled: November 7, 1996 *Run#:* 4054 *Analyzed:* November 15, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
106723	B40-1D	N.D.	N.D.	N.D.	N.D.	N.D.

Note: Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 200 ug/L.

510-832-2237 GC 11/15

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

November 15, 1996

Submission #: 9611103

URIBE & ASSOCIATES

Atten: Bradley Erskine

Project: Not provided
Received: November 8, 1996

Project#: 214-01

re: 9 samples for Gasoline and BTEX compounds analysis, continued.
Method: *EPA 5030/8015M/8020A*

Matrix: WATER
Sampled: November 7, 1996 *Run#:* 4054 *Analyzed:* November 15, 1996

Spl# CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
Reporting Limits	50	0.50	0.50	0.50	0.50
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	81.4	103	97.5	98.4	97.6

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-832-2237 GC 11/15

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

CHROMALAB, INC.

Environmental Services (SDB)

November 15, 1996 *Submission #:* 9611103

URIBE & ASSOCIATES

Atten: Bradley Erskine

Project: Not provided *Project#:* 214-01
Received: November 8, 1996

re: 1 sample for Gasoline and BTEX compounds analysis.
Method: *EPA 5030/8015M/8020A*

Matrix: WATER
Sampled: November 7, 1996 *Run#:* 3997 *Analyzed:* November 13, 1996

Spl#	CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
106829	TRIP BLANK	N.D.	N.D.	N.D.	N.D.	N.D.

Note: Estimated concentration for gasoline due to low recovery of CCV. No back-up available for reanalysis.

Reporting Limits	50	0.50	0.50	0.50	0.50
Blank Result	N.D.	0	N.D.	N.D.	N.D.
Blank Spike Result (%)	85.6	92.1	87.7	87.0	88.2

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-832-2237 GC 11/15

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

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name URIBE
Project 214-01
Reference/Subm # 30674/9611103
Checklist completed by: [signature] / 11/11/96 (Signature / Date)

Date/Time Received 11/8/96 / 1217 (Date / Time)
Received by Bomorrow
Carrier name
Logged in by CR / 11/8/96 (Initials / Date)
Matrix Water

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? 4.2°C

pH upon receipt _____ pH adjusted _____ Check performed by: _____ NA___

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

Client contacted? yes Date contacted? 11/11/96
Person contacted? Jim Durkin Contacted by? Sam Antz
Regarding?
Comments: Rec'd Trip Blank but no analysis request. Called customer @ 1145 11/11/96 Left message on voicemail.

Corrective Action:

SMPLRECD.CK

CHROMALAB Change request received by: Sammp Date Requested: 11 / 11 / 96

SAMPLE STATUS CHANGE FORM

Submission#	Client Samp.ID	Old Status Description	Description of Changes	Requested by (Client's name)
9611103	TRIP BLANK	—	analyze trip blank for gas/btex same TAT	Jim Durkin URIBE

Changes were done in lims by(login): Sammp On: 11 / 11 / 96

CC: ___ Lab.Director ✓ Dept.manager ✓ Analyst ✓ Proj.Manager

103/106717-106725

URIBE & ASSOCIATES
ENVIRONMENTAL CONSULTING SERVICES

CHAIN-OF-CUSTODY RECORD

30674

Project No.:	Project Name:
214-01	

REPORT RESULTS TO

Name:	Jim Durkin
Company:	URIBE & ASSOCIATES
Mailing Address:	2930 LAKESHORE AVENUE, SUITE 200
City, State, Zip:	OAKLAND, CA 94610-3614
Telephone No.:	510-832-2233 Telefax No.: 510-832-2237

SEND INVOICE TO

Purchase Order Number:	
Name:	Nicole Peirce
Company:	U&A Dept:
Mailing Address:	
City, State, Zip:	

Turn-Around Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ 5 day ☐ 10 day (Standard)

Rush Charges Authorized? ☐ Yes ☒ No

Phone Results ☐ Fax Results ☒

Special Instructions:
Hold Nos. 1 thru 5 For TPH-D run for BTEX + TPH-G. Jim Durkin to authorize TPH-D analyses.

ANALYSES REQUESTED

SUBM #: 9611103 REP: GC
CLIENT: URIBE
DUE: 11/15/96
REF #:30674

No.	Date	Time	Matrix/Medium	Sample Identification Number	# OF CONTAINERS	TPH-D	TPH-G	BTEX	Remarks
~~1~~	~~11/4/96~~								
12	11/7/96	1:45	Water	B46-1	4	X	X	X	hold TPH-D
2		2:15		B45-1		X	X	X	hold TPH-D
3		2:30		B43-1		X	X	X	hold TPH-D
4		3:06		B42-1		X	X	X	hold TPH-D
5		3:25		B41-1		X	X	X	hold TPH-D
6		3:44		B40-1		X	X	X	
7		3:45		B40-1 D	3		X	X	
8		4:15		B38-1	4	X	X	X	
9		4:25		B36-1	4	X	X	X	

CHAIN OF CUSTODY

Collected by: Nicole Peirce / Jim Durkin (Print)
Collector's Signature: Nicole Peirce / [signature] 11/7 1708

	Date	Time
Relinquished by:	11/8/96	12:17p
Received by:	11-8-96	1217
Relinquished by:	11.8.96	1720
Received by:	11/8/96	1720

Method of Shipment: Lab Courier

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Chain of Custody form 6/2/95 QX FC

Original (White) Laboratory Copy (Yellow) Field Copy (Pink)

CHROMALAB, INC.

Environmental Services (SDB)

December 3, 1996 *Submission #:* 9611264

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

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

Client Sample ID: **B-35**
Spl#: 108221 *Matrix:* WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4214 *Analyzed:* December 3, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	N.D.	0.10	N.D.	99.0	1

Charles Woolley
Chemist

John S. Labash
Inorganic Supervisor

510-832-2237 00 12/02

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

CHROMALAB, INC.

Environmental Services (SDB)

December 3, 1996 *Submission #:* 9611264

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

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

Client Sample ID: **B-39**
Spl#: 108220 *Matrix:* WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4214 *Analyzed:* December 3, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	0.24	0.10	N.D.	99.0	1

Charles Woolley
Chemist

John S. Labash
Inorganic Supervisor

510-832-2237 GC 12/02

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

M032 0:0C0405 CHARLES 17:12

CHROMALAB, INC.

Environmental Services (SDB)

December 3, 1996 *Submission #:* 9611264

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

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

Client Sample ID: **B-44**
Spl#: 108219 *Matrix:* WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4214 *Analyzed:* December 3, 1996

ANALYTE	RESULT (mg/L)	REPORTING LIMIT (mg/L)	BLANK RESULT (mg/L)	BLANK SPIKE (%)	DILUTION FACTOR
IRON	N.D.	0.10	N.D.	99.0	1

Charles Woolley
Chemist

John S. Labash
Inorganic Supervisor

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1996 *Submission #:* 9611264

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

re: 3 samples for Gasoline and BTEX compounds analysis.
Method: *EPA 8015M SW846 8020A Nov 1990*

Matrix: WATER
Sampled: November 20, 1996 *Run#:* 4253 *Analyzed:* November 28, 1996

Spl# CLIENT SPL ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
108219 B-44	N.D.	49	0.59	0.54	1.2
Note: *Hydrocarbon found in Gasoline Range is uncharacteristic of Gasoline Profile. If quantified using Gasoline's response factor, concentration would equal 110ug/L.*					
108220 B-39	240	21	0.81	1.8	2.2
108221 B-35	N.D.	0.66	N.D.	N.D.	N.D.
Reporting Limits	50	0.50	0.50	0.50	0.50
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	111	100	97.2	98.6	98.2

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

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

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1996 Submission #: 9611264

URIBE & ASSOCIATES
2930 Lakeshore Avenue, Suite 200
Oakland, CA 94610-3614

Attn: Nicole Peirce

RE: Analysis for project MSC/WCC CITY OF OAKLAND, number 214-01.

REPORTING INFORMATION

Samples were received cold and in good condition on November 21, 1996. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Hydrocarbon in the Motor oil range was found in sample B-35.
Hydrocarbon in the Motor oil range was found in sample B-39.
Hydrocarbon in the Motor oil range was found in sample B-44.

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1996 *Submission #:* 9611264

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

re: 3 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4226 *Analyzed:* November 27, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
108219	B-44	940	50	N.D.	93.5	1

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

Matrix: WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4226 *Analyzed:* November 28, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
108220	B-39	1900	50	N.D.	93.5	1

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

108221	B-35	880	54	N.D.	93.5	1

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

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

Client: Chromalab, Inc.
Attn: Ms. Mimie Pak

Client's Project: 9611264

Date Received: 11/22/96
Date Sampled: 11/20/96

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results	Matrix, Units	MDL	DLR	Analyst
14288-001	B-44	EPA 351.3 (TKN)	11/27/96	40	Water, mg/L	0.03	0.80	SH
14288-002	B-39	EPA 351.3 (TKN)	11/27/96	13	Water, mg/L	0.03	0.40	SH
14288-003	B-35	EPA 351.3 (TKN)	11/27/96	4.2	Water, mg/L	0.03	0.08	SH
14288-001	B-44	EPA 300 (Chloride)	11/22/96	1940	Water, mg/L	0.50	200	IG
14288-002	B-39	EPA 300 (Chloride)	11/22/96	2230	Water, mg/L	0.50	200	IG
14288-003	B-35	EPA 300 (Chloride)	11/22/96	7490	Water, mg/L	0.50	500	IG
14288-001	B-44	EPA 300 (Nitrate as N)	11/22/96	ND	Water, mg/L	0.50	1.0	IG
14288-002	B-39	EPA 300 (Nitrate as N)	11/22/96	ND	Water, mg/L	0.50	3.0	IG
14288-003	B-35	EPA 300 (Nitrate as N)	11/22/96	ND	Water, mg/L	0.50	3.0	IG
14288-001	B-44	EPA 300 (Sulfate)	11/22/96	52	Water, mg/L	3.0	5.0	IG
14288-002	B-39	EPA 300 (Sulfate)	11/22/96	ND	Water, mg/L	3.0	10	IG
14288-003	B-35	EPA 300 (Sulfate)	11/22/96	478	Water, mg/L	3.0	100	IG
14288-001	B-44	EPA 365.3 (Total Phosphorous)	11/27/96	3.4	Water, mg/L	0.01	0.20	SH
14288-002	B-39	EPA 365.3 (Total Phosphorous)	11/27/96	2.2	Water, mg/L	0.01	0.20	SH
14288-003	B-35	EPA 365.3 (Total Phosphorous)	11/27/96	0.30	Water, mg/L	0.01	0.20	SH

MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By: Cheryl delos Reyes
Cheryl De Los Reyes
Department Supervisor

Date: 12/4/96

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method: EPA 300
Analyst: IG
Data File: IC 961122-1W
QA File: 6327-1W

Date Analyzed: 11/22/96
Sample ID: 14307-002
Matrix: Water

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
Chloride	mg/L	5.0	5.2	104	ND	ND	10	10	10	100	100	80 - 120	0	30	.50
Nitrite-N	mg/L	2.5	2.6	104	ND	ND	5.0	4.9	4.9	98	98	80 - 120	0	30	.50
Nitrate-N	mg/L	2.5	2.4	96	ND	ND	5.0	4.6	4.4	92	88	80 - 120	4	30	.50
Phosphate-P	mg/L	15	15	100	ND	ND	30	33	33	110	110	80 - 120	0	30	2.5
Sulfate	mg/L	15	15	100	ND	ND	30	31	30	103	100	80 - 120	3	30	2.5

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

Spike Recovery and RPD Summary Report

Method: EPA 365.3
Analyst: SH
QA File: 6339-1W

Date Analyzed: 12/04/96
Sample ID: Blank
Matrix: Soil

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
T-PO4	mg/kg	20	20	100	ND	ND	20	19	20	95	100	80 - 120	5	20	0.5

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

Spike Recovery and RPD Summary Report

Method: EPA 351.3
Analyst: SH
Data File: 6339-1W

Date: 12/04/96
Sample ID: Blank
Matrix: Water

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
TKN	mg/L	1.0	0.99	99	ND	ND	1.0	1.1	1.0	110	100	80 - 120	10	20	0.03

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name URIBE — Date/Time Received 11/21/96 (Date) 1030 (Time)

Project MSC/WCC, City of Oakland — Received by BMORROW

Reference/Subm # 30857/96/12164 — Carrier name

Checklist completed by: SANTORE (Signature) 11/22/96 (Date) — Logged in by MP (Initials) 11/21/96 (Date)

Matrix Water

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? 4.5° C

pH upon receipt (SEE BELOW) pH adjusted _____ Check performed by: MP NA ____

Any NO response 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: Container preserved w/ H_2SO_4 rc'd @ pH <2
unpreserved rcd @ 6-7
adjusted to <2

Corrective Action: _____

SMPLRECD.CK

264 / 108219 - 108221

30857

URIBE & ASSOCIATES
ENVIRONMENTAL CONSULTING SERVICES

Page 1 of 1

CHAIN-OF-CUSTODY RECORD

SUBM #: 9611264 REP: GC
CLIENT: URIBE
DUE: ~~11/26/96~~ or due 12/02/96
REF #: 30856

Project No.: 214-01	Project Name: MSC / WCC City of Oakland

REPORT RESULTS TO

Name:	Nicole Peirce
Company:	URIBE & ASSOCIATES
Mailing Address:	2930 LAKESHORE AVENUE, SUITE 200
City, State, Zip:	OAKLAND, CA 94610-3614
Telephone No.:	510-832-2233 Telefax No.: 510-832-2237

SEND INVOICE TO

Purchase Order Numb	
Name:	
Company:	Dept:
Mailing Address:	
City, State, Zip:	

Turn-Around Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ 5 day ☐ 10 day (Standard)

Rush Charges Authorized? ☐ Yes ☒ No

Phone Results ☐ Fax Results ☒

Special Instructions:

ANALYSES REQUESTED

No.	Date	Time	Matrix/Medium	Sample Identification Number	# OF CONTAINERS	TPH-D	TPH-G	BTEX	TKN	EPA300	dissolved Fe	Remarks
1	11/20/96	2:15pm	water	B-44	7	X	X	X	X	X	X	EPA 300: Cl, SO4, NO3, Phosphate (Total)
2	"	"	"	B-39	7	X	X	X	X	X	X	
3	"	"	"	B-35	7	X	X	X	X	X	X	

CHAIN OF CUSTODY

Collected by: Nicole Peirce / Michele Mahoney (Print)
Collector's Signature: Nicole Peirce / Michele Mahoney

Relinquished by: Nicole Peirce Date: 11/21/96 Time: 10:30 am
Received by: [signature] Date: 11-21-96 Time: 1030

Relinquished by: [signature] Date: 11-21-96 Time: 1300
Received by: Jimmie Park Date: 11/21/96 Time: 1300

Method of Shipment:

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Chain of Custody form 6/2/95 QX FC

Original (White) Laboratory Copy (Yellow) Field Copy (Pink)

CHROMALAB, INC.

Environmental Services (SDB)

INVOICE

INVOICE NO: 030377

BILL TO: Uribe & Associates
2830 Lakeshore Avenue
Suite 200
Oakland, CA 94610-3614

DATE: 12/31/96

JOB/PO NO: 214-01

REPORT TO: Jim Durkin
Uribe & Associates
2830 Lakeshore Ave., Ste. 200
Oakland, CA 94610-3614

CUST NO: URIBE
FILE NO: 031285
COPY NO: 001
AE: GC

QTY.	ITEM NO.	DESCRIPTION	PRICE	AMOUNT
3	TPH-A1LUFT	Diesel - Water	46.67	$140.01
1	CLB-H00077	Miscellaneous Fees	15.00	$15.00
1.00	.	Silica Gel Prep. Method 3630M	0.00	$.00

TERMS: Net 30 Days

SUBTOTAL	$155.01
DISCOUNT	$.00
	$.00
	$.00
	$.00
TOTAL	$155.01

COMMENTS:
Submission # 9612262
Sample Reanalyzed From Extract

Service Charge of Past Due Accounts: 1.5% per month - 18% annum

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

CHROMALAB, INC.

Environmental Services (SDB)

December 20, 1996 *Submission #:* 9612262

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC/WCC CITY OF OAKLAND *Project#:* 214-01
Received: November 21, 1996

re: 3 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* November 26, 1996
Sampled: November 20, 1996 *Run#:* 4589 *Analyzed:* December 18, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
111538	B-44	N.D.	50	N.D.	93.5	1
	Note: Silica gel cleanup.					
111539	B-39	N.D.	50	N.D.	93.5	1
	Note: Silica gel cleanup.					
111540	B-35	N.D.	54	N.D.	93.5	1
	Note: Silica gel cleanup.					

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

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

2/11538 11570

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

ADD ON/CHANGE ORDER

New Submission No: 9612262

Order No: 31285

SUBM #: 9612262 REP: GC
CLIENT: URIBE
DUE: 12/19/96
REF #:31285/9611264

Original Submission Info

Client Name: Uribe

Project Mgr: Nicole Peirce

Project Name: MSC/WCC CITY OF OAKLAND

Project No:

PO#:

Date Received:

Submission No: 9611264

Name of Caller:

Call Date: 12/17 Time:

Add on Due Date: 12/19 Date Sampled

Comments: Silica Gel gel extract 36304

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)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	Diesel w/Silica Gel 36304	LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
B-44																X									
B-39																X									
B-35																X									

RUSH

CHROMALAB, INC.

Environmental Services (SDB)

December 20, 1996 *Submission #:* 9612261

URIBE & ASSOCIATES

Atten: Jim Durkin

Project: Not provided *Project#:* 214-01
Received: November 8, 1996

re: 3 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Sampled: November 7, 1996 *Matrix:* WATER *Run#:* 4590 *Extracted:* November 13, 1996 *Analyzed:* December 18, 1996

Spl# CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
111535 B40-1	N.D.	50	N.D.	78.5	1
Note: Silica gel cleanup.					
111536 B38-1	N.D.	50	N.D.	78.5	1
Note: Silica gel cleanup.					
111537 B36-1	N.D.	50	N.D.	78.5	1
Note: Silica gel cleanup.					

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

510-832-2237 BC 12/19

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

261/111535-111557

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

ADD ON/CHANGE ORDER

New Submission No: 9612261

Order No: 31284

Original Submission Info

Client Name: Uribe

Project Mgr: Jim Durbin

Project Name:

Project No:

PO#:

Date Received: 11/8/96

Submission No: 9611103

Name of Caller:

Call Date: 12/17 Time:

Add on Due Date: 12/19 Date Sampled

Comments:

GRC

SUBM #: 9612261 REP: GC
CLIENT: URIBE
DUE: 12/19/96
REF #:31284/9611103

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)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)	DIESEL w/silica gel + 3630H	LUFT METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
B40-1			W													X									
B38-1							RUSH									X									
~~A+~~ B36-1			↓													X									

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1996 Submission #: 9611263

URIBE & ASSOCIATES
2930 Lakeshore Avenue, Suite 200
Oakland, CA 94610-3614

Attn: Jim Durkin

RE: Analysis for project OAKLAND/WOODWARD CLYDE, number 214-01.

REPORTING INFORMATION

Samples were received cold and in good condition on November 21, 1996. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Motor oil was found in sample B39-2.

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 2, 1996 *Submission #:* 9611263

URIBE & ASSOCIATES

Atten: Jim Durkin

Project: OAKLAND/WOODWARD CLYDE *Project#:* 214-01
Received: November 21, 1996

re: 1 sample for TPH - Diesel analysis.
Method: *EPA 3510/8015M*

Matrix: SOIL *Extracted:* November 22, 1996
Sampled: November 8, 1996 *Run#:* 4180 *Analyzed:* November 23, 1996

Spl#	CLIENT SPL ID	DIESEL (mg/Kg)	REPORTING LIMIT (mg/Kg)	BLANK RESULT (mg/Kg)	BLANK SPIKE (%)	DILUTION FACTOR
108210	B39-2	120	20	N.D.	82.3	20

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

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

November 25, 1996 *Submission #:* 9611263

URIBE & ASSOCIATES

Atten: Jim Durkin

Project: OAKLAND/WOODWARD CLYDE *Project#:* 214-01
Received: November 21, 1996

re: 8 samples for pH analysis.
Method: *9040/9045*

Sampled: November 8, 1996 *Matrix:* SOIL *Run#:* 4200 *Extracted:* November 25, 1996 *Analyzed:* November 25, 1996

Spl#	CLIENT SPL ID	pH (Units)	REPORTING LIMIT (Units)	BLANK RESULT (Units)	BLANK SPIKE (%)	DILUTION FACTOR
108211	B39-1	8.78	1-14	7.00	--	--
108212	B39-3	7.77	1-14	7.00	--	--
108213	B39-4	7.61	1-14	7.00	--	--
108214	B35-1	11.3	1-14	7.00	--	--
108215	B35-2	8.09	1-14	7.00	--	--
108216	B44-1	7.31	1-14	7.00	--	--
108217	B44-2	7.98	1-14	7.00	--	--
108218	B44-3	8.30	1-14	7.00	--	--

Carolyn House
Extractions Supervisor

Chip Poalinelli
Operations Manager

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

CHROMALAB, INC.

Environmental Services (SDB)

November 25, 1996 *Submission #:* 9611263

URIBE & ASSOCIATES

Atten: Jim Durkin

Project: OAKLAND/WOODWARD CLYDE *Project#:* 214-01
Received: November 21, 1996

re: 1 sample for Gasoline and BTEX compounds analysis.
Method: *EPA 5030/8015M/8020A*

Matrix: SOIL
Sampled: November 8, 1996 *Run#:* 4206 *Analyzed:* November 22, 1996

Spl# CLIENT SPL ID	Gasoline (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)
108210 B39-2	N.D.	N.D.	N.D.	N.D.	0.016
Reporting Limits	1.0	0.0050	0.0050	0.0050	0.0050
Blank Result	N.D.	N.D.	N.D.	N.D.	N.D.
Blank Spike Result (%)	80.6	95.5	100	108	106

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-832-2237 GC 12/02

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

Advanced Technology Laboratories

December 4, 1996

ELAP No.: 1838

Chromalab, Inc.
1220 Quarry Lane
Pleasanton, CA 94566-4756

ATTN: Ms. Mimie Pak

Client's Project #: 9611263
Lab No.: 14287-001/008

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories on and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Edgar P. Caballero
Laboratory Director
EPC\ms

Enclosures

This cover letter is an integral part of this analytical report.

Mailing Address: P.O. Box 9108 Newport Beach, CA 92658
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 310 989-4045 Fax: 310 989-4040

Client: Chromalab, Inc.
Attn: Ms. Mimie Pak

Client's Project: 9611263

Date Received: 11/22/96
Date Sampled: 11/08/96

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst
14287-001	B39-1	EPA 9060 (TOC)	11/23/96	8440	Soil, mg/kg	30	100	IG
14287-002	B39-3	EPA 9060 (TOC)	11/23/96	7290	Soil, mg/kg	30	100	IG
14287-003	B39-4	EPA 9060 (TOC)	11/23/96	7700	Soil, mg/kg	30	100	IG
14287-004	B35-1	EPA 9060 (TOC)	11/23/96	525	Soil, mg/kg	30	60	IG
14287-005	B35-2	EPA 9060 (TOC)	11/23/96	19300	Soil, mg/kg	30	100	IG
14287-006	B44-1	EPA 9060 (TOC)	11/23/96	10900	Soil, mg/kg	30	100	IG
14287-007	B44-2	EPA 9060 (TOC)	11/23/96	2320	Soil, mg/kg	30	60	IG
14287-008	B44-3	EPA 9060 (TOC)	11/23/96	11200	Soil, mg/kg	30	60	IG
14287-001	B39-1	EPA 365.3 (Total Phosphorous)	11/27/96	470	Soil, mg/kg	0.50	50	SH
14287-002	B39-3	EPA 365.3 (Total Phosphorous)	11/27/96	400	Soil, mg/kg	0.50	50	SH
14287-003	B39-4	EPA 365.3 (Total Phosphorous)	11/27/96	615	Soil, mg/kg	0.50	50	SH
14287-004	B35-1	EPA 365.3 (Total Phosphorous)	11/27/96	795	Soil, mg/kg	0.50	50	SH
14287-005	B35-2	EPA 365.3 (Total Phosphorous)	11/27/96	1420	Soil, mg/kg	0.50	50	SH
14287-006	B44-1	EPA 365.3 (Total Phosphorous)	11/27/96	820	Soil, mg/kg	0.50	50	SH
14287-007	B44-2	EPA 365.3 (Total Phosphorous)	11/27/96	475	Soil, mg/kg	0.50	50	SH
14287-008	B44-3	EPA 365.3 (Total Phosphorous)	11/27/96	1230	Soil, mg/kg	0.50	50	SH

MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By: Cheryl de los Reyes
Cheryl De Los Reyes
Department Supervisor

Date: 12/4/96

The cover letter is an integral part of this analytical report.

Advanced Technology Laboratories
1510 E. 33rd Street Signal Hill, CA 90807 Tel: 310 989-4045 Fax: 310 989-4040

Client: Chromalab, Inc.
Attn: Ms. Mimie Pak

Client's Project: 9611263

Date Received: 11/22/96
Date Sampled: 11/08/96

Lab No.	Sample I.D.	Analysis	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst
14287-001	B39-1	EPA 351.3 (TKN)	11/27/96	432	Soil, mg/kg	0.8	8.0	SH
14287-002	B39-3	EPA 351.3 (TKN)	11/27/96	368	Soil, mg/kg	0.8	8.0	SH
14287-003	B39-4	EPA 351.3 (TKN)	11/27/96	592	Soil, mg/kg	0.8	20	SH
14287-004	B35-1	EPA 351.3 (TKN)	11/27/96	48	Soil, mg/kg	0.8	2.0	SH
14287-005	B35-2	EPA 351.3 (TKN)	11/27/96	284	Soil, mg/kg	0.8	20	SH
14287-006	B44-1	EPA 351.3 (TKN)	11/27/96	1210	Soil, mg/kg	0.8	40	SH
14287-007	B44-2	EPA 351.3 (TKN)	11/27/96	332	Soil, mg/kg	0.8	8.0	SH
14287-008	B44-3	EPA 351.3 (TKN)	11/27/96	635	Soil, mg/kg	0.8	20	SH

MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By: Cheryl de los Reyes **Date:** 12/4/96
Cheryl De Los Reyes
Department Supervisor

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method: 9060
Analyst: IG
Data File: 6328-1S

Date: 11/23/96
Sample ID: 14287-007
Matrix: Soil

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
TOC	mg/kg	2000	2010	101	ND	2320	4000	6320	5980	100	92	50 - 130	9	30	30

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

Spike Recovery and RPD Summary Report

Method: EPA 351.3
Analyst: SH
Data File: 6339-1S

Date: 12/04/96
Sample ID: Blank
Matrix: Solid

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
TKN	mg/kg	25	25	100	ND	ND	25	28	25	112	100	80 - 120	11	20	0.75

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

Spike Recovery and RPD Summary Report

Method: EPA 365.3
Analyst: SH
QA File: 6339-1W

Date Analyzed: 12/04/96
Sample ID: Blank
Matrix: Water

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
T-PO4	mg/kg	20	20	100	ND	ND	20	19	20	95	100	80 - 120	5	20	0.5

Approved by: Cheryl de los Reyes
Cheryl De Los Reyes
Inorganics Supervisor

Date: 12/4/96

Advanced Technology Laboratories

BioScreen® Testing Services, Inc.

3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

ATTN: MIMIE PAK

REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514
PROJECT #: 9611263
REFERENCE: 75-105
P.O.#: N/A

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01081	SOIL	B-39-1
S01082	SOIL	B-39-3
S01083	SOIL	B-39-4
S01084	SOIL	B-35-1

TEST PERFORMED:

	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/ml)	M229

RESULTS:

ACC # S01081

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.075×10^3	10 CFU/ml
Hydrocarbon Degraders	4.3×10^5	10 CFU/ml

ACC # S01082

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	8.0×10^2	10 CFU/ml
Hydrocarbon Degraders	2.4×10^5	10 CFU/ml

ACC # S01083

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	<10	10 CFU/ml
Hydrocarbon Degraders	3.2×10^5	10 CFU/ml

ACC # S01084

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	1.0×10^1	10 CFU/ml
Hydrocarbon Degraders	7.0×10^4	10 CFU/ml

Jeanet Huang, Ph.D.
Technical Director

John Lawson, B.S.
Microbiology Supervisor

BioScreen® Testing Services, Inc.
3892 Del Amo Boulevard • Suite 705 • Torrance, California 90503
(310) 214-0043 • Fax: (310) 370-3642 • E-Mail: bioscreen@msn.com

ANALYTICAL REPORT

CHROMALAB, INC.
1220 QUARRY LANE
PLEASANTON, CA 94566

REPORT DATE: 12/17/96
DATE INITIATED: 11/27/96
DATE COMPLETED: 12/12/96
REPORT #: S-514a
PROJECT #: 9611263
REFERENCE: 75-105
P.O.#: N/A

ATTN: MIMIE PAK

SAMPLE:

ACC:#	SAMPLES:	LOT#
S01085	SOIL	B-35-2
S01086	SOIL	B-44-1
S01087	SOIL	B-44-2
S01088	SOIL	B-44-3

TEST PERFORMED:	BTS #
Heterotrophic Plate Count	M227
Hydrocarbon Degraders (CFU/ml)	M229

RESULTS:

ACC # S01085

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	4.2×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01086

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01087

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	2.7×10^5	10 CFU/ml
Hydrocarbon Degraders	<10	10 CFU/ml

ACC # S01088

	RESULTS	REPORTING LIMIT
Heterotrophic Plate Count	6.1×10^5	10 CFU/ml
Hydrocarbon Degraders	10	10 CFU/ml

Jeane Huang, Ph.D.
Technical Director

John Lawson, B.S.
Microbiology Supervisor

263 / 108210 - 108218

30856

U&A | **URIBE & ASSOCIATES**
ENVIRONMENTAL CONSULTING SERVICES

SUBM #: 9611263 REP: GC
CLIENT: URIBE
DUE: ~~11/28/96~~ c/per mimi
REF #:30856 due: 12-02-96

CHAIN-OF-CUSTODY RECORD

Project No.: 214-01
Project Name: Oakland/Woodward Clyde MLK Park

REPORT RESULTS TO
Name: Jim Durkin
Company: URIBE & ASSOCIATES
Mailing Address: 2930 LAKESHORE AVENUE, SUITE 200
City, State, Zip: OAKLAND, CA 94610-3614
Telephone No.: 510-832-2233 Telefax No.: 510-832-2237

SEND INVOICE TO
Purchase Order Number:
Name:
Company: SAME Dept:
Mailing Address:
City, State, Zip:

Turn-Around Time: ☐ 24 hr ☐ 48 hr ☐ 72 hr ☒ 5 day ☐ 10 day (Standard)
Rush Charges Authorized? ☐ Yes ☒ No
Phone Results ☐ Fax Results ☒

Special Instructions:

ANALYSES REQUESTED

No.	Date	Time	Matrix/Medium	Sample Identification Number	# of Containers	TPH-d	TPH-g	BTEX	Total Org. Carbon	pH	Phosphate	Tot. Kjel. Nitrogen	Bacteria Plate Ct.	Hydrocarbon Deg.			Remarks
1	11/8/96	1200	SOIL	B39-2	1	X	X	X									TOC by EPA ~~9045~~ 9060
2	"	"	"	B39-1	1				X	X	X	X	X	X			pH " " 9045
3	"	1230	"	B39-3	1				X	X	X	X	X	X			Phosphate 300
4	11/8/96	1250	"	B39-4	1				X	X	X	X	X	X			TKN 351.3
5	"	1424	"	B35-1	1				X	X	X	X	X	X			Bacteria - call
6	"	1437	"	B35-2	1				X	X	X	X	X	X			Maria Saunders
7	"	0930	"	B44-1	1				X	X	X	X	X	X			615-790-0003
8	"	0930	"	B44-2	1				X	X	X	X	X	X			
9	"	1028	"	B44-3	1				X	X	X	X	X	X			

CHAIN OF CUSTODY

Collected by: (Print) James Durkin
Collector's Signature: James Durkin

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Nicole Peirce	11/21/96	10:30 am	[signature]	11-21-96	1030
[signature]	11-21-96	1300	Mimi [signature]	11/21/96	1300

Method of Shipment:

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Chain of Custody form 6/2/95 QX FC

Original (White) Laboratory Copy (Yellow) Field Copy (Pink)

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name URIBE Date/Time Received 11/21/96 (Date) / 1030 (Time)

Project Oakland/Woodward Clyde Received by BMorrow

Reference/Subm # 30856/96112163 Carrier name

Checklist completed by: Signature / 11/22/96 Date Logged in by MP (Initials) / 11/21/96 (Date)

Matrix SOIL

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? 4.5°C

pH upon receipt _____ pH adjusted _____ Check performed by: _____ NA ✓

Any NO response 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: _____

SMPLRECD.CK

CHROMALAB, INC.

Environmental Services (SDB)

December 19, 1996

Submission #: 9612145

URIBE & ASSOCIATES
2930 Lakeshore Avenue, Suite 200
Oakland, CA 94610-3614

Attn: Nicole Peirce

RE: Analysis for project MSC OAKLAND, number 214-01.

REPORTING INFORMATION

Samples were received cold and in good condition on December 11, 1996. They were refrigerated upon receipt and analyzed as described in the attached report. ChromaLab followed EPA or equivalent methods for all testing reported.

No discrepancies were observed or difficulties encountered with the testing.

Hydrocarbon in the Motor oil range was found in sample ~~B42-1~~. B41.2

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

CHROMALAB, INC.

Environmental Services (SDB)

December 19, 1996 *Submission #:* 9612145

URIBE & ASSOCIATES

Atten: Nicole Peirce

Project: MSC OAKLAND *Project#:* 214-01
Received: December 11, 1996

re: 5 samples for TPH - Diesel analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* December 13, 1996
Sampled: December 11, 1996 *Run#:* 4562 *Analyzed:* December 18, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
110514	B46-2	N.D.	50	N.D.	63.5	1
	Note: Silica gel cleanup.					
110515	B45-2	N.D.	50	N.D.	63.5	1
	Note: Silica gel cleanup.					
110516	B43-2	N.D.	50	N.D.	63.5	1
	Note: Silica gel cleanup.					
110517	B42-2	N.D.	50	N.D.	63.5	1
	Note: Silica gel cleanup.					

Matrix: WATER *Extracted:* December 13, 1996
Sampled: December 11, 1996 *Run#:* 4562 *Analyzed:* December 19, 1996

Spl#	CLIENT SPL ID	DIESEL (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
110518	~~B42-1~~ B41-2	290	50	N.D.	63.5	1
	Note: Hydrocarbon reported is in the late Diesel range and does not match our Diesel standard. Silica gel cleanup.					

Bruce Havlik
Chemist

Alex Tam
Semivolatiles Supervisor

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

COOPER TESTING LABS, INC.

1951-X Colony Street
Mountain View, CA 94043

fax (415) 968-4228
phone (415) 968-9472

FAX TRANSMITTAL COVER SHEET

TO: Jim Durkin

FROM: DC

DATE: 1/8

NUMBER OF PAGES (INCLUDING THIS COVER) 2

REMARKS:

If you do not receive all pages, please call
(415) 968-9472

Falling Head Permeability
ASTM D 5084
Cooper Testing Lab, Inc.

Job No:	014-046	Boring:	B-44	Date:	01/08/96
Client:	GRC	Sample:	4	By:	DC
Project:	214-01 Uribe	Depth:	20-2.0-2.5'		
Soil:	gray BAY MUD w/pockets of peat				

Sample Pressures:
Cell: 30 psi Bot. Cap: 26 psi Top Cap: 24 psi Max. Hydraulic Gradient: 22

Elapsed Time (min)	Head, (cm)	Permeability cm/sec
0	168.67	Start of Test
128	167.07	1.6 x 10E-7
289	166.37	1.0 x 10E-7
0	168.67	
124	167.67	1.0 x 10E-7
211	166.97	9.8 x 10E-8
296	166.17	1.0 x 10E-7
376	165.37	1.1 x 10E-7
1127	158.77	1.2 x 10E-7
1329	157.67	1.1 x 10E-7

Average Permeability: 1 x 10E-7 cm/sec

Sample Data:	Initial	Final
Height, in.:	3.00	2.97
Diameter, in.:	2.41	2.37
Area, in2:	4.56	4.41
Volume, in3:	13.69	13.10
Total Volume, cc:	224.26	214.71
Vol of Solids, cc:	59.36	59.36
Vol. of Voids, cc:	164.90	155.35
Void Ratio:	2.78	2.62
Porosity, %:	73.53	72.35
Saturation, %	95.27	96.04
Sp. Gravity:	2.65 assumed	2.65
Wet Weight, gm:	314.4	306.5
Dry Weight, gm:	157.3	157.3
Tare, gm:	0.00	0.00
Moisture, %:	99.9	94.9
Dry Density, pcf:	43.8	45.7

Remarks: