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PORT OF OAKLAND

Consider closure?

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ENVIRONMENTAL PROTECTION

January 16, 2001

Mr. Barney Chan
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, #250
Alameda, CA 94502-6577

SUBJECT: QUARTERLY GROUNDWATER MONITORING REPORT - FORMER TANK NUMBERS MF-25 AND MF-26, OAKLAND INTERNATIONAL AIRPORT, UNITED AIRLINES HANGAR AREA - ECONOMY PARKING LOT SITE, 1100 AIRPORT DRIVE, OAKLAND, CALIFORNIA

Dear Mr. Chan:

Enclosed is a copy of the January 12, 2001 "*Quarterly Groundwater Monitoring Report, July 1, through September 30, 2000, United Airlines Hangar - Economy Parking Lot Site, Oakland International Airport (MOIA)*", 1100 Airport Drive, Oakland, California. Monitoring activities were performed by Harding ESE, Inc., (formerly HLA), one of the as-needed consultants retained by the Port of Oakland (Port).

Should you have any questions or need additional information, please contact me at 627-1118. Thank you for your on-going assistance and support on this project.

Sincerely,

- gw is not potable
- TPH cont. migr. not shallow
- HVOCs present above MCLs
- Need to compare HVOCs levels vs Risk Based #s

Dale Klettke

Dale Klettke, CHMM
Associate Environmental Scientist
Environmental Health & Safety Compliance

enclosure

c: Jeff Jones - EH & SC Files
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Harding ESE
A MACTEC COMPANY

Harding ESE, Inc.
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Oakland, CA 94607
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January 12, 2001

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Mr. Dale H. Klettke, CHMM
Port of Oakland
Environmental Health & Safety Compliance
530 Water Street, 2nd Floor
Oakland, California 94607

Quarterly Groundwater Monitoring Report
July 1 through September 30, 2000
United Airlines Hangar Area – Economy Parking Lot Site
Oakland International Airport
Oakland, California

Dear Mr. Klettke:

Harding ESE, Inc. (Harding) formerly Harding Lawson Associates, presents this groundwater monitoring report summarizing groundwater conditions observed during the third quarter of 2000 in eight monitoring wells at the United Airlines Hangar Area - Economy Parking Lot Site, Oakland International Airport, Oakland, California (Plate 1). This report is the eighth of eight quarterly groundwater monitoring events that Harding has performed for the Port of Oakland in accordance with HLA's *Work Plan for Installation of Oxygen Releasing Compound (ORC)*, dated December 18, 1999.

BACKGROUND

In March 1992, the Port of Oakland removed two underground storage tanks (USTs) from the Economy Parking Lot Site, MF-25 and MF-26. The Port's contractor removed approximately 700 cubic yards of impacted soil and collected confirmation soil samples following soil removal. The former UST excavation (approximately 80-feet by 80-feet) was reportedly backfilled with permeable material. The area is now paved and used for parking (Plate 2). The Port's contractor installed Monitoring Well MW-1 in 1992 where elevated concentrations of total petroleum hydrocarbons as diesel (TPHd) and total petroleum hydrocarbons as motor oil (TPHmo) were reported and two additional monitoring wells, MW-2 and MW-3, in 1995. Free product was observed in MW-2 and MW-3 in 1996 and 1997. The Port's contractor then installed MW-4 though MW-8 in 1998 and observed a sheen on groundwater from MW-2 and MW-4.

HLA installed the first batch treatment of ORC on December 23, 1998 along the upgradient edge of the former UST excavation at 11 locations. We installed a total of 780 pounds of time-release ORC after checking that no free product was present in the monitoring wells. HLA's subcontractor used a direct-push rig to inject at total of 780 pounds of time-release ORC mixed into 60 gallons of water through 2-inch diameter rods to a depth of 4 to 8 feet below ground surface.

Harding installed a second batch treatment of ORC on January 7, 2000 in three areas: 250 pounds of ORC in the vicinity of MW-3; 250 pounds of ORC adjacent to MW-4 and 500 pounds of ORC focused in the vicinity of MW-2. We mobilized a direct-push rig to inject ORC under pressure at the former UST excavation at 9 drill locations. At all locations, a 2-inch diameter rod was pushed to a depth of 4 feet below ground surface. A total of approximately 1,000 pounds of time-release ORC was mixed into 300 gallons of water providing a 30 percent blend with a consistency similar to white wash.

GROUNDWATER SAMPLING AND ANALYSIS

HLA measured dissolved oxygen (DO) concentrations in the eight monitoring wells on a monthly basis between July 1 through September 30, 2000. On August 31, HLA measured groundwater elevations and collected groundwater samples for chemical analyses. Prior to purging or sampling the monitoring wells, HLA measured DO concentrations, reduction oxidation potential (Redox), water levels, and checked for free product with an interface probe. HLA monitored the pH, conductivity, and temperature of the groundwater during purging. We sampled the monitoring wells after purging at least three well volumes of groundwater and after parameters had stabilized to within 10 percent; the groundwater sampling forms with the field data are included in Appendix A. HLA collected water samples using a disposable Teflon bailer and decontaminated all sampling equipment by washing with a non-phosphate cleaning solution and rinsing with distilled water. HLA contained purged water in a 55-gallon drum for subsequent disposal by the Port of Oakland.

HLA placed the water samples in ice-chilled coolers and submitted them to Sequoia Analytical of Walnut Creek, California under chain-of-custody protocol. The samples were analyzed for the following analytes:

- Total petroleum hydrocarbons as gasoline (TPHg) by EPA Test Method 8015 (modified)
- Benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl t-butyl ether (MTBE) by EPA Test Method 8020
- TPHd, total petroleum hydrocarbons as jet fuel A (TPHjA), TPHmo by EPA Method 8015 with a silica gel cleanup procedure
- Ferrous iron, ferric iron, nitrate, sulfate, orthophosphate

- Total organic carbon (TOC) by EPA Method 415.2
- Halogenated and Aromatic Volatile Organics by EPA Method 8010 and 8020.

MONITORING RESULTS

No free product was observed in any of the eight monitoring wells. Groundwater elevations are presented in Table 1 and the elevations are shown on Plate 3. The apparent groundwater gradient is towards the southwest. Chemical concentration results are shown in Tables 2, 3, and 4. DO concentrations are summarized in Table 5. The laboratory report and chain-of-custody forms are presented in Appendix B.

Petroleum hydrocarbons continue to be the found on site during this quarterly monitoring sampling. The analytical results for the petroleum hydrocarbons can be found in Table 2. TPHg was reported in four of the monitoring wells, MW-1, MW-2, MW-3, and MW-4 at concentrations ranging from 3,200 micrograms per liter (µg/L) in MW-2 to 84 µg/L in MW-1. TPHd was reported in five of the wells, MW-1, MW-2, MW-3, MW-4, and MW-8 at concentrations ranging from 120 µg/L in MW-8 to 6,600 µg/L in MW-3. TPHjA was reported in MW-1, MW-2, MW-3, MW-4 and MW-8 at concentrations ranging from 71 µg/L in MW-8 to a concentration of 6,300 µg/L in MW-3. TPHmo was reported in MW-1, MW-2, MW-3, and MW-4 at concentrations ranging from 430 µg/L in MW-1 to 2,100 µg/L in MW-3. In general, the quarterly results indicate a continuing trend of decreasing petroleum hydrocarbons at the site.

Volatile organic compounds (VOCs) are also present in all wells except downgradient wells MW-5 and MW-6 (Table 3). The largest VOC concentrations were present at the upgradient well MW-8 and adjacent to the former UST excavation at MW-2. Several VOCs exceed the Maximum Contaminant Levels (MCLs).

The remaining chemical results for this quarterly report are found in Table 4. The concentration of sulfate increased in all wells except MW-4 with increases ranging from 154 percent in MW-6 to 94 percent in MW5 from the May 24th results. For the same period, the concentrations of TOC increased in all wells with increases ranging from 22 percent in MW-2 to 86 percent in MW-7. The ferrous iron concentrations decreased in all wells with decreases ranging from 8 percent in MW-7 to 97 percent in MW-1. The total iron concentrations increased in MW-1, MW-3, MW-6, and MW-7 and decreased in MW-2, MW-4, MW-5 and MW-8. Orthophosphate was not detected above the reporting limit in any of the wells sampled and nitrate as NO3 was only detected above the reporting limit in MW-7 at a concentration of 4.8 milligrams per liter (mg/l).

QUALITY ASSURANCE AND QUALITY CONTROL

Harding collected quality assurance/quality control (QA/QC) samples to evaluate sample collection methods, sample handling procedures, and laboratory analysis. The field QA/QC samples consisted of a duplicate sample at MW-4.

The duplicate sample was submitted to the laboratory for same analyses as the original sample. Harding evaluated the analytical laboratory precision by calculating the relative percent difference (RPD) between original and duplicate samples collected at MW-4. The equation used to calculate the RPD is:

$$RPD = \frac{(X_1 - X_2)}{\bar{X}} \times 100$$

Where:

X_1 = concentration for sample 1 (original)

X_2 = concentration for sample 2 (duplicate)

$\bar{X}$ = mean of samples 1 and 2.

The relative percent difference between the analytical results from MW-4 and the duplicate sample ranged from zero to 24 percent with the exceptions of ferrous iron and MTBE. For both MTBE and ferrous iron one sample result did not contain the analyte above the reporting limit and the other sample result did. Harding estimated used the reporting limit as the value to estimate the RPD and received values of 54 percent for MTBE and 137 percent for ferrous iron.

The laboratory noted a RPD value for the matrix spike and matrix spike duplicate for BTEX was above the established control limit. The laboratory review of the rest of the QC indicated that the high RPD does not represent an out-of-control condition for the samples.

CLOSURE

This report concludes Harding's quarterly groundwater monitoring under the assigned task number. As stated in the HLA's Work Plan dated December 18, 1998, Harding will complete monthly DO monitoring through December 2000. If you have any questions or need additional information, please contact either of the undersigned at (510) 451-1001.

Very truly yours,

HARDING ESE, INC.

Stephen J. Osborne
Geotechnical Engineer

SJO/dmw/T: Port/ORC/Quarterly reports/qrt3-00

Attachments:
Table 1 - Groundwater Elevations
Table 2 - Groundwater Analytical Results – Petroleum Hydrocarbons
Table 3 - Groundwater Analytical Results – VOCs
Table 4 - Groundwater Analytical Results – Inorganics
Table 5 - Dissolved Oxygen Concentrations
Plate 1 - Vicinity Map
Plate 2 - Site Map
Plate 3 – Groundwater Elevation Map
Appendix A - Groundwater Sampling Forms
Appendix B - Laboratory Reports

Table 1. Groundwater Elevations
Quarterly Groundwater Monitoring Report
United Airlines Hangar Area - Economy Parking Lot Site
Oakland International Airport

Well Name	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Note
MW-1	6.91	15-May-92	3.10	3.81	–	1
		7-Aug-92	3.20	3.71	–	1
		24-Nov-92	4.04	2.87	–	1
		12-Feb-93	–	–	–	1
		11-Mar-93	2.09	4.82	–	1
		17-May-93	3.14	3.77	–	1
		3-Aug-93	3.15	3.76	–	1
		25-Nov-93	3.59	3.32	–	1
		24-Mar-94	3.21	3.70	–	1
		9-May-94	2.99	3.92	–	1
		29-Aug-94	3.34	3.57	–	1
		27-Sep-94	3.51	3.40	–	1
		25-Apr-95	2.38	4.53	–	1
		11-Aug-95	3.08	3.83	–	1
		3-Nov-95	3.52	3.39	–	1
		19-Jun-96	2.93	3.98	–	1
		24-Oct-96	3.52	3.39	–	1
		22-Jan-97	2.61	4.30	–	1
		25-Apr-97	2.77	4.14	–	1
		6-Aug-97	3.27	3.64	–	1
		23-Dec-97	3.14	3.77	–	1
		26-Mar-98	2.09	4.82	–	1
		13-May-98	–	–	–	2
		16-Dec-98	2.95	3.96	–	
		26-Feb-99	5.83	1.08	–	
		20-May-99	2.62	4.29	–	
		17-Aug-99	3.30	3.61	–	
		11-Nov-99	4.44	2.47	–	
		23-Mar-00	2.57	4.34	–	
		25-Apr-00	2.67	4.24	–	
		24-May-00	2.83	4.08	–	
		10-Jul-00	3.00	3.91	–	
		31-Aug-00	3.25	3.66	–	
MW-2	6.63	25-Apr-95	2.20	4.43	–	1
		11-Aug-95	3.11	3.52	–	1
		3-Nov-95	3.28	3.35	–	1
		19-Jun-96	2.53	4.14	0.05	1,3
		24-Oct-96	3.44	3.31	0.16	1,3
		22-Jan-97	2.45	4.20	0.02	1,3
		25-Apr-97	2.60	4.05	0.03	1,3
		30-Jul-97	–	–	0.14	1,4
		6-Aug-97	2.96	3.67	–	1
		23-Dec-97	2.85	3.97	0.25	1,3
		26-Mar-98	1.72	4.92	0.005	1,3
	6.58	13-May-98	1.80	4.78	–	2,5
		16-Dec-98	2.60	3.98	–	
		26-Feb-99	2.06	4.52	–	
		20-May-99	2.40	4.18	–	
		17-Aug-99	2.92	3.66	–	
		11-Nov-99	3.05	3.53	–	

Table 1. Groundwater Elevations
Quarterly Groundwater Monitoring Report
United Airlines Hangar Area - Economy Parking Lot Site
Oakland International Airport

Well Name	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Note
MW-2		23-Mar-00	2.27	4.31	--	
		25-Apr-00	2.34	4.24	--	
		24-May-00	2.22	4.36	--	
		10-Jul-00	2.70	3.88	--	
		31-Aug-00	2.98	3.60	--	
MW-3	7.36	25-Apr-95	2.20	5.16	--	1
		11-Aug-95	3.11	4.25	--	1
		3-Nov-95	3.28	4.08	--	1
		19-Jun-96	2.53	4.14	0.05	1,3
		24-Oct-96	3.44	3.31	0.16	1,3
		22-Jan-97	2.45	4.20	0.02	1,3
		25-Apr-97	3.13	4.24	0.01	1,3
		30-Jul-97	NM	NM	0.03	1,4
		6-Aug-97	3.76	3.60	--	1
		23-Dec-97	3.48	3.88	--	1
		26-Mar-98	2.36	5.00	0.005	1,3
		13-May-98	--	--	--	2
		16-Dec-98	3.40	3.96	--	
		26-Feb-99	2.49	4.87	--	
		20-May-99	2.96	4.40	--	
		17-Aug-99	3.64	3.72	--	
		11-Nov-99	3.88	3.48	--	
		23-Mar-00	2.55	4.81	--	
		25-Apr-00	2.90	4.46	--	
		24-May-00	2.68	4.68	--	
		10-Jul-00	3.37	3.99	--	
		31-Aug-00	3.79	3.57	--	
MW-4	6.92	13-May-98	2.01	4.91	--	2
		16-Dec-98	2.84	4.08	--	
		26-Feb-99	1.94	4.98	--	
		20-May-99	2.47	4.45	--	
		17-Aug-99	3.10	3.82	--	
		11-Nov-99	3.38	3.54	--	
		23-Mar-00	2.06	4.86	--	
		25-Apr-00	2.44	4.48	--	
		24-May-00	2.26	4.66	--	
		10-Jul-00	2.88	4.04	--	
		31-Aug-00	3.17	3.75	--	
MW-5	5.79	13-May-98	1.05	4.74	--	2
		16-Dec-98	1.95	3.84	--	
		26-Feb-99	1.50	4.29	--	
		20-May-99	2.05	3.74	--	
		17-Aug-99	2.30	3.49	--	
		11-Nov-99	2.34	3.45	--	
		23-Mar-00	1.60	4.19	--	6
		25-Apr-00	1.87	3.92	--	6
		24-May-00	1.75	4.04	--	6
		10-Jul-00	2.22	3.57	--	6
		31-Aug-00	2.52	3.27	--	6
MW-6	6.39	13-May-98	1.91	4.48	--	2

Table 1. Groundwater Elevations
Quarterly Groundwater Monitoring Report
United Airlines Hangar Area - Economy Parking Lot Site
Oakland International Airport

Well Name	Top of Casing Elevation (feet)	Date	Depth to Water (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	Note
MW-6		16-Dec-98	2.64	3.75	--	
		26-Feb-99	1.89	4.50	--	
		20-May-99	2.65	3.74	--	
		17-Aug-99	3.03	3.36	--	
		11-Nov-99	3.07	3.32	--	
		23-Mar-00	2.34	4.05	--	
		25-Apr-00	2.50	3.89	--	
		24-May-00	2.44	3.95	--	
		10-Jul-00	2.88	3.51	--	
		31-Aug-00	3.12	3.27	--	
MW-7	5.86	13-May-98	1.51	4.35	--	2
		16-Dec-98	2.13	3.73	--	
		26-Feb-99	1.58	4.28	--	
		20-May-99	2.23	3.63	--	
		17-Aug-99	2.57	3.29	--	
		11-Nov-99	2.57	3.29	--	
		23-Mar-00	1.90	3.96	--	
		25-Apr-00	2.16	3.70	--	
		24-May-00	2.06	3.80	--	
		10-Jul-00	2.44	3.42	--	
		31-Aug-00	2.63	3.23	--	
MW-8	7.56	13-May-98	2.46	5.10	--	2
		16-Dec-98	3.51	4.05	--	
		26-Feb-99	2.59	4.97	--	
		20-May-99	3.06	4.50	--	
		17-Aug-99	3.75	3.81	--	
		11-Nov-99	4.04	3.52	--	
		23-Mar-00	2.63	4.93	--	
		25-Apr-00	3.02	4.54	--	
		24-May-00	2.78	4.78	--	
		10-Jul-00	3.48	4.08	--	
		31-Aug-00	3.85	3.71	--	

Notes
1 - Data from Table 1-Results of Groundwater Sampling and Analysis, Port of Oakland, Oakland International Airport, United Airlines Hanger Area-Economy Parking Lot Site, by ITSI
2 - Data from Table 1of Results of Additional Site Investigation, Port of Oakland, Oakland International Airport, United Airlines Hanger Area-Economy Parking Lot Site, dated October 21, 1998 by ITSI
3 - GroundWater elevation calculated assuming a specific gravity of 0.75 for product.
4 - Free product removed from well during redevelopment (July 30, 1997).
5 - Well MW-2 was reconstructed in May 1998.
6 - Well MW-5 was damaged during construction activities in February 2000, top of casing elevation may have been effected.

Table 2. Groundwater Analytical Results - Petroleum Hydrocarbos
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPH Diesel (C1-C-22) (µg/L)	TPH Jet Fuel A (C9-C16) (µg/L)	TPH Motor Oil (>C16) (µg/L)	Unidentified Extractable Hydrocarbons (µg/L)	Note
MW-1	05/15/92	<0.4	<0.3	<0.3	<0.4	--	<50	--	--	--	--	1
	08/07/92	<0.4	<0.3	<0.3	<0.4	--	<50	--	800	--	--	1
	11/24/92	<0.4	<0.3	<0.3	<0.4	--	<50	--	<50	--	--	1
	02/12/93	<0.4	<0.3	<0.3	<0.4	--	<50	--	--	--	--	1
	05/17/93	<0.4	<0.3	<0.3	<0.4	--	<50	--	--	--	--	1
	08/03/93	<0.5	<0.5	<0.5	<0.5	--	<50	5,200	--	--	--	1
	11/25/93	<0.5	<0.5	<0.5	0.6	--	70	--	--	--	--	1
	05/09/94	<0.5	<0.5	<0.5	<0.5	--	<50	--	--	--	--	1
	08/29/94	<0.5	<0.5	2.7	<0.5	--	<50	--	--	--	--	1
	04/25/95	<5	<5	<5	<5	--	<50	1,400	<50	610	--	1
	08/11/95	<0.4	<0.3	<0.3	<0.4	--	<50	1,900	<50	1,200	--	1
	11/03/95	0.4	0.4	<0.3	<0.4	--	<50	4,200	<50	1,800	--	1
	06/19/96	0.99	<0.5	1.1	<1.0	--	<50	11,000	<500	820	--	1
	10/24/96	1.9	<0.5	<0.5	1.3	--	57	<250	<500	<250	--	1
	01/22/97	<0.5	<0.5	<0.5	<1.0	--	<50	220	<500	<250	--	1
	04/25/97	1.2	<0.5	1.0	1.2	--	110	<50	<500	<250	--	1
	08/06/97	2.1	<0.5	<0.5	<1.0	--	100	340	<500	<250	--	1
	12/23/97	0.7	<0.5	<0.5	<1.0	--	<50	<50	<50	<300	--	1
	03/26/98	<0.5	<0.5	<0.5	<1.0	--	<50	<48	<48	<290	--	2
	12/16/98	1.8	<0.5	<0.5	<0.5	<2.5	120	640	<50	<250	340	--
	02/26/99	0.96	<0.5	<0.5	<0.5	2.6	69	670	<50	350	<50	4
	05/20/99	1.7	<0.5	<0.5	<0.5	<2.5	85	380	<50	<250	<50	--
	08/17/99	2.6	0.52	<0.5	<0.5	<2.5	54	530	<50	<500	--	--
	11/11/99	2.5	<0.5	<0.5	<0.5	<2.5	96	1,100	<50	<250	--	--
	03/23/00	1.7	<0.5	<0.5	<0.5	3.2	--	1,100	<50	1,100	--	8
	04/25/00	--	--	--	--	--	60	--	--	--	--	8
	05/24/00	2.5	<0.5	<0.5	<0.5	<2.5	76	670	410	<250	--	--
	08/31/00	3.3	<0.5	<0.5	0.89	<2.5	84	600	320	430	--	--
MW-2	04/25/95	340	570	110	580	--	5,200	<10,000	13,000	19,000	--	1
	08/11/95	320	680	110	510	--	5,500	<8,000	7,900	20,000	--	1
	11/03/95	200	400	27	360	--	3,800	<11,000	11,000	4,200	--	1
	06/19/96	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1
	10/24/96	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1
	01/22/97	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1
	04/25/97	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1
	08/06/97	170	270	92	410	--	9,900	12,000	<1,000	2,300	--	1
	12/23/97	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1

Table 2. Groundwater Analytical Results - Petroleum Hydrocarbos
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPH Diesel (C1-C-22) (µg/L)	TPH Jet Fuel A (C9-C16) (µg/L)	TPH Motor Oil (>C16) (µg/L)	Unidentified Extractable Hydrocarbons (µg/L)	Note
MW-2	03/26/98	--[3]	--[3]	--[3]	--[3]	--	--[3]	--[3]	--[3]	--[3]	--	1
	05/13/98	150	270	94	440	--	4,000	2,600	3,400	<290	--	2,3,4
	12/16/98	130	180	71	330	<50	4,600	<1,000	31,000	8,200	<1,000	--
	02/26/99	86	210	64	350	<100	4,700	<1,000	18,000	7,800	<1,000	--
	05/20/99	120	280	76	360	<2.5	4,700	<50	15,000	5,800	<50	--
	08/17/99	55	44	57	200	<2.5	17,000	<1000	22,000	<10000	--	--
	11/11/99	60	37	78	190	<2.5	3,800	<500	10,000	<2500	--	--
	03/23/00	92	180	97	310	<25	--	<500	36,000	26,000	--	8
	04/25/00	--	--	--	--	--	7,600	--	--	--	--	8
	05/24/00	100	180	96	310	<50	3,200	8,000	8,100	4,200	--	--
	08/31/00	50	18	77	160	<50	3,200	4,900	4,000	1,800	--	--
MW-3	04/25/95	150	600	100	580	--	7,200	<40000	38,000	31,000	--	1
	08/11/95	--	--	--	--	--	--	--	--	--	--	1,5
	11/03/95	--	--	--	--	--	--	--	--	--	--	1,5
	06/19/96	--	--	--	--	--	--	--	--	--	--	1,5
	10/24/96	--	--	--	--	--	--	--	--	--	--	1,5
	01/22/97	--	--	--	--	--	--	--	--	--	--	1,5
	04/25/97	--	--	--	--	--	--	--	--	--	--	1,5
	08/06/97	4	16	14	90	--	4,200	1,400	<500	<250	--	1,5
	12/23/97	13	16	9	116	--	2,200	79,000	110,000	8,200	--	1,5
	03/26/98	--	--	--	--	--	--	--	--	--	--	2,5
	12/16/98	<10	12	<10	43	<50	2,300	--	--	--	--	7
	02/26/99	16	16	10	40	<100	5,700	--	--	--	--	7
	05/20/99	20	25	7.8	37	<2.5	2,700	--	--	--	--	7
	08/17/99	14	<0.5	<0.5	15	<2.5	2,100	--	--	--	--	7
	11/11/99	7.8	<0.5	<0.5	17	<2.5	3,300	--	--	--	--	7
	03/23/00	13	20	16	48	<50	--	--	--	--	--	8
	04/25/00	--	--	--	--	--	8,000	6,200	7,100	4,600	--	8
	05/24/00	4.6	6.4	6.3	23	<13	6,300	6,200	7,100	4,600	--	--
	08/31/00	<25	<25	<25	<25	<130	2,800	6,600	6,300	2,100	--	--
MW-4	05/13/98	9.8	23	13	79	--	1,400	2,000	2,300	<310	--	2,3,4
	12/16/98	<10	<10	<10	58	<50	1,900	<1,000	40,000	8,800	<1,000	--
(Dup)	12/16/98	<10	<10	<10	51	<50	1,700	<1,000	41,000	9,400	<1,000	--
	02/26/99	13	<10	<10	22	<50	1,200	<500	5,500	<2,500	<500	--
(Dup)	02/26/99	16	<2.5	6.2	20	<10	1,200	<500	5,200	<2,500	<500	--
	05/20/99	16	0.83	3.0	10	5.5	670	<50	1,900	560	<50	--
(Dup)	05/20/99	15	0.78	3.0	11	5.4	1,100	<50	1,200	290	<50	--

Table 2. Groundwater Analytical Results - Petroleum Hydrocarbos
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPH Diesel (C1-C-22) (µg/L)	TPH Jet Fuel A (C9-C16) (µg/L)	TPH Motor Oil (>C16) (µg/L)	Unidentified Extractable Hydrocarbons (µg/L)	Note
MW-4	08/17/99	22	<0.5	<0.5	<0.5	<2.5	1,000	<50	2,000	<500	<50	--
(Dup)	08/17/99	24	3.10	3.2	16	<2.5	690	<50	1,700	<500	--	--
	11/01/99	11	<0.5	<0.5	12	<2.5	1,600	<50	2,400	<50	--	--
(Dup)	11/01/99	11	1.40	2.7	16	<2.5	1,300	<50	1,800	<50	--	--
	03/23/00	10	0.95	2.0	12	<2.5	--	2,800	<50	2,200	--	8
(Dup)	03/23/00	10	0.81	2.0	12	<2.5	--	2,800	<50	2,100	--	8
	04/25/00	--	--	--	--	--	1,200	--	--	--	--	8
(Dup)	04/25/00	--	--	--	--	--	630	--	--	--	--	8
	05/24/00	14	<1.0	2.3	13	<5.0	690	2,500	2,100	1,800	--	--
(Dup)	05/24/00	13	<1.0	2.8	15	<5.0	560	3,100	2,600	2,200	--	--
	08/31/00	22	<1.3	3.1	13	<6.3	700	2,300	1,800	1,000	--	--
(Dup)	08/31/00	21	<1.3	2.8	13	11	550	2,500	2,000	1,000	--	10
MW-5	05/13/98	<0.5	<0.5	<0.5	<1.0	--	<50	<50	<50	<300	--	2
	12/16/98	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	260	--
	02/26/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	69	<50	<250	<50	--
	05/20/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	08/17/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	79	<50	<500	--	--
	11/11/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	93	<50	<250	--	--
	03/23/00	<0.5	<0.5	<0.5	<0.5	<2.5	--	140	<50	530	--	8
	04/25/00	--	--	--	--	--	<50	--	--	--	--	8
	05/24/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	73	<50	400	--	--
	08/31/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
MW-6	05/13/98	<0.5	<0.5	<0.5	<1.0	--	<50	<48	<48	<290	--	2
	12/16/98	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	02/26/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	83	<50	<250	<50	--
	05/20/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	08/17/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	72	<50	<500	--	--
	11/11/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	93	<50	<250	--	--
	03/23/00	<0.5	<0.5	<0.5	<0.5	<2.5	--	120	<50	280	--	8
	04/25/00	--	--	--	--	--	<50	--	--	--	--	8
	05/24/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
	08/31/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
MW-7	05/13/98	<0.5	0.6	<0.5	<1.0	--	<50	<51	<51	<310	--	2
	12/16/98	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	02/26/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	05/20/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	<50	--
	08/17/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	52	<50	<500	--	--

Table 2. Groundwater Analytical Results - Petroleum Hydrocarbos
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl - benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TPHg (µg/L)	TPH Diesel (C1-C-22) (µg/L)	TPH Jet Fuel A (C9-C16) (µg/L)	TPH Motor Oil (>C16) (µg/L)	Unidentified Extractable Hydrocarbons (µg/L)	Note
MW-7	11/11/99	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
	03/23/00	<0.5	<0.5	<0.5	<0.5	<2.5	--	<50	<50	<250	--	8
	04/25/00	--	--	--	--	--	<50	--	--	--	--	8
	05/24/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
	08/31/00	<0.5	<0.5	<0.5	<0.5	<2.5	<50	<50	<50	<250	--	--
MW-8	05/13/98	2	<0.5	<0.5	<1.0	--	<50	<47	<47	<280	--	2
	12/16/98	4.1	<0.5	<0.5	<0.5	2.9	53	<50	200	<250	<50	6
	02/26/99	3.5	<0.5	<0.5	<0.5	2.7	<50	<50	<50	<250	<50	6
	05/20/99	2.8	<0.5	<0.5	<0.5	<2.5	<50	150	<50	<250	<50	--
	08/17/99	3.5	<0.5	<0.5	<0.5	2.9	51	190	<50	<250	--	--
	11/11/99	3.0	<0.5	<0.5	<0.5	3.2	<50	310	<50	<250	--	--
	03/23/00	2.1	<0.5	<0.5	<0.5	<2.5	--	450	<50	530	--	8
	04/25/00	--	--	--	--	--	77	--	--	--	--	8
	05/24/00	2.0	1.3	<0.5	<0.5	<2.5	53	130	<50	<250	--	--
	08/31/00	1.9	<0.5	<0.5	<0.5	2.9	<50	120	71	<250	--	9
MCLs		1.0	150	700	1,750	--	--	--	--	--	--	--

Note:

1 - Data from Table 2-Summary of Laboratory Results Tanks MF25 and MF26 (United Airlines Hanger Area - Economy Parking Lot Site) Metropolitan Oakland International Airport (MOIA), 1100 Airport Drive, Oakland California by ITSI.

2 - Data from Table 3 of Results of Additional Site Investigation, Port of Oakland, Oakland Internatinonal Airport, United Airlines Hanger Area-Economy Parking Lot Site, dated October 21, 1998 by ITSI dated October 21, 1998 by ITSI

3 - Hydrocarbons for TPHd do not match profile for laboratory standards

4 - Hydrocarbons for TPHd are lighter than indicated standard

5 - Not analyzed due to the presence of free product

6 - MTBE detected by GC methods at slightly over reporting limit has not been confirmed by MS.

7 - MW-3 has slow recovery so not enough water could be collected for all analysis.

8 - Due to an oversight TPH gas was not analyzed for in the March sampling event, the wells were resampled in April.

9 - The surrogate recovery for this sample can not be accurately quantified due to interference from coeluting organic compounds.

10 - The laboratory indicated that continuing calibration indicated that the quantitative result for MTBE includes a greater than 15% degree of uncertainty.

MCLs - Maximum Contaminant Levels

- Shaded areas indicate detected concentration exceeds MCL.

Table 3. Groundwater Analytical Results - VOCs

Quarterly Groundwater Monitoring Report

United Airlines Hanger Economy Parking Lot

Oakland International Airport

Monitoring Well ID	Date	Acetone (µg/L)	2-Butanone (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	(cis/trans) 1,2-DCE (µg/L)	4-Methyl-2-Pentanone (µg/L)	1,1,1-TCA (µg/L)	TCE (µg/L)	PCE (µg/L)	Chloroethane (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Notes
MW-1	11/24/92	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	1
	02/12/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	1
	05/17/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	1
	08/03/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	1
	11/25/93	ND	ND	ND	ND	6.0	ND	ND	ND	ND	--	--	--	--	1
	05/09/94	ND	ND	ND	ND	ND	ND	ND	ND	5.5	--	--	--	--	1
	09/27/94	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	1
	01/25/95	<20	<20	<5	<5	<5	<20	--	--	<5	--	--	--	--	1
	08/11/95	--	--	<0.5	4.3	13	--	2.0	1.8	0.6	--	--	--	--	1
	11/03/95	--	--	<0.5	1.3	3.7	--	0.6	0.5	<0.5	--	--	--	--	1
	06/19/96	--	--	<0.5	5.4	<0.5	--	<0.5	1.2	<0.5	--	--	--	--	1
	10/24/96	--	--	<0.5	12	<1.0	--	<0.5	1.4	<0.5	--	--	--	--	1
	01/22/97	--	--	<0.5	3.9	8.4	--	<0.5	1.7	<0.5	--	--	--	--	1
	04/25/97	--	--	<0.5	6.2	10	--	<0.5	1.2	0.62	--	--	--	--	1
	08/06/97	--	--	<0.5	14	19	--	<0.5	2.5	0.54	--	--	--	--	1
	12/23/97	--	--	<1.0	6.6	9.3	--	<1.0	<1.0	<1.0	--	--	--	--	1
	03/26/98	--	--	<1.0	5.3	8.1	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	3
	12/16/98	--	--	<0.5	20	18	--	<0.5	<0.5	<0.5	<1.0	<0.5	1.5	<1.0	--
	02/26/99	--	--	<0.5	15	9.8	--	2.9	<0.5	<0.5	<1.0	<0.5	0.79	<1.0	--
	05/20/99	--	--	<0.5	22	17	--	<0.5	<0.5	<0.5	<1.0	<0.5	1.5	1.2	--
	08/17/99	--	--	<0.5	23	15	--	<0.5	<0.5	<0.5	<1.0	<0.5	2.1	<1.0	--
	11/11/99	--	--	<0.5	21	19	--	<0.5	<0.5	<0.5	<1.0	<0.5	1.5	<1.0	--
	03/23/00	--	--	<1.0	24	11	--	<1.0	<1.0	<1.0	<1.0	<2.0	1.3	<1.0	--
	05/24/00	--	--	<1.0	24	11	--	<1.0	<1.0	<1.0	<1.0	<2.0	1.3	<1.0	6
	07/10/00	--	--	<1.0	30	16	--	<1.0	<1.0	<1.0	<1.0	<2.0	2.2	<1.0	6
	08/31/00	--	--	<1.0	30	18	--	<1.0	<1.0	<1.0	<1.0	<2.0	3.1	<1.0	--
MW-2	04/25/95	<200	200	<50	50	<50	<200	--	--	<50	--	--	--	--	1
	08/11/95	--	--	5.0	79	26	--	20	4.0	9.0	--	--	--	--	1
	11/03/95	--	--	<0.5	73	24	--	4.8	6.7	6.8	--	--	--	--	1
	06/19/96	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	10/24/96	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	01/22/97	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	04/25/97	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	08/06/97	--	--	<5	69	160	--	<5	<12	<5	--	--	--	--	1
	12/23/97	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	03/26/98	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	05/13/98	--	--	--	51	140	--	--	ND	<1.0	3.4	<1.0	<1.0	<2.0	3
	12/16/98	--	--	<5.0	58	220	--	<2.5	<2.5	<2.5	<1.0	<2.5	<2.5	<5.0	--
	02/26/99	--	--	<1.3	19	57	--	2.9	<1.3	<1.3	<2.5	<1.3	<1.3	<2.5	--
	05/20/99	--	--	<0.5	63	191.5	--	5.8	1.1	1.5	4.4	<0.5	0.82	<1.0	--

Table 3. Groundwater Analytical Results - VOCs
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking Lot
Oakland International Airport

Monitoring Well ID	Date	Acetone (µg/L)	2-Butanone (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	(cis/trans) 1,2-DCE (µg/L)	4-Methyl-2-Pentanone (µg/L)	1,1,1-TCA (µg/L)	TCE (µg/L)	PCE (µg/L)	Chloroethane (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Notes
MW-2	08/17/99	--	--	<2.5	70	140	--	<2.5	<2.5	<2.5	<5.0	<2.5	<2.5	<5.0	--
	11/11/99	--	--	<2.5	48	180	--	<2.5	<2.5	<2.5	<5.0	<2.5	<2.5	<5.0	--
	03/23/00	--	--	<5.0	55	160	--	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	--
	05/24/00	--	--	<5.0	55	160	--	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	6
	07/10/00	--	--	<5.0	95	240	--	<5.0	<5.0	<5.0	5.5	<10	<5.0	<5.0	6
	08/31/00	--	--	<1.0	70	150	--	<1.0	<1.0	<1.0	5.0	<2.0	<1.0	<1.0	--
MW-3	04/25/95	300	300	--	30	<30	200	--	--	<30	--	--	--	--	1
	08/11/95	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	11/03/95	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	06/19/96	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	10/24/96	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	01/22/97	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	04/25/97	--	--	--	--	--	--	--	--	--	--	--	--	--	1,2
	08/06/97	--	--	2.1	3.8	<0.5	--	<0.5	<1.2	0.62	--	--	--	--	1
	12/23/97	--	--	<1.0	4.2	<1.0	--	<1.0	<1.0	<1.0	--	--	--	--	1
	03/26/98	--	--	--	--	--	--	--	--	--	--	--	--	--	3,2
	12/16/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4
	02/26/99	--	--	<0.5	4.4	<0.5	--	1.6	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	05/20/99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4
	08/17/99	NA	NA	<0.5	3.6	<0.5	NA	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	11/11/99	--	--	<0.5	3.2	<0.5	--	2.4	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	03/23/00	--	--	<1.0	4.8	<1.0	--	<1.0	<1.0	<1.0	1.8	<2.0	<1.0	<1.0	--
	05/24/00	--	--	<1.0	4.8	<1.0	--	<1.0	<1.0	<1.0	1.8	<2.0	<1.0	<1.0	6
	07/10/00	--	--	<1.0	9.8	<1.0	--	<1.0	<1.0	<1.0	1.1	<2.0	<1.0	<1.0	6
	08/31/00	--	--	<1.0	9	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	--
MW-4	05/13/98	--	--	--	31	9.9	--	--	--	2.8	2.8	<1.0	<1.0	<2.0	3
	12/16/98	--	--	<0.5	53	17	--	<5.0	<0.5	0.94	6.8	<0.5	1.6	<1.0	--
(Dup)	12/16/98	--	--	<0.5	52	14	--	<5.0	<0.5	0.88	4.4	<0.5	1.2	<1.0	--
	02/26/99	--	--	<0.5	39	28	--	1.4	<0.5	0.97	6.5	<0.5	<0.5	<1.0	--
(Dup)	02/26/99	--	--	<0.5	43	36	--	1.7	<0.5	1.3	8.3	<0.5	2.8	<1.0	--
	05/20/99	--	--	<0.5	45	42.1	--	<0.5	0.54	1.7	8.9	<0.5	2.8	<1.0	--
(Dup)	05/20/99	--	--	<0.5	48	39.4	--	3.9	0.59	1.9	8.6	<0.5	2.5	<1.0	--
	08/17/99	--	--	<0.5	37	22	--	<0.5	0.7	1.8	4.3	<0.5	2	<1.0	--
(Dup)	08/17/99	--	--	<0.5	45	0.77	--	<0.5	5.5	2	13	<0.5	2.8	<1.0	--
	11/11/99	--	--	<0.5	34	22	--	<0.5	<0.5	0.76	6.9	<0.5	1.1	<1.0	--
(Dup)	11/11/99	--	--	<0.5	38	23	--	<0.5	<0.5	0.85	7.9	<0.5	1.1	<1.0	--
	03/23/00	--	--	<1.0	24	13	--	<1.0	<1.0	<1.0	4.1	<2.0	<1.0	<1.0	--
(Dup)	03/23/00	--	--	<1.0	26	14	--	<1.0	<1.0	1.1	5.5	<2.0	1.1	<1.0	--
	05/24/00	--	--	<1.0	24	13	--	<1.0	<1.0	<1.0	4.1	<2.0	<1.0	<1.0	--
(Dup)	05/24/00	--	--	<1.0	26	14	--	<1.0	<1.0	1.1	5.5	<2.0	1.1	<1.0	--

Table 3. Groundwater Analytical Results - VOCs
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking Lot
Oakland International Airport

Monitoring Well ID	Date	Acetone (µg/L)	2-Butanone (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	(cis/trans) 1,2-DCE (µg/L)	4-Methyl-2-Pentanone (µg/L)	1,1,1-TCA (µg/L)	TCE (µg/L)	PCE (µg/L)	Chloroethane (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Notes
MW-4	07/10/00	--	--	<2.5	48	25	--	<2.5	<2.5	<2.5	10	<5.0	<2.5	<2.5	6
(Dup)	07/10/00	--	--	<2.5	35	16	--	<2.5	<2.5	<2.5	7.3	<5.0	<2.5	<2.5	6
	08/31/00	--	--	<1.0	50	32	--	<1.0	<1.0	<1.0	12	<2.0	1.9	<1.0	--
(Dup)	08/31/00	--	--	<1.0	43	27	--	<1.0	<1.0	<1.0	9.9	<2.0	1.6	<1.0	--
MW-5	05/13/98	--	--	--	<1.0	<1.0	--	--	--	<1.0	<2.0	<1.0	<1.0	<2.0	3
	12/16/98	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	02/26/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	05/20/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	08/17/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	11/11/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	03/23/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	--
	05/24/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	6
	07/10/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	6
	08/31/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	--
MW-6	05/13/98	--	--	--	<1.0	<1.0	--	--	--	<1.0	<2.0	<1.0	<1.0	<2.0	3
	12/16/98	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	02/26/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	05/20/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	08/17/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	11/11/99	--	--	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1.0	--
	03/23/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	--
	05/24/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	6
	07/10/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	6
	08/31/00	--	--	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	--
MW-7	05/13/98	--	--	--	6	<1.0	--	--	--	<1.0	<2.0	<1.0	3.4	<2.0	3
	12/16/98	--	--	<0.5	12	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	5.0	<1.0	--
	02/26/99	--	--	<0.5	15	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	6.8	<1.0	--
	05/20/99	--	--	<0.5	19	0.74	--	<0.5	<0.5	<0.5	<1.0	<0.5	7.3	<1.0	--
	08/17/99	--	--	<0.5	22	0.59	--	<0.5	<0.5	0.52	<1.0	<0.5	9.6	<1.0	--
	11/11/99	--	--	<0.5	17	<0.5	--	<0.5	<0.5	<0.5	<1.0	<0.5	6.8	<1.0	--
	03/23/00	--	--	<0.5	16	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	5.6	<1.0	--
	05/24/00	--	--	<0.5	16	<1.0	--	<1.0	<1.0	<1.0	<1.0	<2.0	5.6	<1.0	6
	07/10/00	--	--	<1.0	26	1.1	--	<1.0	<1.0	1.8	<1.0	<2.0	9.8	<1.0	6
	08/31/00	--	--	<1.0	22	1.2	--	<1.0	<1.0	1.1	<1.0	<2.0	9.5	<1.0	--
MW-8	05/13/98	--	--	--	180	1.9	--	--	--	<1.0	<2.0	2.7	180	6.0	3
	12/16/98	--	--	<0.5	440	1.2	--	<0.5	<0.5	<0.5	<1.0	10	520	6.6	--
	02/26/99	--	--	<2.5	390	<2.5	--	<2.5	<2.5	<2.5	<5.0	6.9	490	10	--
	05/20/99	--	--	<0.5	410	1.2	--	<0.5	<0.5	<0.5	<1.0	8.3	480	3.9	--
	08/17/99	--	--	<2.5	500	<2.5	--	<2.5	<2.5	<2.5	<5	11	700	<5.0	--
	11/11/99	--	--	<5.0	300	<5.0	--	<5.0	<5.0	<5.0	<10	7.8	340	<10	--

Table 3. Groundwater Analytical Results - VOCs
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking Lot
Oakland International Airport

Monitoring Well ID	Date	Acetone (µg/L)	2-Butanone (µg/L)	Chloroform (µg/L)	1,1-DCA (µg/L)	(cis/trans) 1,2-DCE (µg/L)	4-Methyl-2-Pentanone (µg/L)	1,1,1-TCA (µg/L)	TCE (µg/L)	PCE (µg/L)	Chloroethane (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Notes
MW-8	03/23/00	--	--	<10	240	<10	--	<10	<10	<10	<10	<20	230	<10	5
	05/24/00	--	--	<10	240	<10	--	<10	<10	<10	<10	<20	230	<10	6
	07/10/00	--	--	<10	380	<10	--	<10	<10	<10	<10	<20	420	<10	6
	08/31/00	--	--	<10	310	<10	--	<10	<10	<10	<10	<20	380	<10	--
MCLs (California/Fed)		--	--	--	5/-	6/70	--	--	5/5	5/5	--	0.5/5	6/7	0.5/2	

1 - Data from Table 3-Summary of Laboratory Results for Volatile Organic Compounds Tanks MF25 and MF26 (United Airlines Hanger Area - Economy Parking Lot Site) Metropolitan Oakland International Airport (MOIA), 1100 Airport Drive, Oakland California by ITSI.

2 - Not sampled due to the presence of free product in monitoring well.

3 - Data from Table 4 of Results of Additional Site Investigation, Port of Oakland, Oakland International Airport, United Airlines Hanger Area - Economy Parking Lot Site, dated October 21, 1998 by ITSI

4 - MW-3 has slow recovery so not enough water could be collected for all analysis.

5 - A suspected lab contaminant, mehtylene chloride was detected at a concentration of 15 µg/L

6 - Due to an oversight, VOCs were not sampled during the May sampling event but were sampled on July 10, 2000.

MCLs - Maximum Contaminant Levels

- Shaded areas indicate detected concentration exceeds MCL.

Table 4. Groundwater Analytical Results - Inorganics
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Ferrous Iron Fe^{+2} (mg/L)	Ferric Iron Fe^{+3} (mg/L)	Total Iron (mg/L)	Nitrate NO_3 (mg/L)	Sulfate (mg/L)	Ortho-phosphate PO_4 (mg/L)	TDS (mg/L)	TOC (mg/L)	Redox (millivolts)	Notes
MW-1	05/15/92	--	--	--	--	--	--	5,900	<5	--	1
	08/07/92	--	--	--	--	--	--	--	<5	--	1
	11/24/92	--	--	--	--	--	--	--	<5	--	1
	02/12/93	--	--	--	--	--	--	--	<5	--	1
	05/17/93	--	--	--	--	--	--	4,100	<5	--	1
	08/03/93	--	--	--	--	--	--	7,700	<5	--	1
	11/25/93	--	--	--	--	--	--	3,790	<5	--	1
	05/09/94	--	--	--	--	--	--	9,600	<0.93	--	1
	08/29/94	--	--	--	--	--	--	3,900	<1.0	--	1
	04/25/95	--	--	--	--	--	--	4,000	--	--	1
	08/11/95	--	--	--	--	--	--	8,500	--	--	1
	11/03/95	--	--	--	--	--	--	6,600	--	--	1
	06/19/96	--	--	--	--	--	--	3,040	--	--	1
	10/24/96	--	--	--	--	--	--	3,090	--	--	1
	01/22/97	--	--	--	--	--	--	4,240	--	--	1
	04/25/97	--	--	--	--	--	--	2,770	--	--	1
	08/06/97	--	--	--	--	--	--	2,430	--	--	1
	12/23/97	<0.2	3.9	--	<0.2	120	--	3,570	--	--	1
	03/26/98	0.41	2.1	--	<0.2	110	--	3,240	--	--	3
	12/16/98	--	--	3.3	<0.1	70	<0.5	--	32	40	--
	02/26/99	0.21	--	0.57	<0.1	110	1.1	--	30	147	--
	05/20/99	0.26	1.2	--	<0.1	97	1.5	--	22	96	--
	08/17/99	0.31	--	0.88	<0.1	100	1.3	--	74	151	--
	11/11/99	0.27	--	0.96	<0.1	110	1.3	--	108	57	--
	03/23/00	0.65	--	1.5	<0.1	53	<0.5	--	16.6	79	--
	04/25/00	--	--	--	--	--	--	--	--	90	--
	05/24/00	0.78	--	0.74	<0.1	35	<0.5	--	21.5	84	--
	07/10/00	--	--	--	--	--	--	--	--	193	--
	08/31/00	0.024	1.4	1.424 *	<1.0	59	<5.0	--	63.3	142	--
MW-2	04/25/95	--	--	--	--	--	--	1,700	--	--	1
	08/11/95	--	--	--	--	--	--	2,500	--	--	1
	11/03/95	--	--	--	--	--	--	2,000	--	--	1
	06/19/96	--	--	--	--	--	--	--	--	--	1
	10/24/96	--	--	--	--	--	--	--	--	--	1
	01/22/97	--	--	--	--	--	--	--	--	--	1
	04/25/97	--	--	--	--	--	--	--	--	--	1
	08/06/97	--	--	--	--	--	--	--	--	--	1

Table 4. Groundwater Analytical Results - Inorganics
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Ferrous Iron Fe^{+2} (mg/L)	Ferric Iron Fe^{+3} (mg/L)	Total Iron (mg/L)	Nitrate NO_3 (mg/L)	Sulfate (mg/L)	Ortho-phosphate PO_4 (mg/L)	TDS (mg/L)	TOC (mg/L)	Redox (millivolts)	Notes
MW-2	04/25/97	--	--	--	--	--	--	--	--	--	1
	12/23/97	--	--	--	--	--	--	--	--	--	1,2
	05/13/98	0.53	8.0	--	<0.05	12	0.72	3,240	--	123	3
	12/16/98	--	--	28	<0.1	21	<0.5	--	210	146	--
	02/26/99	17	--	36	<0.1	27	0.59	--	100	-235	--
	05/20/99	8.9	36	--	<0.1	2	<1.0	--	130	-124	--
	08/17/99	0.37	--	31	0.15	33	<0.5	--	210	-110	--
	11/11/99	0.1	--	17	<0.1	10	<0.5	--	214	-145	--
	03/23/00	9	--	36	<0.1	4	<0.5	--	103	-116	--
	04/25/00	--	--	--	--	--	--	--	--	-118	--
	05/24/00	4.7	--	19	<0.2	0.54	<1.0	--	110	-147	--
	07/10/00	--	--	--	--	--	--	--	--	-130	--
	08/31/00	2.7	9.6	12.3 *	<1.0	9.0	<5.0	--	141	-172	--
MW-3	04/25/95	--	--	--	--	--	--	5,600	--	--	1
	08/11/95	--	--	--	--	--	--	--	--	--	1
	11/03/95	--	--	--	--	--	--	--	--	--	1
	06/19/96	--	--	--	--	--	--	--	--	--	1
	10/24/96	--	--	--	--	--	--	--	--	--	1
	01/22/97	--	--	--	--	--	--	--	--	--	1
	04/25/97	--	--	--	--	--	--	--	--	--	1
	08/06/97	--	--	--	--	--	--	15,100	--	--	1
	04/25/97	--	--	--	--	--	--	13,900	--	--	1
	12/23/97	--	--	--	--	--	--	--	--	--	1
	03/26/98	--	--	--	--	--	--	--	--	--	3,2
	12/16/98	--	--	--	--	--	--	--	240	157	4
	02/26/99	--	--	--	--	--	--	--	100	-142	4
	05/20/99	--	--	--	--	--	--	--	84	-125	4
	08/17/99	--	--	--	--	--	--	--	290	-156	4
	11/11/99	--	--	--	--	--	--	--	217	-272	4
	03/23/00	0.54	--	6.3	<1.0	380	4.7	--	102	-237	--
	04/25/00	--	--	--	--	--	--	--	--	-244	--
	05/24/00	0.27	--	13	<0.1	43	<1.0	--	97.5	-279	--
	07/10/00	--	--	--	--	--	--	--	--	-225	--
	08/31/00	0.23	26	26.23 *	<1.0	640	<5.0	--	183	-369	--
MW-4	05/13/98	0.53	2.9	--	<0.05	20	2.1	1,420	66	168	3
	12/16/98	--	--	13	<0.1	2.8	4.1	--	140	118	-
(Dup)	12/16/98	--	--	11	<0.1	2.6	4.6	--	110	118	--

Table 4. Groundwater Analytical Results - Inorganics
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Ferrous Iron Fe+2 (mg/L)	Ferric Iron Fe+3 (mg/L)	Total Iron (mg/L)	Nitrate NO3 (mg/L)	Sulfate (mg/L)	Ortho-phosphate PO4 (mg/L)	TDS (mg/L)	TOC (mg/L)	Redox (millivolts)	Notes
MW-4	02/26/99	<0.01	--	2.7	1.6	56	2.8	--	60	81	--
(Dup)	02/26/99	<0.01	--	2.9	1.3	54	2.9	--	95	81	--
	05/20/99	<0.01	3.7	--	<0.1	44	3.3	--	36	89	--
(Dup)	05/20/99	<0.01	2.9	--	0.22	56	2.2	--	39	208	--
	08/17/99	0.36	--	0.91	<0.1	13	2.4	--	110	208	--
(Dup)	08/17/99	0.017	--	1.3	<0.1	14	2.4	--	130	208	--
	11/11/99	<0.01	--	1.1	<0.1	3	2.8	--	116	122	--
(Dup)	11/11/99	<0.01	--	0.89	<0.1	3	2.9	--	93.5	122	--
	03/23/00	0.091	--	2.8	1.0	36	3.2	--	62.5	122	--
(Dup)	03/23/00	0.14	--	2	1.1	33	3.5	--	51.4	112	--
	04/25/00	--	--	--	--	--	--	--	--	-204	--
	05/24/00	0.067	--	1.4	<0.1	21	5.0	--	45.7	-137	--
(Dup)	05/24/00	0.029	--	1.0	<0.1	19	4.4	--	52.3	-137	--
	07/10/00	--	--	--	--	--	--	--	--	-194	--
	08/31/00	<0.01	0.31	0.31 *	<1.0	6.4	<5.0	--	90.4	-121	--
(Dup)	08/31/00	0.054	0.34	0.394 *	<1.0	6.4	<5.0	--	96.2	-121	--
MW-5	05/13/98	<0.2	0.7	--	0.36	250	0.47	2,300	20	150	3
	12/16/98	--	--	10	<0.1	340	0.57	--	32	46	--
	02/26/99	0.64	--	23	<0.1	260	1.2	--	22	230	--
	05/20/99	0.75	11	--	0.11	260	<1.0	--	15	209	--
	08/17/99	0.23	--	12	<0.1	350	<0.5	--	82	62	--
	11/11/99	0.046	--	2.9	<0.1	320	<0.5	--	94.5	-48	--
	03/23/00	8.6	--	74	<0.1	190	0.67	--	14.1	76	--
	04/25/00	--	--	--	--	--	--	--	--	-15	--
	05/24/00	3.9	--	5.3	<0.1	27	<0.5	--	17.7	23	--
	07/10/00	--	--	--	--	--	--	--	--	-121	--
	08/31/00	0.29	3.7	3.99 *	<1.0	220	<5.0	--	48.4	125	--
MW-6	05/13/98	<0.2	0.69	--	2.1	400	0.15	4,240	13	126	3
	12/16/98	--	--	26	0.45	400	0.65	--	22	47	--
	02/26/99	0.44	--	16	4.3	380	0.89	--	42	262	--
	05/20/99	1.2	8.7	--	7.5	300	<1.0	--	22	227	--
	08/17/99	3.7	--	18	2.1	470	0.64	--	92	251	--
	11/11/99	0.15	--	12	0.91	440	0.58	--	103	216	--
	03/23/00	1.9	--	38	1.2	350	<0.5	--	22.3	133	--
	04/25/00	--	--	--	--	--	--	--	--	169	--
	05/24/00	0.67	--	0.12	1.8	290	0.53	--	27.2	172	--
	07/10/00	--	--	--	--	--	--	--	--	265	--

Table 4. Groundwater Analytical Results - Inorganics
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

Monitoring Well ID	Date	Ferrous Iron Fe+2 (mg/L)	Ferric Iron Fe+3 (mg/L)	Total Iron (mg/L)	Nitrate NO3 (mg/L)	Sulfate (mg/L)	Ortho-phosphate PO4 (mg/L)	TDS (mg/L)	TOC (mg/L)	Redox (millivolts)	Notes
MW-6	08/31/00	0.13	11	11.13 *	<1.0	340	<5.0	--	72.5	262	--
MW-7	05/13/98	<0.2	0.62	--	0.9	100	<0.03	1,380	7	132	3
	12/16/98	--	--	19	6.9	100	0.53	--	7.7	159	--
	02/26/99	0.15	--	14	8.3	82	0.78	--	20	272	--
	05/20/99	0.89	13	--	4.3	160	<1.0	--	6.8	243	--
	08/17/99	0.52	--	12	3.4	160	0.68	--	38	200	--
	11/11/99	0.34	--	3.7	2.9	140	<0.5	--	49.6	137	--
	03/23/00	3.4	--	53	7.1	120	<0.5	--	7.2	205	--
	04/25/00	--	--	--	--	--	--	--	--	237	--
	05/24/00	0.25	--	0.52	7.8	71	0.73	--	4.59	201	--
	07/10/00	--	--	--	--	--	--	--	--	226	--
	08/31/00	0.23	6.5	6.73 *	4.8	120	<5.0	--	33.5	272	--
MW-8	05/13/98	<0.2	2.2	--	<0.5	500	0.08	8,300	99	60.4	3
	12/16/98	--	--	37	<0.1	360	<0.5	--	2.4	83	--
	02/26/99	0.076	--	26	<0.1	290	0.69	--	63	280	--
	05/20/99	2	26	--	17	440	<1.0	--	21	196	--
	08/17/99	1.4	--	3.8	<0.2	580	<1.0	--	150	-62	--
	11/11/99	<0.01	--	46	20	400	<0.5	--	163	-31	--
	03/23/00	1.6	--	41	<1.0	440	<5.0	--	17.2	-10	--
	04/25/00	--	--	--	--	--	--	--	--	-70	--
	05/24/00	0.074	--	1.2	<0.1	260	1.6	--	19.1	-85	--
	07/10/00	--	--	--	--	--	--	--	--	-74	--
	08/31/00	<0.01	0.92	0.92 *	<1.0	440	<5.0	--	109	-21	--

Notes

1 - Data from Table 4-Summary of Laboratory Results for Inorganic Anaalytes Tanks MF25 and MF26 (United Airlines Hanger Area - Economy Parking Lot Site) Metropolitan Oakland International Airport (MOIA), 1100 Airport Drive, Oakland California by ITSI.

2 - Not sampled due to presence of free product in monitoring well.

3 - Data from Table 5 of Results of Additional Site Investigation, Port of Oakland, Oakland International Airport, United Airlines Hanger Area Economy Parking Lot Site, dated October 21, 1998

4 - MW-3 has slow recovery so not enough water could be collected for all analysis.

* - Total iron is the ferrous iron plus the ferric iron.

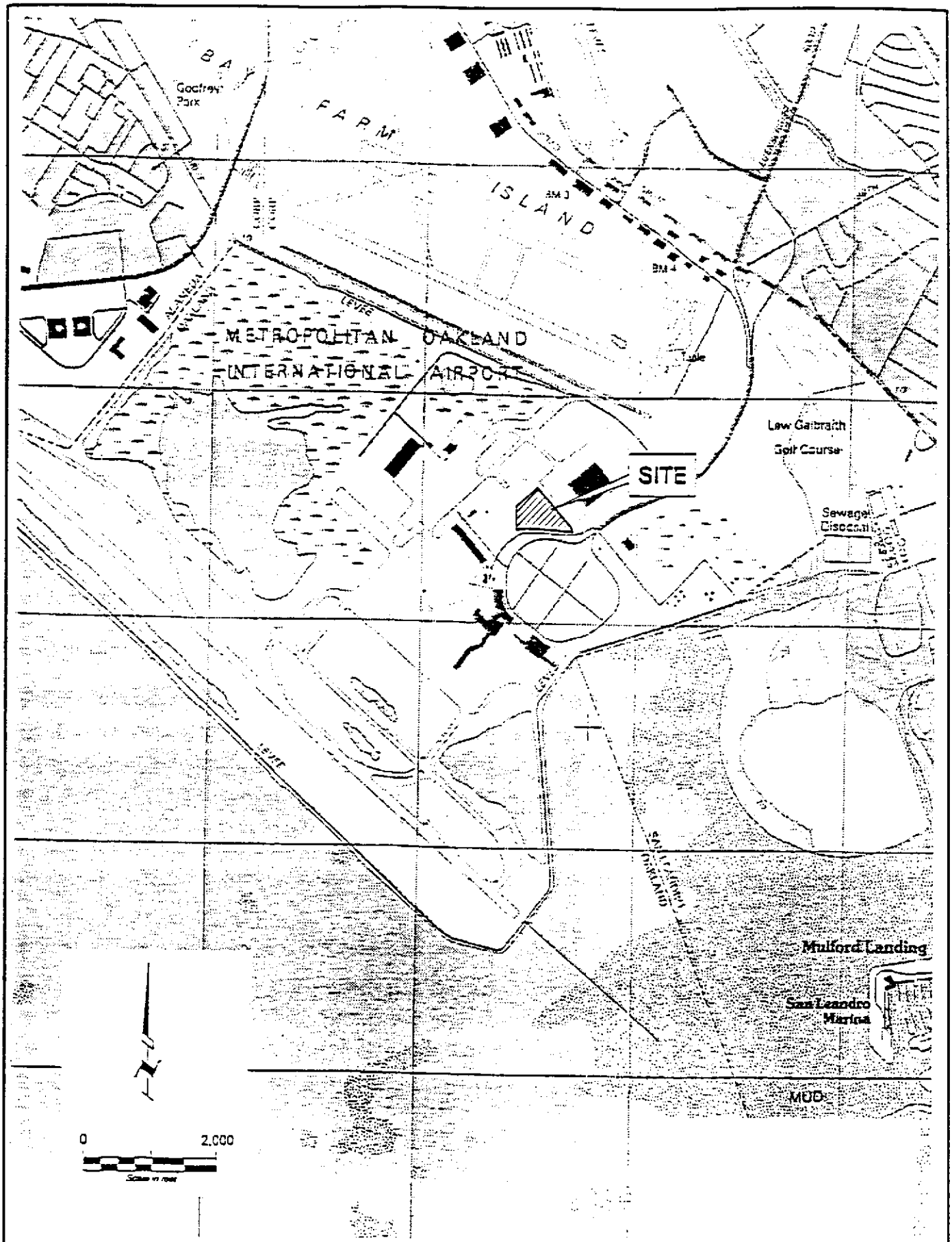
Table 5 - Dissolved Oxygen Concentrations
Quarterly Groundwater Monitoring Report
United Airlines Hanger Economy Parking
Oakland International Airport

	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		MW-8
16-Dec-98	2.0		1.2		0.5		1.2		2.0		1.1		2.4		0.8
23-Dec-98		ORC injected in former UST cavity.													
6-Jan-99	>15	[1]	1.1	[2]	0.9		>15	[1,2]	1.3		2.8		3.0		0.6
12-Jan-99	>15	[1]	0.8		1.0		8.0		0.7		2.4		3.2		0.7
22-Jan-99	>15	[1]	0.6		0.8		1.4		1.1		3.1		4.7		1.4
30-Jan-99	>15	[1]	0.6		1.6		1.0		1.6		4.8		2.6		2.8
26-Feb-99	>15		0.5		0.5		1.4		1.1		4.4		4.0		5.2
30-Mar-99	>15		0.5	[2]	0.8		1.0		1.2		1.1		4.2		1.6
20-May-99	>15		1.0	[2]	1.4	[2]	1.5		1.7		1.9		3.2		1.2
23-Jun-99	>15		0.5	[2]	0.4	[2]	0.6		0.6		1.0		0.8		0.6
26-Jul-99	>15		0.5	[2]	0.4	[2]	0.6		0.8		0.6		0.5		0.7
17-Aug-99	>15		0.3	[2]	0.45	[2]	0.5		0.2		0.3		0.8		0.6
12-Sep-99	>15		0.5	[2]	0.3	[2]	0.8		0.4		0.5		0.5		0.4
19-Oct-99	>15		0.4	[2]	0.3	[2]	0.2		0.6		0.4		0.3		0.6
11-Nov-99	10.2		0.6	[2]	0.7	[2]	0.7		0.8		0.8		1.8		1.1
22-Dec-99	>15		0.3	[2]	0.3	[2]	0.4		0.7		0.4		0.8		0.4
6-Jan-00	>15		0.3	[2]	0.4	[2]	0.4		0.6		1.0		1.4		0.4
7-Jan-00		ORC injected in the vicinity of MW-2 and in the former UST cavity.													
14-Jan-00	>15		0.8	[2]	0.4	[2]	0.5		2.2		0.4		2.0		1.0
19-Jan-00	>15		0.6	[2]	0.4	[2]	0.4		1.4		1.6		1.0		0.7
26-Jan-00	14.2		0.7	[2]	0.4	[2]	0.6		0.5		2.7		6.0		1.7
29-Feb-00	13.2		0.9	[2]	0.9	[2]	0.8		--	[3]	1.0		2.2		3.4
23-Mar-00	>15		2.8	[2]	1.1	[2]	1.0		1.0		1.4		2.4		2.2
25-Apr-00	4.2		0.7	[2]	1.3	[2]	0.8		0.6		1.1		2.6		0.6
24-May-00	2.3		0.9	[2]	0.4	[2]	1.0		0.9		1.0		1.8		1.0
29-Jun-00	1.4		0.4	[2]	0.3	[2]	0.3		0.3		0.4		0.9		0.4
10-Jul-00	3.7		0.8	[2]	0.4	[2]	0.6		0.8		0.8		1.6		0.7
31-Aug-00	4.0		0.6	[2]	0.2	[2]	0.7		0.8		0.8		1.0		0.8
20-Sep-00	0.4		0.6	[2]	0.5	[2]	0.6		0.6		0.8		0.8		0.9

All concentrations are presented in milligrams per liter (mg/L)

Notes:

1 Milky water; ORC is visibly present in well.
2 Diesel odor
3 Well damaged in bus route repavement, unable to access



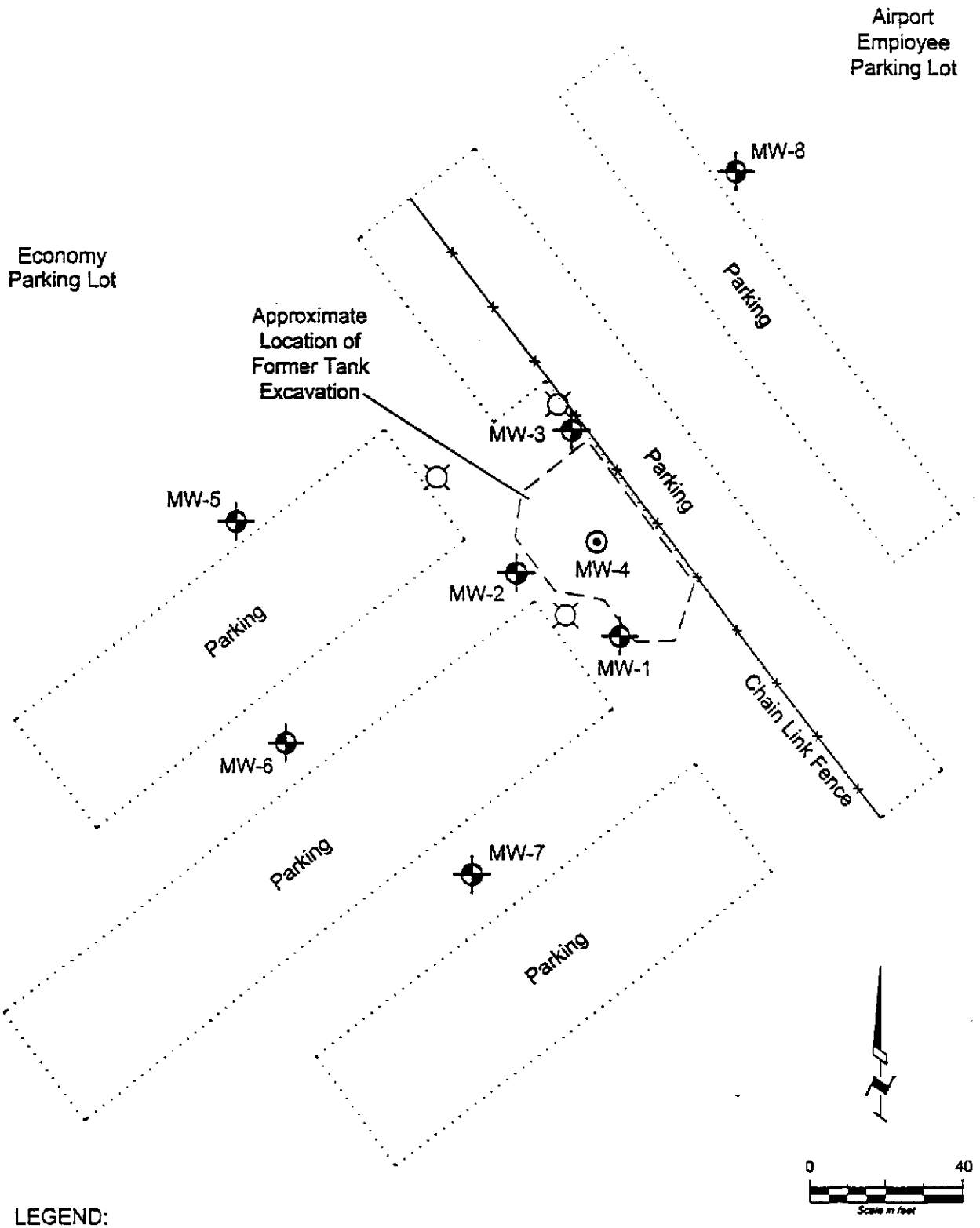
Harding Lawson Associates
Engineering and Environmental Services

Site Location Map

Economy Parking Lot - United Airlines Hanger Site
Oakland International Airport
1100 Airport Drive, Oakland, California

PLATE
1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AJW	43145.4		7/00	



LEGEND:

- Monitoring Well (2-in. diameter)
- Remediation Well (4-in. diameter)
- Light Pole

Reference:
Map based on a figure prepared by
Innovative Technologies Solutions, Inc.

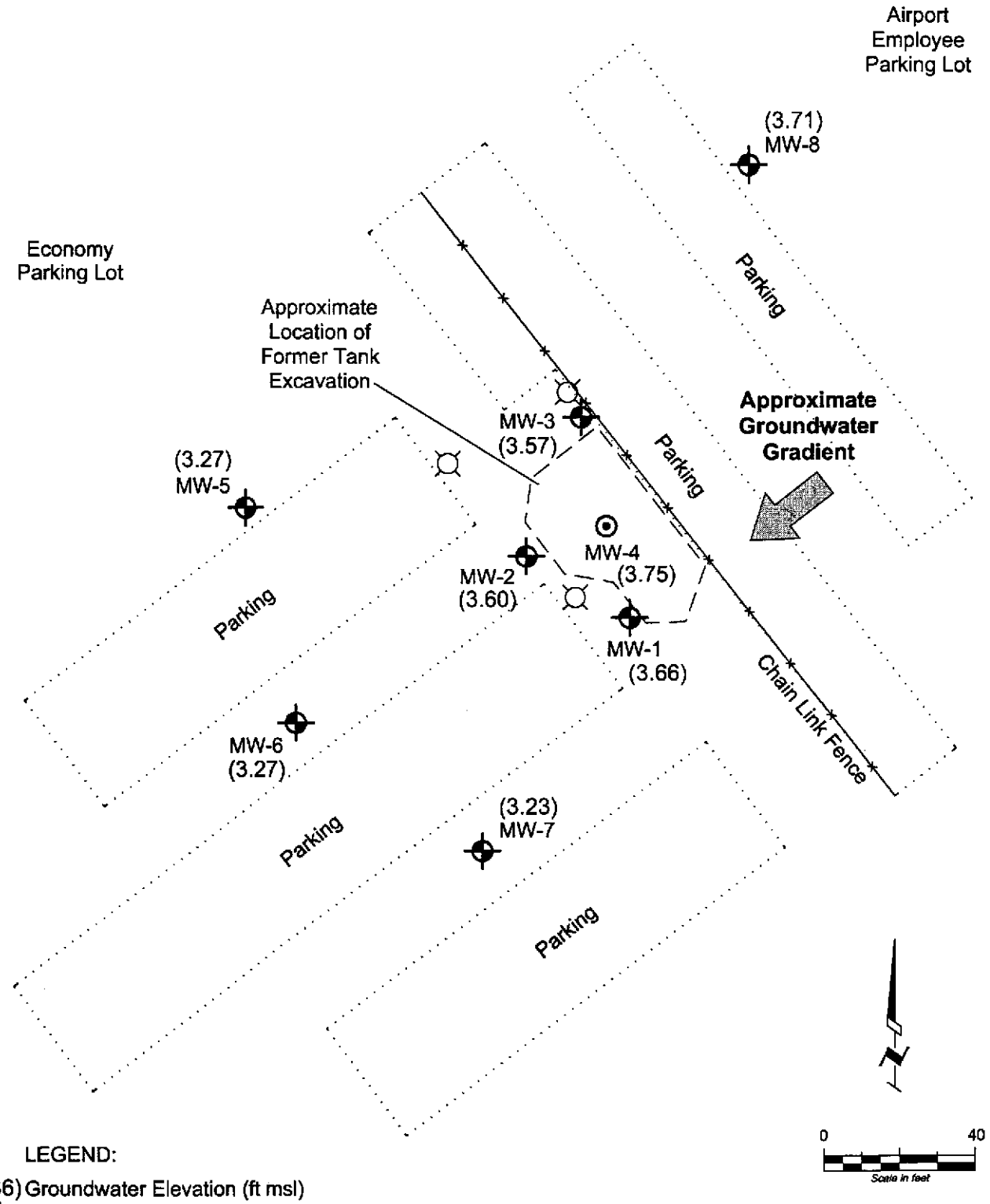
Harding Lawson Associates
Engineering and
Environmental Services

Site Plan

Economy Parking Lot - United Airlines Hanger Site
Oakland International Airport
1100 Airport Drive, Oakland, California

PLATE
2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AJW	43145.4		7/00	



LEGEND:

(4.36) Groundwater Elevation (ft msl)

Monitoring Well (2-in. diameter)

Remediation Well (4-in. diameter)

Light Pole

Reference:
Map based on a figure prepared by
Innovative Technologies Solutions, Inc.

Harding Lawson Associates
Engineering and
Environmental Services

Groundwater Elevation Map

Economy Parking Lot - United Airlines Hanger Site
Oakland International Airport
1100 Airport Drive, Oakland, California

PLATE
3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
AJW	43145.4		7/00	...

APPENDIX A

GROUNDWATER SAMPLING REPORTS

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 1

Well Type: x Monitor ☐ Extraction ☐ Other ___
x PVC ☐ St. Steel ☐ Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Date: 8/31/00

Recorded By: (Signature)

Sampled By: HDL (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 13.09
Water Level Depth (WL in ft BTOC): 3.25
No.of Well Volumes to be purged (# 3

PURGE METHOD

x Bailer - Type: teflon
☐ Submersible - Type:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top
☐ Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(13.09 - 3.25) x 2 ² x 3 x 0.0408 = 4.82 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	☐ °C Temp. x °F	Turbidity (NTU)
Initial	6.08	6150	75.7	
1.5	5.87	9080	74.8	
3	6.29	7290	74.5	
5	6.25	6690	74.9	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 1022
Purge Stop: 1034
Elapsed: 12

PURGE RATE

GPM:
GPM:

PURGE VOLUME

Volume: 5 gallons

Observations During Purging (Well Condition, Color, Odor):
initially clear
no odor

Discharge Water Disposal: ☐ Sanitary Sewer
☐ Storm Sewer x Other onsite drum

WELL SAMPLING

x Bailer - Type: disposable

Sample Time: 1042

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 1	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 2

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Recorded By: Heather D Lee (Signature)

Date: 8/31/00

Sampled By: HDL (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 10.89
Water Level Depth (WL in ft BTOC): 2.98
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(10.89 - 2.98) x 2 ² x 3 x 0.0408 = 3.87 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ]°C [x]°F	Turbidity (NTU)
Initial	5.35	3220	78.4	
1	5.24	2860	78.9	
2.5	5.20	4640	78.1	
4	5.18	10780	76.4	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 1055
Purge Stop: 1102
Elapsed: 7

PURGE RATE

GPM:
GPM:

PURGE VOLUME

Volume: 4 gallons

Observations During Purging (Well Condition, Color, Odor):
initially clear becomes black with a slight fuel odor sheen

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 1110

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 2	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ ; [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Date: 8/31/00

Recorded By: Heath D Lee (Signature)

Sampled By: HDL (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 11.06
Water Level Depth (WL in ft BTOC): 3.79
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(11.06 - 3.79) X 2² X 3 X 0.0408 = 3.55 gals

TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [x] °F [ ] °C	Turbidity (NTU)
Initial	4.86	11580	70.6	
1	5.95	19790	70.4	
2	5.92	19990	69.7	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 0759
Purge Stop: 0805
Elapsed: 6

PURGE RATE

GPM:
GPM:

PURGE VOLUME

Volume: Dry 2 gallons

Observations During Purging (Well Condition, Color, Odor):
light yellow green, fuel odor, sheen

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 0810

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-3	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
1	2 VOA	TPHgas	HCL		
1	1 VOA	TOC	HCL		
MW-3B 9/1/00	1 LA	TPH d, TPH mo, TPH j(A)	none		
MW-3A (1215)	500 mL Poly	Ferrous Iron	none		
1	500 mL Poly	Ferric Iron	HNO3		
MW-3B 9/1/00	500 mL Poly	NO3, SO4	none		
1	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 4

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Date: 8/31/00

Recorded By: Heath Dzee (Signature)

Sampled By: HDL (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 4
Total Depth of Casing (TD in ft BTOC): 9.97
Water Level Depth (WL in ft BTOC): 3.17
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(9.97 - 3.17) x 4 ² x 3 X 0.0408 = 13.32 gals

TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ]°C [x]°F	Turbidity (NTU)
Initial	~~5~~.77	3010	80.9	
5	6.83	4500	79.1	
10	6.90	4500	77.7	
14	6.93	4600	77.9	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 1126
Purge Stop: 1135
Elapsed: 11

PURGE RATE

GPM: ___
GPM: ___

PURGE VOLUME

Volume: 14 gallons

Observations During Purging (Well Condition, Color, Odor):
clear, no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 1140

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 4	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Dupl. Sample No.
MW-4 (1140)	DUP0300 (1155)

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW-5

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Date: 8/31/00

Recorded By: Heather D Lee (Signature)

Sampled By: HDL (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 7.92
Water Level Depth (WL in ft BTOC): 2.52
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(7.92 TD (feet) − 2.52 WL (Feet)) x 2 D (inches) ² X 3 #V X 0.0408 = 2.64 gals Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ]°C [x]°F	Turbidity (NTU)
Initial	6.18	3530	72.7	
1	5.77	4270	76.5	
2	5.53	7200	77.5	
3	5.53	7110	78.3	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 0823
Purge Stop: 0829
Elapsed: 6

PURGE RATE

GPM: ___
GPM: ___

PURGE VOLUME

Volume: ___ gallons

Observations During Purging (Well Condition, Color, Odor):
silty brown, no odor

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 0835

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-5	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 6

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Recorded By: Heather D Lee (Signature)

Date: 8/31/00

Sampled By: HDL (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 8.13
Water Level Depth (WL in ft BTOC): 3.12
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(8.13 - 3.12) x 2² x 3 X 0.0408 = 2.45 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ]°C [x]°F	Turbidity (NTU)
Initial	6.22	3550	72.8	
1	5.98	5320	75.6	
2	5.76	6830	75.8	
3	5.77	7010	76.2	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 0851
Purge Stop: 0858
Elapsed: 7

PURGE RATE

GPM:
GPM:

PURGE VOLUME

Volume: 3 gallons

Observations During Purging (Well Condition, Color, Odor):
silty brown, no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 0904

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 6	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 7

Well Type: [x] Monitor [ ] Extraction [ ] Other ___ ; [x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Date: 8/31/00

Recorded By: Heath Gee (Signature)

Sampled By: HDL (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 8.43
Water Level Depth (WL in ft BTOC): 2.63
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PURGE VOLUME CALCULATION

(8.43 - 2.63) x 2 x 3 x 0.0408 = 2.84 gals

TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	6.84	1750	74.0	
1	6.02	4640	75.2	
2	5.99	5130	75.0	
3	6.00	5350	75.4	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 0920
Purge Stop: 0930
Elapsed: 10

PURGE RATE

GPM: ~
GPM:

PURGE VOLUME

Volume: 3 gallons

Observations During Purging (Well Condition, Color, Odor):
initially clear becomes silty brown
no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 0937

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 7	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUNDWATER SAMPLING FORM

Well Number: MW- 8

Well Type: [x] Monitor [ ] Extraction [ ] Other ___
[x] PVC [ ] St. Steel [ ] Other ___

Job Name: Port of Oakland - Economy Parking

Job Number: 43145.4

Recorded By: Heather D Lee (Signature)

Date: 8/31/00

Sampled By: HDL (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 11.02
Water Level Depth (WL in ft BTOC): 3.85
No.of Well Volumes to be purged (# 3

PURGE METHOD

[x] Bailer - Type: teflon
[ ] Submersible - Type:
[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top
[ ] Other
Depth in feet (BTOC):
Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

11.02 - 3.85 x 2² x 3 x 0.0408 = 3.51 gals
TD (feet) WL (Feet) D (inches) #V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [x] °F [ ] °C	Turbidity (NTU)
Initial	5.49	13360	74.3	
1.25	5.39	15860	75.1	
2.5	5.35	17930	75.4	
3.75	5.42	17990	74.1	
Meter S/N	9510	9510	9510	

PURGE TIME

Purge Start: 0953
Purge Stop: 1007
Elapsed: 8

PURGE RATE

GPM: ___
GPM: ___

PURGE VOLUME

Volume: 1009 gallons

Observations During Purging (Well Condition, Color, Odor):
initially clear, becomes silty brown
no odor

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [x] Other onsite drum

WELL SAMPLING

[x] Bailer - Type: disposable

Sample Time: 1009

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW- 8	2 VOA	8010/8020/BTEX/MTBE	HCL	Sequoia	
	2 VOA	TPHgas	HCL		
	1 VOA	TOC	HCL		
	1 LA	TPH d, TPH mo, TPH j(A)	none		
	500 mL Poly	Ferrous Iron	none		
	500 mL Poly	Ferric Iron	HNO3		
	500 mL Poly	NO3, SO4	none		
	1 L Poly	PO4	none		

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

APPENDIX B

LABORATORY REPORTS

Sequoia Analytical

404 N. Wiget Lane
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27 September, 2000

Steve Osborne
Harding-Lawson Associates - Oakland
383 Fourth Street
Oakland, CA 94607

RE: Port of Oakland
Sequoia Report: W008696

Enclosed are the results of analyses for samples received by the laboratory on 31-Aug-00 17:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dimple Sharma
Project Manager

CA ELAP Certificate #1271

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	W008696-01	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-5	W008696-02	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-6	W008696-03	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-7	W008696-04	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-8	W008696-05	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-1	W008696-06	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-2	W008696-07	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-4	W008696-08	Water	31-Aug-00 00:00	31-Aug-00 17:25
Dup0800	W008696-09	Water	31-Aug-00 00:00	31-Aug-00 17:25
MW-3A	W008696-10	Water	31-Aug-00 12:15	31-Aug-00 17:25

Dimple Sharma, Project Manager

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (W008696-01) Water Sampled: 31-Aug-00 08:10 Received: 31-Aug-00 17:25									**P-05**
Purgeable Hydrocarbons	**2800**	2500	ug/l	50	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	ND	25	"	"	"	"	"	"	
Toluene	ND	25	"	"	"	"	"	"	
Ethylbenzene	ND	25	"	"	"	"	"	"	
Xylenes (total)	ND	25	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	130	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*95.3 %*	*70-130*		"	"	"	"	
MW-5 (W008696-02) Water Sampled: 31-Aug-00 08:35 Received: 31-Aug-00 17:25									
Purgeable Hydrocarbons	ND	50	ug/l	1	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*98.7 %*	*70-130*		"	"	"	"	
MW-6 (W008696-03) Water Sampled: 31-Aug-00 09:04 Received: 31-Aug-00 17:25									
Purgeable Hydrocarbons	ND	50	ug/l	1	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*93.3 %*	*70-130*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (W008696-04) Water Sampled: 31-Aug-00 09:37 Received: 31-Aug-00 17:25									
Purgeable Hydrocarbons	ND	50	ug/l	1	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*92.3 %*	*70-130*		"	"	"	"	
MW-8 (W008696-05) Water Sampled: 31-Aug-00 10:09 Received: 31-Aug-00 17:25									
Purgeable Hydrocarbons	ND	50	ug/l	1	0I14002	14-Sep-00	14-Sep-00	EPA 8015M/8020	
Benzene	**1.9**	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	**2.9**	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*133 %*	*70-130*		"	"	"	"	*S-02*
MW-1 (W008696-06) Water Sampled: 31-Aug-00 10:42 Received: 31-Aug-00 17:25									**P-01**
Purgeable Hydrocarbons	**84**	50	ug/l	1	0I14002	14-Sep-00	14-Sep-00	EPA 8015M/8020	
Benzene	**3.3**	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	**0.89**	0.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.5	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*103 %*	*70-130*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (W008696-07) Water Sampled: 31-Aug-00 11:10 Received: 31-Aug-00 17:25									**P-01**
Purgeable Hydrocarbons	**3200**	1000	ug/l	20	0I14002	14-Sep-00	14-Sep-00	EPA 8015M/8020	
Benzene	**50**	10	"	"	"	"	"	"	
Toluene	**18**	10	"	"	"	"	"	"	
Ethylbenzene	**77**	10	"	"	"	"	"	"	
Xylenes (total)	**160**	10	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	50	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*99.0 %*	*70-130*		"	"	"	"	
MW-4 (W008696-08) Water Sampled: 31-Aug-00 11:40 Received: 31-Aug-00 17:25									**P-01**
Purgeable Hydrocarbons	**700**	130	ug/l	2.5	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	**22**	1.3	"	"	"	"	"	"	
Toluene	ND	1.3	"	"	"	"	"	"	
Ethylbenzene	**3.1**	1.3	"	"	"	"	"	"	
Xylenes (total)	**13**	1.3	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	6.3	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*91.7 %*	*70-130*		"	"	"	"	
Dup0800 (W008696-09) Water Sampled: 31-Aug-00 11:55 Received: 31-Aug-00 17:25									**P-01**
Purgeable Hydrocarbons	**550**	130	ug/l	2.5	0I13003	13-Sep-00	13-Sep-00	EPA 8015M/8020	
Benzene	**21**	1.3	"	"	"	"	"	"	
Toluene	ND	1.3	"	"	"	"	"	"	
Ethylbenzene	**2.8**	1.3	"	"	"	"	"	"	
Xylenes (total)	**13**	1.3	"	"	"	"	"	"	
Methyl tert-butyl ether	**11**	6.3	"	"	"	"	"	"	CC-3
Surrogate: a,a,a-Trifluorotoluene		*93.7 %*	*70-130*		"	"	"	"	

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Custom Extractable Hydrocarbons by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (W008696-02) Water	**Sampled: 31-Aug-00 08:35**		**Received: 31-Aug-00 17:25**						
Jet-A (C9-C17)	ND	50	ug/l	1	0I07011	07-Sep-00	08-Sep-00	DHS LUFT	
Diesel Range Hydrocarbons	ND	50	"	"	"	"	"	"	
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		*66.1 %*	*50-150*		"	"	"	"	
MW-6 (W008696-03) Water	**Sampled: 31-Aug-00 09:04**		**Received: 31-Aug-00 17:25**						
Jet-A (C9-C17)	ND	50	ug/l	1	0I07011	07-Sep-00	08-Sep-00	DHS LUFT	
Diesel Range Hydrocarbons	ND	50	"	"	"	"	"	"	
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		*89.2 %*	*50-150*		"	"	"	"	
MW-7 (W008696-04) Water	**Sampled: 31-Aug-00 09:37**		**Received: 31-Aug-00 17:25**						
Jet-A (C9-C17)	ND	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	
Diesel Range Hydrocarbons	ND	50	"	"	"	"	"	"	
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		*65.2 %*	*50-150*		"	"	"	"	
MW-8 (W008696-05) Water	**Sampled: 31-Aug-00 10:09**		**Received: 31-Aug-00 17:25**						
Jet-A (C9-C17)	**71**	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	D-14
Diesel Range Hydrocarbons	**120**	50	"	"	"	"	"	"	D-14
Motor Oil (C16-C36)	ND	250	"	"	"	"	"	"	
Surrogate: n-Pentacosane		*75.1 %*	*50-150*		"	"	"	"	
MW-1 (W008696-06) Water	**Sampled: 31-Aug-00 10:42**		**Received: 31-Aug-00 17:25**						
Jet-A (C9-C17)	**320**	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	D-14
Diesel Range Hydrocarbons	**600**	50	"	"	"	"	"	"	D-14
Motor Oil (C16-C36)	**430**	250	"	"	"	"	"	"	D-14
Surrogate: n-Pentacosane		*137 %*	*50-150*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Custom Extractable Hydrocarbons by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (W008696-07) Water	**Sampled: 31-Aug-00 11:10**	**Received: 31-Aug-00 17:25**							
Jet-A (C9-C17)	**4000**	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	D-14
Diesel Range Hydrocarbons	**4900**	50	"	"	"	"	"	"	D-16
Motor Oil (C16-C36)	**1800**	250	"	"	"	"	"	"	D-12
Surrogate: n-Pentacosane		*158 %*	*50-150*		"	"	"	"	*S-04*
MW-4 (W008696-08) Water	**Sampled: 31-Aug-00 11:40**	**Received: 31-Aug-00 17:25**							
Jet-A (C9-C17)	**1800**	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	D-04,D-14
Diesel Range Hydrocarbons	**2300**	50	"	"	"	"	"	"	D-14
Motor Oil (C16-C36)	**1000**	250	"	"	"	"	"	"	D-14
Surrogate: n-Pentacosane		*158 %*	*50-150*		"	"	"	"	*S-04*
Dup0800 (W008696-09) Water	**Sampled: 31-Aug-00 11:55**	**Received: 31-Aug-00 17:25**							
Jet-A (C9-C17)	**2000**	50	ug/l	1	0I07011	07-Sep-00	09-Sep-00	DHS LUFT	D-04
Diesel Range Hydrocarbons	**2500**	50	"	"	"	"	"	"	D-14
Motor Oil (C16-C36)	**1000**	250	"	"	"	"	"	"	D-14
Surrogate: n-Pentacosane		*169 %*	*50-150*		"	"	"	"	*S-04*

Sequoia Analytical

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Harding-Lawson Associates - Oakland 383 Fourth Street Oakland CA, 94607	Project: Port of Oakland Project Number: 43145.4 Project Manager: Steve Osborne	**Reported:** 27-Sep-00 14:52

Total Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (W008696-02) Water	**Sampled: 31-Aug-00 08:35**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	**0.29**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**3.7**	0.010	"	"	"	"	12-Sep-00	"	
MW-6 (W008696-03) Water	**Sampled: 31-Aug-00 09:04**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	**0.13**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**11**	0.010	"	"	"	"	12-Sep-00	"	
MW-7 (W008696-04) Water	**Sampled: 31-Aug-00 09:37**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	**0.23**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**6.5**	0.010	"	"	"	"	12-Sep-00	"	
MW-8 (W008696-05) Water	**Sampled: 31-Aug-00 10:09**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	ND	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**0.92**	0.010	"	"	"	"	12-Sep-00	"	
MW-1 (W008696-06) Water	**Sampled: 31-Aug-00 10:42**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	**0.024**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**1.4**	0.010	"	"	"	"	12-Sep-00	"	
MW-2 (W008696-07) Water	**Sampled: 31-Aug-00 11:10**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	**2.7**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**9.6**	0.010	"	"	"	"	12-Sep-00	"	
MW-4 (W008696-08) Water	**Sampled: 31-Aug-00 11:40**		**Received: 31-Aug-00 17:25**						
Ferrous Iron	ND	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**0.31**	0.010	"	"	"	"	12-Sep-00	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Dup0800 (W008696-09) Water Sampled: 31-Aug-00 11:55 Received: 31-Aug-00 17:25									
Ferrous Iron	**0.054**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**0.34**	0.010	"	"	"	"	12-Sep-00	"	
MW-3A (W008696-10) Water Sampled: 31-Aug-00 12:15 Received: 31-Aug-00 17:25									
Ferrous Iron	**0.23**	0.010	mg/l	1	0I05025	05-Sep-00	11-Sep-00	EPA 6010A	
Ferric Iron	**26**	0.010	"	"	"	"	12-Sep-00	"	

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383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (W008696-01) Water Sampled: 31-Aug-00 08:10 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**9.0**	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*100 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*75.0 %*	*50-150*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (W008696-02) Water Sampled: 31-Aug-00 08:35 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*100 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*71.0 %*	*50-150*		"	"	"	"	

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383 Fourth Street	Project Number: 43145.4	**Reported:**
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Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-6 (W008696-03) Water Sampled: 31-Aug-00 09:04 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*97.0 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*70.0 %*	*50-150*		"	"	"	"	

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383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (W008696-04) Water Sampled: 31-Aug-00 09:37 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	**9.5**	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**22**	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**1.2**	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	**1.1**	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*98.0 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*71.0 %*	*50-150*		"	"	"	"	

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Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-8 (W008696-05) Water Sampled: 31-Aug-00 10:09 Received: 31-Aug-00 17:25									
Chloromethane	ND	20	ug/l	10	0II3010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	10	"	"	"	"	"	"	
Bromomethane	ND	10	"	"	"	"	"	"	
Chloroethane	ND	10	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
Freon 113	ND	10	"	"	"	"	"	"	
1,1-Dichloroethene	**380**	10	"	"	"	"	"	"	
Methylene chloride	ND	100	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	10	"	"	"	"	"	"	
1,1-Dichloroethane	**310**	10	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	10	"	"	"	"	"	"	
Chloroform	ND	10	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	10	"	"	"	"	"	"	
Carbon tetrachloride	ND	10	"	"	"	"	"	"	
1,2-Dichloroethane	ND	20	"	"	"	"	"	"	
Trichloroethene	ND	10	"	"	"	"	"	"	
1,2-Dichloropropane	ND	10	"	"	"	"	"	"	
Bromodichloromethane	ND	10	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	10	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Tetrachloroethene	ND	10	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	10	"	"	"	"	"	"	
Chlorobenzene	ND	10	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	20	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*100 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*71.0 %*	*50-150*		"	"	"	"	

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Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (W008696-06) Water Sampled: 31-Aug-00 10:42 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	**3.1**	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**30**	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**18**	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*98.0 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*73.0 %*	*50-150*		"	"	"	"	

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383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (W008696-07) Water Sampled: 31-Aug-00 11:10 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	**5.0**	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**70**	5.0	"	5	"	"	14-Sep-00	"	
cis-1,2-Dichloroethene	**150**	5.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	1	"	"	13-Sep-00	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*91.0 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*67.0 %*	*50-150*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (W008696-08) Water Sampled: 31-Aug-00 11:40 Received: 31-Aug-00 17:25									
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	**12**	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	**1.9**	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**50**	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**32**	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*110 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*74.0 %*	*50-150*		"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Dup0800 (W008696-09) Water	**Sampled: 31-Aug-00 11:55**	**Received: 31-Aug-00 17:25**							
Chloromethane	ND	2.0	ug/l	1	0I13010	13-Sep-00	13-Sep-00	EPA 8010B	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Chloroethane	**9.9**	1.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethene	**1.6**	1.0	"	"	"	"	"	"	
Methylene chloride	ND	10	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.0	"	"	"	"	"	"	
1,1-Dichloroethane	**43**	1.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**27**	1.0	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	2.0	"	"	"	"	"	"	
Trichloroethene	ND	1.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.0	"	"	"	"	"	"	
Bromodichloromethane	ND	1.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	1.0	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.0	"	"	"	"	"	"	
Chlorobenzene	ND	1.0	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	0.50	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.0	"	"	"	"	"	"	
Surrogate: Dibromodifluoromethane		*110 %*	*50-150*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*75.0 %*	*50-150*		"	"	"	"	

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Harding-Lawson Associates - Oakland 383 Fourth Street Oakland CA, 94607	Project: Port of Oakland Project Number: 43145.4 Project Manager: Steve Osborne	**Reported:** 27-Sep-00 14:52

Anions by EPA Method 300.0

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (W008696-02) Water Sampled: 31-Aug-00 08:35 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**220**	1.0	"	"	"	"	"	"	
MW-6 (W008696-03) Water Sampled: 31-Aug-00 09:04 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**340**	10	"	100	"	"	"	"	
MW-7 (W008696-04) Water Sampled: 31-Aug-00 09:37 Received: 31-Aug-00 17:25									
Nitrate as NO3	**4.8**	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**120**	1.0	"	"	"	"	"	"	
MW-8 (W008696-05) Water Sampled: 31-Aug-00 10:09 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**440**	10	"	100	"	"	"	"	
MW-1 (W008696-06) Water Sampled: 31-Aug-00 10:42 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**59**	1.0	"	"	"	"	"	"	
MW-2 (W008696-07) Water Sampled: 31-Aug-00 11:10 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**9.0**	1.0	"	"	"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Anions by EPA Method 300.0

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (W008696-08) Water Sampled: 31-Aug-00 11:40 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	6.4	1.0	"	"	"	"	"	"	
Dup0800 (W008696-09) Water Sampled: 31-Aug-00 11:55 Received: 31-Aug-00 17:25									
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	6.4	1.0	"	"	"	"	"	"	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Conventional Chemistry Parameters by APHA/EPA Methods

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (W008696-01) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**183**	80.0	mg/l	80	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-5 (W008696-02) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**48.4**	20.0	mg/l	20	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-6 (W008696-03) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**72.5**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-7 (W008696-04) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**33.5**	20.0	mg/l	20	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-8 (W008696-05) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**109**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-1 (W008696-06) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**63.3**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-2 (W008696-07) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**141**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
MW-4 (W008696-08) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**90.4**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	
Dup0800 (W008696-09) Water	**Sampled: 31-Aug-00 00:00**	**Received: 31-Aug-00 17:25**							
Total Organic Carbon	**96.2**	40.0	mg/l	40	0090349	18-Sep-00	18-Sep-00	EPA 415.1	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I13003 - EPA 5030B [P/T]										
Blank (0I13003-BLK1)				Prepared & Analyzed: 13-Sep-00						
Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*30.5*		"	*30.0*		*102*	*70-130*			
LCS (0I13003-BS1)				Prepared & Analyzed: 13-Sep-00						
Benzene	20.8	0.50	ug/l	20.0		104	70-130			
Toluene	20.9	0.50	"	20.0		104	70-130			
Ethylbenzene	21.1	0.50	"	20.0		106	70-130			
Xylenes (total)	61.0	0.50	"	60.0		102	70-130			
Surrogate: a,a,a-Trifluorotoluene	*27.8*		"	*30.0*		*92.7*	*70-130*			
LCS Dup (0I13003-BSD1)				Prepared & Analyzed: 13-Sep-00						
Benzene	21.6	0.50	ug/l	20.0		108	70-130	3.77	20	
Toluene	21.8	0.50	"	20.0		109	70-130	4.22	20	
Ethylbenzene	22.1	0.50	"	20.0		111	70-130	4.63	20	
Xylenes (total)	63.9	0.50	"	60.0		107	70-130	4.64	20	
Surrogate: a,a,a-Trifluorotoluene	*27.6*		"	*30.0*		*92.0*	*70-130*			
Matrix Spike (0I13003-MS1)	**Source: W008689-02**			Prepared & Analyzed: 13-Sep-00						
Benzene	21.7	0.50	ug/l	20.0	ND	109	70-130			
Toluene	22.0	0.50	"	20.0	ND	110	70-130			
Ethylbenzene	22.1	0.50	"	20.0	ND	111	70-130			
Xylenes (total)	64.1	0.50	"	60.0	ND	107	70-130			
Surrogate: a,a,a-Trifluorotoluene	*26.2*		"	*30.0*		*87.3*	*70-130*			

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I13003 - EPA 5030B [P/T]										
Matrix Spike Dup (0I13003-MSD1)	**Source: W008689-02**			Prepared & Analyzed: 13-Sep-00						**Q-07**
Benzene	17.2	0.50	ug/l	20.0	ND	86.0	70-130	23.1	20	
Toluene	17.6	0.50	"	20.0	ND	88.0	70-130	22.2	20	
Ethylbenzene	21.8	0.50	"	20.0	ND	109	70-130	1.37	20	
Xylenes (total)	59.6	0.50	"	60.0	ND	99.3	70-130	7.28	20	
Surrogate: a,a,a-Trifluorotoluene	*27.3*		*"*	*30.0*		*91.0*	*70-130*			
Batch 0I14002 - EPA 5030B [P/T]										
Blank (0I14002-BLK1)				Prepared & Analyzed: 14-Sep-00						
Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Methyl tert-butyl ether	ND	2.5	"							
Surrogate: a,a,a-Trifluorotoluene	*28.4*		*"*	*30.0*		*94.7*	*70-130*			
LCS (0I14002-BS1)				Prepared & Analyzed: 14-Sep-00						
Benzene	17.3	0.50	ug/l	20.0		86.5	70-130			
Toluene	18.3	0.50	"	20.0		91.5	70-130			
Ethylbenzene	19.5	0.50	"	20.0		97.5	70-130			
Xylenes (total)	61.8	0.50	"	60.0		103	70-130			
Surrogate: a,a,a-Trifluorotoluene	*26.8*		*"*	*30.0*		*89.3*	*70-130*			
Matrix Spike (0I14002-MS1)	**Source: W009115-02**			Prepared & Analyzed: 14-Sep-00						
Benzene	16.4	0.50	ug/l	20.0	ND	82.0	70-130			
Toluene	17.4	0.50	"	20.0	ND	87.0	70-130			
Ethylbenzene	18.1	0.50	"	20.0	ND	90.5	70-130			
Xylenes (total)	55.0	0.50	"	60.0	ND	91.7	70-130			
Surrogate: a,a,a-Trifluorotoluene	*27.8*		*"*	*30.0*		*92.7*	*70-130*			

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I14002 - EPA 5030B [P/T]										
Matrix Spike Dup (0I14002-MSD1)		**Source: W009115-02**		Prepared & Analyzed: 14-Sep-00						
Benzene	17.6	0.50	ug/l	20.0	ND	88.0	70-130	7.06	20	
Toluene	18.7	0.50	"	20.0	ND	93.5	70-130	7.20	20	
Ethylbenzene	19.5	0.50	"	20.0	ND	97.5	70-130	7.45	20	
Xylenes (total)	59.2	0.50	"	60.0	ND	98.7	70-130	7.36	20	
Surrogate: a,a,a-Trifluorotoluene	*28.3*		"	*30.0*		*94.3*	*70-130*			

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Custom Extractable Hydrocarbons by DHS LUFT - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I07011 - EPA 3510B										
Blank (0I07011-BLK1)				Prepared: 07-Sep-00 Analyzed: 09-Sep-00						
Jet-A (C9-C17)	ND	50	ug/l							
Diesel Range Hydrocarbons	ND	50	"							
Motor Oil (C16-C36)	ND	50	"							
Surrogate: n-Pentacosane	*28.3*		"	*33.3*		*85.0*	*50-150*			
LCS (0I07011-BS1)				Prepared: 07-Sep-00 Analyzed: 09-Sep-00						
Diesel Range Hydrocarbons	298	50	ug/l	500		59.6	50-140			
Surrogate: n-Pentacosane	*21.3*		"	*33.3*		*64.0*	*50-150*			
LCS Dup (0I07011-BSD1)				Prepared: 07-Sep-00 Analyzed: 09-Sep-00						
Diesel Range Hydrocarbons	386	50	ug/l	500		77.2	60-140	25.7	50	
Surrogate: n-Pentacosane	*24.0*		"	*33.3*		*72.1*	*50-150*			

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Total Metals by EPA 6000/7000 Series Methods - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I05025 - 200.7										
Blank (0I05025-BLK1)				Prepared: 05-Sep-00 Analyzed: 12-Sep-00						
Ferric Iron	ND	0.010	mg/l							
Ferrous Iron	ND	0.010	"							
LCS (0I05025-BS1)				Prepared: 05-Sep-00 Analyzed: 12-Sep-00						
Ferric Iron	0.882	0.010	mg/l	1.00		88.2	80-120			
Ferrous Iron	0.882	0.010	"	1.00		88.2	80-120			
LCS Dup (0I05025-BSD1)				Prepared: 05-Sep-00 Analyzed: 12-Sep-00						
Ferric Iron	0.865	0.010	mg/l	1.00		86.5	80-120	1.95	20	
Ferrous Iron	0.865	0.010	"	1.00		86.5	80-120	1.95	20	

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I13010 - EPA 5030B [P/T]										
Blank (0I13010-BLK1)			Prepared & Analyzed: 13-Sep-00							
Chloromethane	ND	2.0	ug/l							
Vinyl chloride	ND	1.0	"							
Bromomethane	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	0.50	"							
Freon 113	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	10	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
,2-Dichloroethane	ND	2.0	"							
Trichloroethene	ND	1.0	"							
,2-Dichloropropane	ND	1.0	"							
Bromodichloromethane	ND	1.0	"							
cis-1,3-Dichloropropene	ND	1.0	"							
trans-1,3-Dichloropropene	ND	0.50	"							
,1,2-Trichloroethane	ND	0.50	"							
Tetrachloroethene	ND	1.0	"							
Dibromochloromethane	ND	0.50	"							
,2-Dibromoethane	ND	1.0	"							
Chlorobenzene	ND	1.0	"							
Bromoform	ND	0.50	"							
,2,3-Trichloropropane	ND	0.50	"							
,1,2,2-Tetrachloroethane	ND	0.50	"							
1,3-Dichlorobenzene	ND	0.50	"							
,4-Dichlorobenzene	ND	1.0	"							
,2-Dichlorobenzene	ND	2.0	"							
Surrogate: Dibromodifluoromethane	*9.80*		"	*10.0*		*98.0*	*50-150*			
urrogate: 4-Bromofluorobenzene	*7.00*		"	*10.0*		*70.0*	*50-150*			

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Volatile Organic Compounds by EPA Method 8010B - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I13010 - EPA 5030B [P/T]										
LCS (0I13010-BS1)				Prepared & Analyzed: 13-Sep-00						
1,1-Dichloroethene	24.0	1.0	ug/l	20.0		120	65-135			
Trichloroethene	17.0	1.0	"	20.0		85.0	70-130			
Chlorobenzene	15.0	1.0	"	20.0		75.0	70-130			
Surrogate: Dibromodifluoromethane	*10.0*		"	*10.0*		*100*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*7.60*		"	*10.0*		*76.0*	*50-150*			
Matrix Spike (0I13010-MS1)		**Source: W008696-03**		Prepared & Analyzed: 13-Sep-00						
1,1-Dichloroethene	25.0	1.0	ug/l	20.0	ND	125	60-140			
Trichloroethene	17.0	1.0	"	20.0	ND	85.0	60-140			
Chlorobenzene	16.0	1.0	"	20.0	ND	80.0	60-140			
Surrogate: Dibromodifluoromethane	*9.70*		"	*10.0*		*97.0*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*7.70*		"	*10.0*		*77.0*	*50-150*			
Matrix Spike Dup (0I13010-MSD1)		**Source: W008696-03**		Prepared & Analyzed: 13-Sep-00						
1,1-Dichloroethene	26.0	1.0	ug/l	20.0	ND	130	60-140	3.92	25	
Trichloroethene	18.0	1.0	"	20.0	ND	90.0	60-140	5.71	25	
Chlorobenzene	17.0	1.0	"	20.0	ND	85.0	60-140	6.06	25	
Surrogate: Dibromodifluoromethane	*9.80*		"	*10.0*		*98.0*	*50-150*			
Surrogate: 4-Bromofluorobenzene	*7.80*		"	*10.0*		*78.0*	*50-150*			

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Anions by EPA Method 300.0 - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I05017 - General Preparation										
Blank (0I05017-BLK1)				Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	ND	0.10	mg/l							
Orthophosphate as PO4	ND	0.50	"							
Sulfate as SO4	ND	0.10	"							
LCS (0I05017-BS1)				Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	9.88	0.10	mg/l	10.0		98.8	80-120			
Orthophosphate as PO4	18.7	0.50	"	20.0		93.5	80-120			
Sulfate as SO4	9.87	0.10	"	10.0		98.7	80-120			
Matrix Spike (0I05017-MS1)	**Source: W008694-01**			Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	103	2.0	mg/l	100	7.0	96.0	75-125			
Orthophosphate as PO4	174	10	"	200	ND	87.0	75-125			
Sulfate as SO4	118	2.0	"	100	23	95.0	75-125			
Matrix Spike Dup (0I05017-MSD1)	**Source: W008694-01**			Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	104	2.0	mg/l	100	7.0	97.0	75-125	0.966	20	
Orthophosphate as PO4	182	10	"	200	ND	91.0	75-125	4.49	20	
Sulfate as SO4	118	2.0	"	100	23	95.0	75-125	0	20	

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0090349 - General Preparation										
Blank (0090349-BLK1)				Prepared & Analyzed: 18-Sep-00						
Total Organic Carbon	ND	1.00	mg/l							
LCS (0090349-BS1)				Prepared & Analyzed: 18-Sep-00						
Total Organic Carbon	40.7	2.00	mg/l	40.0		102	80-120			
Matrix Spike (0090349-MS1)		Source: P009023-01		Prepared & Analyzed: 18-Sep-00						
Total Organic Carbon	39.9	4.00	mg/l	40.0	ND	99.8	75-125			
Matrix Spike Dup (0090349-MSD1)		Source: P009023-01		Prepared & Analyzed: 18-Sep-00						
Total Organic Carbon	40.5	4.00	mg/l	40.0	ND	101	75-125	1.49	20	

Sequoia Analytical

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Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			This is a modified report
			Data was included from Transfer File: \\Wc-server01\Elm\TransferIn\W008696 TRANSFER PET 09 19 00 112
0I13003-MSD1	TPH-G/B/M	Toluene	Exceeds RPD limit
0I13003-MSD1	TPH-G/B/M	Benzene	Exceeds RPD limit
0I13003-MSD1	TPH-G/B/M		Q-07
0I13010-BLK1	8010B Halo Vol Org H		At least one missing analyte
0I13010-BLK2	8010B Halo Vol Org H		At least one missing analyte
0I13010-BLK3	8010B Halo Vol Org H		At least one missing analyte
0I13010-BLK4	8010B Halo Vol Org H		At least one missing analyte
W008696-01	8010B Halo Vol Org H		At least one missing analyte
W008696-01	TPH-G/B/M		P-05
W008696-02	8010B Halo Vol Org H		At least one missing analyte
W008696-03	8010B Halo Vol Org H		At least one missing analyte
W008696-04	8010B Halo Vol Org H		At least one missing analyte
W008696-05	8010B Halo Vol Org H		At least one missing analyte
W008696-05	TPH-D/Jet/MO silica	Jet-A (C9-C17)	D-14
W008696-05	TPH-D/Jet/MO silica	Diesel Range Hydrocarbons	D-14
W008696-05	TPH-G/B/M	a,a,a-Trifluorotoluene	Exceeds upper control limit
W008696-05	TPH-G/B/M	a,a,a-Trifluorotoluene	S-02
W008696-06	8010B Halo Vol Org H		At least one missing analyte
W008696-06	TPH-D/Jet/MO silica	Motor Oil (C16-C36)	D-14
W008696-06	TPH-D/Jet/MO silica	Jet-A (C9-C17)	D-14
W008696-06	TPH-D/Jet/MO silica	Diesel Range Hydrocarbons	D-14
W008696-06	TPH-G/B/M		P-01
W008696-07	8010B Halo Vol Org H		At least one missing analyte
W008696-07	TPH-D/Jet/MO silica	Diesel Range Hydrocarbons	D-16
W008696-07	TPH-D/Jet/MO silica	n-Pentacosane	Exceeds upper control limit
W008696-07	TPH-D/Jet/MO silica	n-Pentacosane	S-04
W008696-07	TPH-D/Jet/MO silica	Motor Oil (C16-C36)	D-12
W008696-07	TPH-D/Jet/MO silica	Jet-A (C9-C17)	D-14
W008696-07	TPH-G/B/M		P-01
W008696-08	8010B Halo Vol Org H		At least one missing analyte
W008696-08	TPH-D/Jet/MO silica	n-Pentacosane	S-04
W008696-08	TPH-D/Jet/MO silica	Jet-A (C9-C17)	D-14
W008696-08	TPH-D/Jet/MO silica	n-Pentacosane	Exceeds upper control limit
W008696-08	TPH-D/Jet/MO silica	Jet-A (C9-C17)	D-04
W008696-08	TPH-D/Jet/MO silica	Diesel Range Hydrocarbons	D-14
W008696-08	TPH-D/Jet/MO silica	Motor Oil (C16-C36)	D-14
W008696-08	TPH-G/B/M		P-01
W008696-09	8010B Halo Vol Org H		At least one missing analyte
W008696-09	TPH-D/Jet/MO silica	n-Pentacosane	Exceeds upper control limit
W008696-09	TPH-D/Jet/MO silica	Diesel Range Hydrocarbons	D-14

Dimple Sharma, Project Manager

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	27-Sep-00 14:52

Notes and Definitions

CC-3	Continuing Calibration indicates that the quantitative result for this analyte includes a greater than 15% degree of uncertainty. The value as reported is within method acceptance.
D-04	Chromatogram Pattern: Jet Fuel C9-C17.
D-12	Chromatogram Pattern: Unidentified Hydrocarbons > C16
D-14	Chromatogram Pattern: Unidentified Hydrocarbons C9-C24
D-16	Chromatogram Pattern: Diesel C9-C24 + Unidentified Hydrocarbons < C16
P-01	Chromatogram Pattern: Gasoline C6-C12
P-05	Chromatogram Pattern: Unidentified Hydrocarbons >C8
Q-07	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

W008696 № 2612

CHAIN OF CUSTODY FORM

Harding Lawson Associates
383 Fourth Street, Third Floor
Oakland, California 94607
(510) 451-1001 - Phone
(510) 451-3165 - Fax

Lab: Sequoia

Job Number: 43145.4

Name/Location: Port of Oakland - Economy Parking

Project Manager: Steve Osborne

Samplers: Heather Lee

Recorder: Heather Lee (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	Ice	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Day	Time	STATION DESCRIPTION/NOTES
	X							5	X	MW	-	3	00	08	31	0810	01A-E
	X				4		1	5	X	MW	-	5	00	08	31	0835	02A-J
	X				4		1	5	X	MW	-	6	00	08	31	0904	03 ↓
	X				4		1	5	X	MW	-	7	00	08	31	0937	04
	X				4		1	5	X	MW	-	8	00	08	31	1009	05
	X				4		1	5	X	MW	-	1	00	08	31	1042	06
	X				4		1	5	X	MW	-	2	00	08	31	1110	07
	X				4		1	5	X	MW	-	4	00	08	31	1140	08
	X				4		1	5	X	DUP	08	00	00	08	31	1155	09
	X				1		1			MW	-	3A	00	08	31	1215	10 AB

ANALYSIS REQUESTED

Sample	EPA 8010 purgeable halocarbons	EPA 8020	EPA 8260	EPA 8270	METALS	EPA 8015M/TPHG	EPA 8020/BTEX/MTBE	EPA 8015M/TPHd	TPHmo, TPHj (A) with	silica gel cleanup	EPA 415.1 TOC	Nitrate	Sulfate	Orthophosphate	Ferrous Iron*	Ferric Iron
01	X					X	X				X					
02	X					X	X	X			X	X	X	X	X	X
03	X					X	X	X			X	X	X	X	X	X
04	X					X	X	X			X	X	X	X	X	X
05	X					X	X	X			X	X	X	X	X	X
06	X					X	X	X			X	X	X	X	X	X
07	X					X	X	X			X	X	X	X	X	X
08	X					X	X	X			X	X	X	X	X	X
09	X					X	X	X			X	X	X	X	X	X
10															X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						* 24 hr hold time on Ferrous Iron
						Standard TAT

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
Heather Lee	Mark [illegible]	8·31 1510
Mark [illegible]	Ronald Jensen WC	8/31/00 17:25

DISPATCHED BY: (Signature) DATE/TIME

RECEIVED FOR LAB BY: (Signature) DATE/TIME

METHOD OF SHIPMENT

SAMPLE CONDITION WHEN RECEIVED BY THE LABORATORY

Laboratory Copy Project Office Copy Field or Office Copy

Sequoia
Analytical

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21 September, 2000

Steve Osborne
Harding-Lawson Associates - Oakland
383 Fourth Street
Oakland, CA 94607

RE: Port of Oakland
Sequoia Report: W009020

Enclosed are the results of analyses for samples received by the laboratory on 01-Sep-00 15:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dimple Sharma
Project Manager

CA ELAP Certificate #1271

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	21-Sep-00 14:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3B	W009020-01	Water	01-Sep-00 09:05	01-Sep-00 15:41

Sequoia Analytical - Walnut Creek

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dimple Sharma, Project Manager

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	21-Sep-00 14:07

Custom Extractable Hydrocarbons by DHS LUFT

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3B (W009020-01) Water	**Sampled: 01-Sep-00 09:05**	**Received: 01-Sep-00 15:41**							
Jet-A (C9-C17)	**6300**	250	ug/l	5	0I13005	13-Sep-00	15-Sep-00	DHS LUFT	D-14
Diesel Range Hydrocarbons	**6600**	250	"	"	"	"	"	"	D-13
Motor Oil (C16-C36)	**2100**	1300	"	"	"	"	"	"	D-14
Surrogate: n-Pentacosane		*140 %*	*50-150*		"	"	"	"	

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	21-Sep-00 14:07

Anions by EPA Method 300.0

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3B (W009020-01) Water	**Sampled: 01-Sep-00 09:05**	**Received: 01-Sep-00 15:41**							
Nitrate as NO3	ND	1.0	mg/l	10	0I05017	01-Sep-00	01-Sep-00	EPA 300.0	
Orthophosphate as PO4	ND	5.0	"	"	"	"	"	"	
Sulfate as SO4	**640**	10	"	100	"	"	"	"	

Sequoia Analytical

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Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	21-Sep-00 14:07

Custom Extractable Hydrocarbons by DHS LUFT - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I13005 - EPA 3510B										
Blank (0I13005-BLK1)				Prepared: 13-Sep-00 Analyzed: 14-Sep-00						
Jet-A (C9-C17)	ND	50	ug/l							
Diesel Range Hydrocarbons	ND	50	"							
Motor Oil (C16-C36)	ND	250	"							
Surrogate: n-Pentacosane	*29.3*		"	*33.3*		*88.0*	*50-150*			
LCS (0I13005-BS1)				Prepared: 13-Sep-00 Analyzed: 19-Sep-00						
Diesel Range Hydrocarbons	308	50	ug/l	500		61.6	60-140			
Surrogate: n-Pentacosane	*24.3*		"	*33.3*		*73.0*	*50-150*			
LCS Dup (0I13005-BSD1)				Prepared: 13-Sep-00 Analyzed: 19-Sep-00						
Diesel Range Hydrocarbons	456	50	ug/l	500		91.2	60-140	38.7	50	
Surrogate: n-Pentacosane	*33.7*		"	*33.3*		*101*	*50-150*			

Sequoia Analytical

404 N. Wiget Lane
Walnut Creek, CA 94598
(925) 988-9600
FAX (925) 988-9673
www.sequoialabs.com

Harding-Lawson Associates - Oakland	Project: Port of Oakland	
383 Fourth Street	Project Number: 43145.4	**Reported:**
Oakland CA, 94607	Project Manager: Steve Osborne	21-Sep-00 14:07

Anions by EPA Method 300.0 - Quality Control

Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0I05017 - General Preparation										
Blank (0I05017-BLK1)				Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	ND	0.10	mg/l							
Orthophosphate as PO4	ND	0.50	"							
Sulfate as SO4	ND	0.10	"							
LCS (0I05017-BS1)				Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	9.88	0.10	mg/l	10.0		98.8	80-120			
Orthophosphate as PO4	18.7	0.50	"	20.0		93.5	80-120			
Sulfate as SO4	9.87	0.10	"	10.0		98.7	80-120			
Matrix Spike (0I05017-MS1)	**Source: W008694-01**			Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	103	2.0	mg/l	100	7.0	96.0	75-125			
Orthophosphate as PO4	174	10	"	200	ND	87.0	75-125			
Sulfate as SO4	118	2.0	"	100	23	95.0	75-125			
Matrix Spike Dup (0I05017-MSD1)	**Source: W008694-01**			Prepared & Analyzed: 01-Sep-00						
Nitrate as NO3	104	2.0	mg/l	100	7.0	97.0	75-125	0.966	20	
Orthophosphate as PO4	182	10	"	200	ND	91.0	75-125	4.49	20	
Sulfate as SO4	118	2.0	"	100	23	95.0	75-125	0	20	

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Notes and Definitions

D-13	Chromatogram Pattern: Diesel C9-C24
D-14	Chromatogram Pattern: Unidentified Hydrocarbons C9-C24
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

WOC9020 No. 2615

CHAIN OF CUSTODY FORM

Lab: Sequoia

Harding Lawson Associates
383 Fourth Street, Third Floor
Oakland, California 94607
(510) 451-1001 - Phone
(510) 451-3165 - Fax

Samplers: Heather Lee

Job Number: 43145.41

Name/Location: Port of Oakland - Economy Parking

Project Manager: Steve Osborne

Recorder: Heather Lee (Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	Ice	SAMPLE NUMBER OR LAB NUMBER: Yr	Wk	Seq	DATE: Yr	Mo	Day	Time	STATION DESCRIPTION/ NOTES
	X				3				X	MW	-	3B	00	09	01	0905	C1A-C

ANALYSIS REQUESTED

EPA 8010	EPA 8020	EPA 8260	EPA 8270	METALS	EPA 8015M/TPHG	EPA 8020/BTEX	EPA 8015M/TPHd	TPHmo, TPHjet A with silica gel cleanup	Nitrate	Sulfate	Orthophosphate
							X		X	X	X

LAB NUMBER: Yr	Wk	Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
						Standard TAT

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Heather Lee	RECEIVED BY: (Signature) Mark Cole	DATE/TIME 9-1 1318
RELINQUISHED BY: (Signature) Mark Cole	RECEIVED BY: (Signature) WC	DATE/TIME 9/1/00 15:41
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature) Kenneth Jensen	DATE/TIME
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE/TIME
DISPATCHED BY: (Signature) DATE/TIME	RECEIVED FOR LAB BY: (Signature)	DATE/TIME
METHOD OF SHIPMENT		
SAMPLE CONDITION WHEN RECEIVED BY THE LABORATORY		

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink