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MACTEC

February 13, 2003

Project 53087.4

Mr. Jeff Christoff
Blue Print Service Company
149 Second Street
San Francisco, California 94105

Quarterly Groundwater Remediation and Monitoring Report
October 1, 2002 through December 31, 2002
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

Dear Mr. Christoff:

MACTEC Engineering and Consulting, Inc., (formerly Harding ESE) presents this quarterly status letter-report on the groundwater monitoring and remedial activities at the BPS Reprographic Services (BPS) facility located at 1700 Jefferson Street in Oakland, California (Plate 1). This letter-report covers the period from October 1, 2002 through December 31, 2002, and was prepared to satisfy the quarterly groundwater monitoring requirements of the Alameda County Department of Health Care Services (ACHCS).

BACKGROUND

Three underground gasoline storage tanks were removed from the property in 1987 and a preliminary soil and groundwater investigation indicated that a release of fuel into the subsurface had occurred. Three groundwater-monitoring wells (MW-1, MW-2, and MW-3) were installed on the property to evaluate the distribution of petroleum hydrocarbons in the groundwater and to determine the direction of groundwater flow. Free phase hydrocarbon (FPH) was found in MW-1. Groundwater level measurements indicated that the local groundwater gradient was in a north to northeast direction.

In November 1987, monitoring well MW-2 was abandoned to facilitate the construction of the present BPS facility and, in January 1988, two additional wells, MW-1A and MW-4, were installed as groundwater extraction wells. MACTEC also installed one offsite monitoring well, MW-5, in August 1988 and a second offsite well, MW-6, in April 1996. The monitoring well locations are shown on Plate 1.

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In 1992, a groundwater extraction system was constructed at the site to remove FPH from the groundwater surface. Groundwater was extracted from MW-1A and MW-4 and passed through an oil-water separator that removed the FPH. The water was then drawn into a 3,000-gallon bioreactor tank for treatment by hydrocarbon reducing microbes. Air and nutrients were supplied to the water within the bioreactor to facilitate microbial growth. The treated water from the bioreactor was pumped in batches of approximately 500 gallons through three granular activated carbon vessels before discharge under a wastewater discharge permit from the East Bay Utility District to the sanitary sewer. The treatment system processed approximately 1,385,490 gallons of groundwater and an estimated 5,062 pounds of FPH were recovered.

The Groundwater Monitoring Plan was approved by the Regional Water Quality Control Board in a letter dated January 31, 1997 which outlined the procedures for groundwater sampling using the non-purge method. The first quarter that the new Groundwater Monitoring Plan was implemented, sampling included duplicate sampling using both the purge and non-purge methods (see MACTEC's quarterly report, dated October 25, 1999).

By 1999, the oil-water separator was no longer recovering FPH and FPH was no longer present in any of the groundwater monitoring wells. Dissolved hydrocarbon concentrations were decreasing and MACTEC requested approval from ACHCS to terminate groundwater extraction and to modify the remediation technique to insitu-bioremediation using an oxygen-releasing compound (ORC™). ORC™ is manufactured and distributed by Regenesis, Inc.; its purpose is to increase the concentration of dissolved oxygen (DO) in the groundwater and to augment the ability of naturally occurring microbial organisms in the groundwater to biodegrade the dissolved petroleum hydrocarbons. ACHCS approved this plan in a letter dated September 28, 1999, following the submittal of an ORC™ calculation sheet and a Groundwater Monitoring Plan, dated September 23, 1999.

MACTEC implemented the *in situ* remediation technique by placing ORC™ in treatment wells: MW-1A, MW-3, MW-4, and MW-5 on September 29, 1999. The ORC™ is contained in fabric "socks" which release oxygen over time until the compound's oxygen releasing potential is depleted. MACTEC installed five socks in each treatment well at the approximate depth of the well's screened interval.

FOURTH QUARTER 2002 GROUNDWATER SAMPLING AND ANALYSIS

In accordance with the Groundwater Monitoring Plan, MACTEC removed the ORC™ socks approximately two weeks before the scheduled sampling event from Well MW-3 on December 6, 2002. Typically the ORC™ socks are removed from Well MW-5 also, however, upon attempting to remove the socks from Well MW-5 it was discovered that they were stuck. Two attempts were made to remove the socks without success. Due to the ORC™ socks remaining in the well DO measurements were not collected.

The dissolved oxygen (DO) was measured in-situ in wells MW-3, MW-1 and MW-6. The DO measurements are presented in Table 1.

On December 27, 2002, MACTEC conducted the quarterly groundwater sampling of wells MW-1, MW-3, and MW-6 using the non-purge method outlined in the Groundwater Monitoring Plan. On January 3, 2003, MACTEC sampled Well MW-5 using the non-purge method outlined in the Groundwater Monitoring Plan after a second unsuccessful attempt at removing the stuck ORC™ socks. Despite the presence of the ORC™ socks the analytical results are presented in Tables 4 and 5 . Prior to sampling, MACTEC measured the depth to groundwater from the top of casing (TOC) of wells MW-1, MW-3 and MW-6 using an electronic water level indicator. Depth to water in groundwater well MW-5 was not collected due to the presence of the ORC™ socks creating a false groundwater elevation.

These measurements are displayed on Plate 2 and tabulated in Table 2. To collect the groundwater samples, MACTEC raised dedicated Teflon tubing contained in each well until the submerged end of the tubing was 2 to 4 feet below the groundwater surface and connected the dry end of the tubing to a peristaltic pump with silicon tubing. New silicon tubing was used to sample each well. After removing the approximate volume of groundwater equal to the volume capacity of the Teflon tubing, MACTEC measured the groundwater's conductivity, pH, DO, and temperature and collected a sample in laboratory provided 40-milliliter vials. The groundwater parameter measurements are also presented in Table 1.

Immediately after sample collection, MACTEC labeled and stored the samples in a cooler with ice. The groundwater samples were kept chilled until submitted to Sequoia Analytical Laboratory (Sequoia), a California state-certified laboratory, under chain-of-custody protocol for the following analyses:

- Total petroleum hydrocarbons as gasoline (TPHg) in accordance with EPA Method 8015 modified;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) in accordance with EPA Method 8020.
- Methyl tertiary butyl ether (MTBE) in accordance with EPA Method 8020 with confirmation of detections by EPA Method 8260.
- Tert-amyl methyl ether (TAME), Tert-butyl alcohol (TBA), Di-isopropyl ether (DIPE), Ethylene Dibromide (EDB), Ethyl tert Butyl Ether (ETBE) and Ethylene Dichloride (EDC),

The analytical results for TPH-g, BTEX and MTBE are displayed on Plates 3 and 4. Analytical results for TAME, TBA, DIPE, EDB, ETBE and EDC are displayed on Table 5. These analyses were performed per the request of the ACHCS as described in the ACHCS September 27, 2002 letter to BPS. The certified laboratory reports are presented in the Appendix A.

Typically, the ORC™ socks are re-installed or replaced in the treatment wells after each sampling event. Upon completion of the Fourth Quarter 2002 groundwater sampling event, MACTEC did not install or replace the ORC™ socks in any wells. The ORC™ socks were not installed or replaced to satisfy the ACHCS request that groundwater samples be collected after DO levels have returned to background levels. Groundwater will be monitored for DO levels during the First Quarter 2003 sampling event prior to sampling to confirm that the DO levels have returned to background levels.

DISCUSSION

As shown in Table 2 and on Plate 5, the groundwater surface elevation decreased an average of.0.24 feet across the site as compared to the 3rd quarter of 2002 measurements. Using the groundwater elevations from MW-1, MW-3 and MW-6 as measured on December 27, 2002, groundwater contours were created and are shown on Plate 2. Based on the groundwater elevations, the groundwater gradient ranges from 0.004 to 0.006 ft/ft from the southwest to the west. At the time MW-5 was constructed, the groundwater flow direction was reportedly north to northeast, and MW-5 was considered a downgradient well. However, presumably because of the construction of new buildings in the immediate vicinity, which extend below the groundwater surface, recent groundwater monitoring has indicated the groundwater flow has changed and been typically in a west to northwest direction.

Table 3 displays a summary of historical groundwater sample results through September 29, 1999, when the typical purge and sample protocol was terminated. Table 4 displays historical groundwater sample results since instituting *in situ* bioremediation and a non-purge sampling protocol. Plate 3 and Plate 4 present the sample results from this quarter's sampling event.

As shown on Table 4 and Plate 3, concentrations of TPH-g, BTEX and MTBE remained within the range of historical values for all the wells sampled. TPH-g ranged from non-detectable with a detection limit of 0.05 mg/L (MW-6) to 28 mg/L (MW-1). Benzene ranged from non-detectable with a detection limit of 0.05 ug/L (MW-6) to 110 mg/L (MW-3). MTBE was not detected in MW-6 (detection limit of 2.5 ug/L), MW-5 (detection limit of 25 ug/L) and MW-1 (detection limit of 120 ug/L). MTBE was detected in MW-3 at a concentration of 19 ug/L and remains within the range of historical values. A laboratory provided trip blank consisting of organic free water was transported to and from the sampling site with the samples described above. The trip blank was analyzed for TPH-g, BTEX and MTBE with the groundwater samples using EPA Method 8015M/8020M. The trip blank was reported to be free of contamination.

Analytical results for TAME, TBA, DIPE, EDB, ETBE and EDC are displayed on Table 5. None of these analytes were detected in any of the groundwater samples collected from MW-1, MW-3, MW-5 and MW-6 except for EDC. EDC was detected in the sample collected from MW-5 at a concentration of

220 ug/L. As described above these analyses were performed per the request of the ACHCS as described in the ACHCS September 27, 2002 letter to BPS.

The DO content in the groundwater in Well MW-3 immediately following the removal of the ORC™ socks on December 6, 2002 was 0.90 milligrams per liter (mg/L). The DO content in this well two weeks after removal of the ORC™ socks did not change significantly (0.96 mg/L). The low concentration of DO in the well on December 6 and December 27, 2002 suggest that the ORC™ socks may have become depleted and were due for replacement. ORC™ sock were not replaced in any of the wells because the ACHCS requested that the DO concentration in the monitoring wells at this site be allowed to return to background levels prior to the next sampling event (First Quarter 2003). During the First Quarter 2003 the wells should be monitored for DO to confirm that DO background levels are present before the next sampling event.

Typically, DO is monitored in MW-5 two weeks prior to sampling and immediately before sampling as described for MW-3. The two DO concentration values are then compared. The ORC™ socks remains stuck in MW-5 despite two removal attempts incorporating an industrial winch and tripod and, therefore, DO was not monitored. ORC™ socks can become stuck in monitoring wells when the well casing has become disturbed or bent. This can typically be caused by even minor seismic occurrences in the area of the well. MACTEC is currently in the process of generating a work-plan incorporating a drill rig to attempt removal of the ORC™ socks.

RECOMMENDATIONS

MACTEC recommends continued quarterly monitoring utilizing the procedures outlined in the Groundwater Monitoring Plan since the hydrocarbon ranges reported are still within historical ranges. MACTEC recommends analysis of the ORC™ socks effectiveness as prescribed by the ACHCS before continuing their use at the site. This analysis may be performed during the First Quarter 2003 for inclusion in the First Quarter 2003 Groundwater Monitoring Report. Additionally, MACTEC recommends performing the following actions as requested in the ACHCS September 27, 2002 letter during the First Quarter 2003 sampling event:

- Perform pre- and post-purge DO and turbidity measurements to determine if groundwater is flowing through the wells.

- After determining that groundwater is flowing through the wells, collect pre- and post –purge groundwater samples including DO, pH, temperature, conductivity and turbidity parameters to verify consistency in chemical concentrations in the wells. Include analysis of pre- and post purge data in the First Quarter 2003 Groundwater Monitoring Report.

Additionally, MACTEC recommends removing the ORC™ socks from MW-5 as the well is not useful as a monitoring point while they remain stuck. It may be necessary to install a new well if removal of the socks damages the well. MACTEC will be providing a cost estimate and work plan to remove the socks to BPS Services.

MACTEC recommends that Blue Print Services send a copy of this report to the following address:

Mr. Don Hwang
Alameda County
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California, 94502-6577

While under contract to BPS, MACTEC will continue to provide quarterly groundwater monitoring and reporting as required by ACHCS.

If you have any questions, please contact the undersigned at (415) 278-2118.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.

David S. Nanstad
Project Engineer

Basil Falcone, R.E.A No # 07666
Senior Environmental Scientist

REGISTERED ENVIRONMENTAL ASSESSOR CLASS I
BASIL FALCONE
No. 07666
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Attachments:
Table 1 – Groundwater Parameters
Table 2 – Groundwater Elevation Data
Table 3 – Historical Groundwater Monitoring Analytical Results - Using Purge Method
Table 4 – Groundwater Monitoring Analytical Results – Non-Purge Method
Table 5 – Groundwater Monitoring Analytical Results – EPA Method 8260
Plate 1 – Site Map
Plate 2 – Groundwater Contours, December 27, 2002
Plate 3 – TPH-g, BTEX and MTBE Concentrations in Groundwater, December 27, 2002
Plate 4 – BTEX and DO Results
Plate 5 – Groundwater Elevation Data
Appendix A – Laboratory Reports
Appendix B – Groundwater Sampling Forms
Table B1. Sample Location/Sample Description Cross-Reference

Table 1. Groundwater Parameters
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

Dissolved Oxygen (mg/L)	MW-1	MW-3	MW-5	MW-6
9/29/1999	2.90	1.70	0.40	1.80
11/5/1999	4.00	10.30	4.00	2.80
11/22/1999	1.80	2.40	2.00	3.20
1/28/2000	2.90	8.40	3.60	2.20
2/11/2000	2.50	2.30	1.80	3.50
5/12/2000	2.00	7.40	2.40	1.70
5/30/2000	1.90	2.60	1.80	3.20
9/1/2000	2.90	3.40	2.30	2.70
9/15/2000	2.00	1.80	2.20	3.80
11/9/2000	*2.00*	5.00	5.30	*3.80*
11/17/2000	3.10	4.20	3.40	6.00
3/15/2001	2.00	7.00	1.40	2.10
4/2/2001	1.00	0.78	2.00	0.99
6/1/2001	0.22	0.24	6.62	0.32
6/28/2001	0.32	0.56	0.53	0.71
8/16/2001	0.48	6.52	1.61	0.78
8/30/2001	0.33	0.40	0.23	0.46
12/14/2001	0.03	3.76	2.22	0.16
12/26/2001	0.16	0.28	0.19	0.21
4/10/2002	0.55	0.63	0.20	0.37
4/23/2002	0.30	0.35	0.90	0.45
6/3/2002	0.38	5.16	4.32	0.65
6/14/2002	0.29	0.54	0.38	0.31
8/5/2002	0.33	0.28	0.40	0.39
8/14/2002	0.34	0.28	0.42	0.63
12/6/2002	1.00	0.90	NA	0.62
12/27/2002	0.94	0.96	NA	1.24
REDOX (mvolts)				
5/30/2000	-322	197	-128	203
9/15/2000	-269	3	-89	206
11/17/2000	64	178	296	230
4/2/2001	-194	26	-36	102
6/28/2001	-310	-283	-360	107
8/30/2001	NA	NA	NA	NA
12/26/2001	12	11	11	11
4/23/2002	3	62	-299	158
6/14/2002	0	245	-215	254
8/20/2002	-294	-315	-238	228
12/27/2002	-315	-357	NA	-12
Temperature (deg F)				
9/29/1999	67.0	72.6	67.7	73.8
11/22/1999	66.4	62.9	65.0	69.8
2/11/2000	61.3	63.2	62.0	68.5
5/30/2000	77.7	74.8	76.3	76.2
9/15/2000	64.4	64.3	64.7	67.0
11/17/2000	54.5	58.1	68.1	65.9
4/2/2001	65.5	64.9	66.2	66.4
6/28/2001	73.0	71.2	74.7	74.3
8/30/2001	74.8	77.6	78.3	78.7
12/26/2001	65.7	65.8	65.8	65.1
4/23/2002	64.4	69.8	37.1	71.6
6/14/2002	66.7	67.5	66.7	68.0
8/20/2002	64.6	67.6	66.2	68.0
12/27/2002	41.7	42.5	NA	41.7
pH				
9/29/1999	8.39	8.53	8.43	8.44
11/22/1999	6.86	8.42	6.84	6.79
2/11/2000	6.80	6.94	6.83	6.72
5/30/2000	7.02	7.35	7.54	7.56
9/15/2000	7.06	7.54	6.76	6.62
11/17/2000	7.37	7.69	7.12	7.34
4/2/2001	6.98	6.61	7.07	6.96
6/28/2001	6.90	6.74	6.78	6.83
8/30/2001	7.85	7.91	7.9	8.41
12/26/2001	6.23	6.91	7.11	6.72
4/23/2002	6.90	6.95	6.94	6.86
6/14/2002	7.05	7.24	7.08	6.89
8/20/2002	NA	6.89	NA	6.91
12/27/2002	6.33	6.41	NA	6.49
Specific Conductance (µS/cm)				
9/29/1999	976	880	1,577	966
11/22/1999	1,004	1,500	1,352	1,038
2/11/2000	992	1,327	1,275	1,149
5/30/2000	845	1,020	758	924
9/15/2000	800	917	989	1,009
11/17/2000	785	970	742	886
4/2/2001	725	365	839	821
6/28/2001	1080	704	876	1021
8/30/2001	924	1015	975	931
12/26/2001	848	496	333	891
4/23/2002	922	603	848	977
6/14/2002	932	767	810	961
8/20/2002	1015	809	891	985
12/27/2002	956	791	NA	903

Note:
Baseline dissolved oxygen measurement taken on 09/29/99, prior to initial installation of oxygen releasing compound

mg/l = milligrams per liter
mvolts = millivolts
deg F = degrees Fahrenheit
µS/cm = micro-ohms per centimeter
NA = Not Available

Table 2. Groundwater Elevation Data
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

	MW-1		MW-3		MW-5		MW-6		Average
	TOC Elev.	32.36	TOC Elev.	31.77	TOC Elev.	30.56	TOC Elev.	31.26	Change
Date	Water	Water	Water	Water	Water	Water	Water	Water	Since
Sampled	Level	Elevation	Level	Elevation	Level	Elevation	Level	Elevation	Preceding
3/6/1996	NM	--	24.79	6.98	23.53	7.03	NA	--	Quarter
6/11/1996	FP	--	25.60	6.17	23.78	6.78	25.16	6.10	-0.53
9/19/1996	FP	--	26.09	5.68	24.48	6.08	25.76	5.50	-0.60
12/23/1996	FP	--	FP	--	24.83	5.73	25.88	5.38	-0.23
3/27/1997	FP	--	FP	--	23.82	6.74	24.78	6.48	1.06
6/4/1997	26.41	5.95	25.11	6.66	23.92	6.64	24.60	6.66	0.04
9/26/1997	26.80	5.56	25.41	6.36	24.29	6.27	24.80	6.46	-0.32
12/22/1997	26.00	6.36	24.91	6.86	24.02	6.54	24.71	6.55	0.42
3/31/1998	26.06	6.30	24.05	7.72	22.78	7.78	23.75	7.51	0.75
6/18/1998	25.60	6.76	23.71	8.06	22.51	8.05	23.22	8.04	0.40
8/28/1998	25.45	6.91	23.70	8.07	22.74	7.82	22.23	9.03	0.23
12/2/1998	24.92	7.44	23.60	8.17	23.16	7.40	23.72	7.54	-0.32
3/10/1999	24.90	7.46	22.65	9.12	22.82	7.74	23.54	7.72	0.37
6/30/1999	25.53	6.83	23.07	8.70	22.41	8.15	23.04	8.22	-0.04
9/29/1999	24.23	8.13	23.03	8.74	22.81	7.75	23.42	7.84	0.14
11/22/1999	24.33	8.03	23.68	8.09	22.88	7.68	23.64	7.62	-0.26
2/11/2000	24.38	7.98	23.74	8.03	22.74	7.82	23.67	7.59	0.00
5/30/2000	23.57	8.79	22.97	8.80	21.73	8.83	22.82	8.44	0.86
9/15/2000	23.85	8.51	23.12	8.65	22.14	8.42	23.10	8.16	-0.28
11/16/2000	24.14	8.22	23.40	8.37	22.39	8.17	23.41	7.85	-0.28
4/2/2001	23.40	8.96	23.40	8.37	22.07	8.49	23.33	7.93	0.29
6/28/2001	23.58	8.78	23.17	8.60	22.15	8.41	23.15	8.11	0.04
8/30/2001	24.00	8.36	23.35	8.42	22.35	8.21	23.35	7.91	-0.25
12/26/2001	24.18	8.18	23.54	8.23	22.49	8.07	23.27	7.99	-0.11
4/23/2002	NA	NA	22.89	8.88	21.07	9.49	22.89	8.37	0.82
6/14/2002	23.41	8.95	22.85	8.92	21.80	8.76	22.81	8.45	-0.20
8/20/2002	23.85	8.51	23.11	8.66	22.14	8.42	23.15	8.11	-0.31
12/27/2002	24.10	8.26	23.34	8.43	*NA	*NA	23.41	7.85	-0.24

TOC Elev. = top of casing elevation
NM = not monitored
FP = free product
-- = no data collected
NA = not available
* This data not available due to ORC socks stuck in well

Table 3. Historical Groundwater Monitoring Analytical Results - Using Purge Method
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

	Date Sampled													
TPHg (mg/L)	8/1/1991	9/30/1992	3/30/1993	1/13/1994	4/13/1994	6/29/1994	12/8/1994	4/3/1995	6/27/1995	9/19/1995	12/13/1995	3/6/1996	6/11/1996	9/19/1996
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP
MW-1A	350	FP	FP	FP	170	95	190	67	53	52	62	200	140	100
MW-3	74	FP	FP	FP	FP	39	4,600	51	20	6.2	19	7	16	6
MW-4	86	FP	FP	FP	58	16	92	35	13	14	11	110	260	95
MW-5	120	51	74	80	63	64	59	51	41	50	45	51	48	48
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.05)	ND(0.05)
Benzene (µg/L)														
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP
MW-1A	17,000	FP	FP	FP	17,000	16,000	13,000	11,000	11,000	8,900	9,900	14,000	18,000	16,000
MW-3	1,600	FP	FP	FP	FP	3,200	1,500	1,100	270	70	220	120	170	45
MW-4	1,500	FP	FP	FP	1,500	1,100	1,700	1,200	1,300	2,200	630	2,600	6,600	9,900
MW-5	20,000	13,000	16,000	19,000	14,000	29,000	13,000	15,000	12,000	1,600	11,000	15,000	12,000	12,000
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)
Toluene (µg/L)														
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP
MW-1A	31,000	FP	FP	FP	31,000	21,000	21,000	13,000	9,900	9,200	11,000	22,000	28,000	22,000
MW-3	4,600	FP	FP	FP	FP	2,900	4,200	2,300	550	140	480	170	270	30
MW-4	6,200	FP	FP	FP	2,500	790	4,100	3,400	1,600	2,100	470	3,600	19,000	19,000
MW-5	14,000	5,900	5,000	6,200	3,500	5,400	3,800	2,200	2,100	2,700	2,100	2,800	2,900	4,500
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)
Ethylbenzene (µg/L)														
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP
MW-1A	3,000	FP	FP	FP	2,100	1,500	1,400	910	500	210	790	2,700	2,800	2,100
MW-3	670	FP	FP	FP	FP	580	6,000	580	190	68	140	49	68	15
MW-4	3,000	FP	FP	FP	520	51	310	280	77	110	14	780	3,700	2,000
MW-5	1,900	1,400	1,800	1,400	1,500	2,800	1,600	2,800	1,400	2,000	16,000	2,000	2,000	2,300
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)
Xylenes (µg/L)														
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP
MW-1A	22,000	FP	FP	FP	14,000	12,000	11,000	9,800	6,300	6,800	1,300	22,000	19,000	14,000
MW-3	4,300	FP	FP	FP	FP	4,300	95,000	4,800	1,700	500	1,700	440	1,500	300
MW-4	7,300	FP	FP	FP	3,200	3,400	3,400	5,800	1,800	2,100	1,800	10,000	28,000	13,000
MW-5	4,900	2,600	2,700	2,700	2,100	4,500	2,900	4,500	1,600	2,100	1,900	2,400	2,700	4,000
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(2)	ND(2)
MTBE (µg/l)														
MW-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-1A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA

	Date Sampled												
TPHg (mg/L)	12/23/1996	3/27/1997	6/4/1997	9/26/1997	12/23/1997	3/31/1998	6/18/1998	8/28/1998	12/2/1998	3/10/1999	6/30/1999	9/29/1999	11/17/00*
MW-1	FP	FP	68	59	41	44	32	26	26	26	18	21	18
MW-1A	FP	66	54	73	66	51	50	15	41	10	18	NA	NA
MW-3	FP	FP	85	47	32	32	16	17	3.2	9.6	7.9	5.0	1.3
MW-4	FP	37	24	41	48	NA	25	48	10	11	6.8	NA	NA
MW-5	45	44	35	36	39	48	17	16	15	23	7.7	11	1.8
MW-6	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)
Benzene (µg/L)													
MW-1	FP	FP	2,200	6,000	6,800	8,300	1,100	8,600	9,200	8,200	7,000	9,200	3,500
MW-1A	FP	13,000	11,000	10,000	10,000	9,100	11,000	1,100	8,500	2,300	6,400	NA	NA
MW-3	FP	FP	8,500	610	640	690	180	84	39	86	31	120	20
MW-4	FP	2,600	2,600	2,900	6,000	NA	2,000	9,700	1,700	2,300	1,800	NA	NA
MW-5	12,000	11,000	8,900	7,900	13,000	10,000	9,500	3,400	8,400	14,000	5,200	9,600	470
MW-6	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)
Toluene (µg/L)													
MW-1	FP	14,000	4,500	3,000	3,000	3,700	3,800	2,300	4,300	5,900	5,800	10,000	4,300
MW-1A	FP	15,000	12,000	16,000	16,000	11,000	15,000	830	11,000	1,900	7,800	NA	NA
MW-3	FP	FP	13,000	6,000	5,300	3,800	1,500	1,100	85	540	330	340	34
MW-4	FP	6,900	3,700	5,000	11,000	NA	460	11,000	610	3,100	3,000	NA	NA
MW-5	2,200	1,100	560	270	300	400	310	160	120	300	270	710	220
MW-6	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)
Ethylbenzene (µg/L)													
MW-1	FP	FP	1,500	1,600	1,400	1,100	550	730	820	870	950	1,200	640
MW-1A	FP	1,400	1,000	1,400	1,400	1,100	870	31	720	1,600	660	NA	NA
MW-3	FP	FP	2,400	930	800	870	490	430	25	250	200	230	25
MW-4	FP	540	140	350	580	NA	ND(15)	890	ND(15)	88	150	NA	NA
MW-5	2,700	1,900	1,500	1,500	1,900	2,000	420	1,100	1,500	1,600	1,100	1,100	39
MW-6	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.5	ND(0.5)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)	ND(0.30)
Xylenes (µg/L)													
MW-1	FP	FP	11,000	8,600	6,600	4,300	3,000	2,100	2,800	3,500	2,500	5,500	3,200
MW-1A	FP	100	7,200	8,500	12,000	6,800	5,800	3,000	6,700	2,100	4,100	NA	NA
MW-3	FP	FP	16,000	5,900	5,900	5,200	3,700	3,800	360	2,300	1,600	1,300	28
MW-4	FP	5,500	3,500	4,800	8,200	NA	6,400	5,000	2,300	1,600	2,700	NA	NA
MW-5	6,500	2,800	1,700	1,300	1,700	2,200	850	900	840	1,100	690	1,100	100
MW-6	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(0.60)	ND(0.60)	ND(0.60)	ND(0.60)	ND(0.60)	ND(0.60)	ND(0.60)
MTBE (µg/l)													
MW-1	FP	FP	ND(500)	ND(500)	300	420	ND(50)	ND(50)	ND(50)	ND(50)	ND(25)	ND(250)	ND(40)
MW-1A	NA	1,800	ND(500)	ND(500)	1,900	300	ND(50)	ND(50)	ND(50)	ND(50)	ND(25)	NA	NA
MW-3	FP	FP	ND(500)	ND(100)	ND(300)	350	ND(25)	ND(50)	ND(50)	ND(25)	ND(25)	10	ND(5)
MW-4	NA	1,400	ND(300)	ND(500)	270	NA	ND(50)	ND(50)	ND(50)	ND(25)	ND(25)	NA	NA
MW-5	600	300	ND(100)	ND(500)	ND(1000)	350	ND(10)	ND(50)	ND(50)	ND(50)	ND(25)	ND(100)	ND(5)
MW-6	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(5)

TPHg = total petroleum hydrocarbons as gasoline
MTBE = methyl t-butyl ether
(mg/l) milligrams per liter
(µg/l) micrograms per liter

ND = Not detected above the reporting limit in parenthesis
NA = Not analyzed
FP = Free Product - well not sampled
-- = Well did not exist at date indicated

TPHg = total petroleum hydrocarbons as gasoline
MTBE = methyl t-butyl ether
(mg/l) milligrams per liter
(µg/l) micrograms per liter

ND = Not detected above the reporting limit in parenthesis
NA = Not analyzed
FP = Free Product - well not sampled
-- = Well did not exist at date indicated

Table 4. Groundwater Monitoring Analytical Results – Non-Purge Method
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

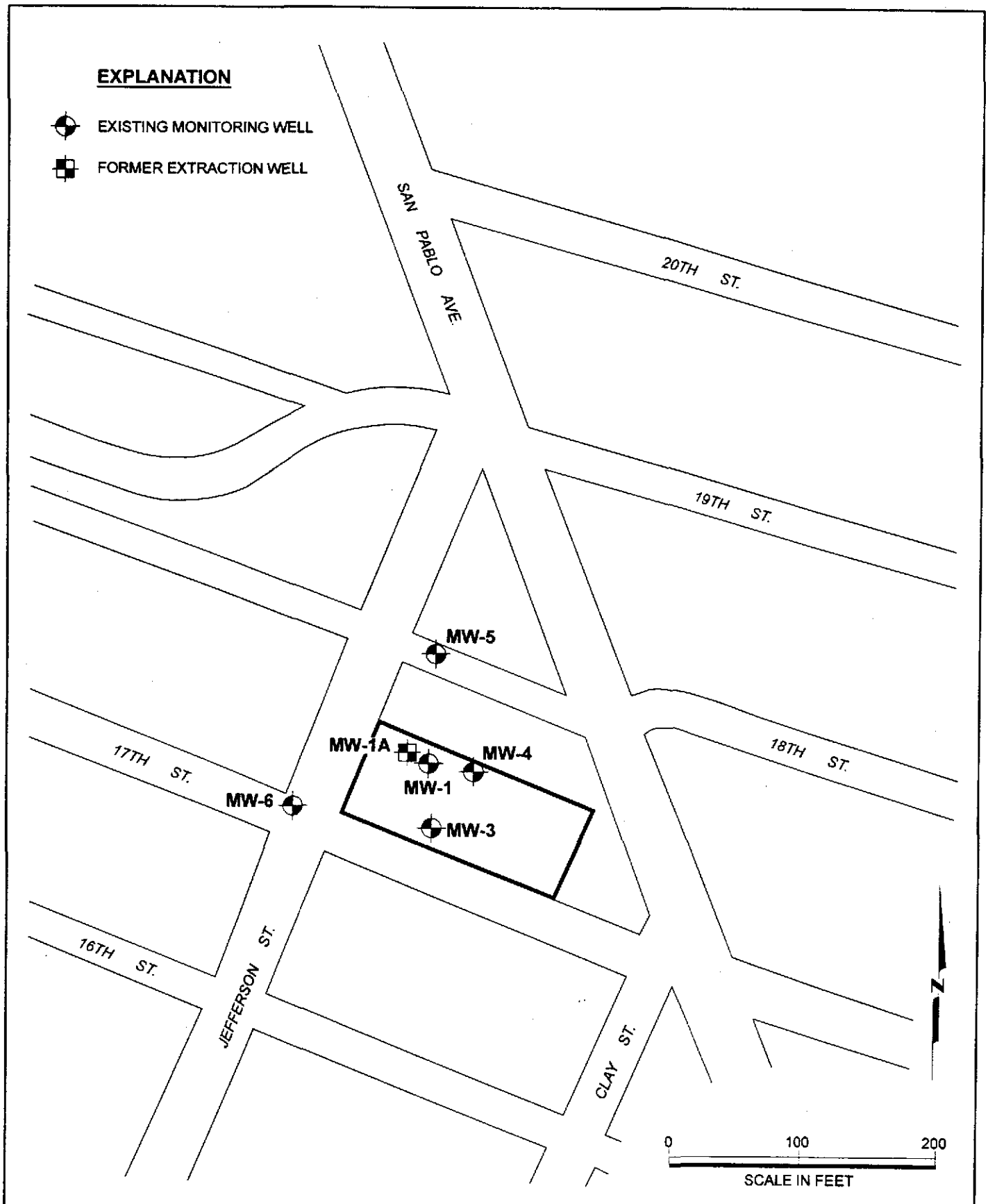
TPHg (mg/L)	9/29/1999	11/22/1999	2/11/2000	5/30/2000	9/15/2000	11/16/2000	4/2/2001	6/28/2001	8/30/2001	12/26/2001	4/24/2002	6/14/2002	8/20/2002	12/27/2002
MW-1	14	24	19	19	20	18	19	39	31	34	35	35	26	28
MW-3	4.1	3.1	0.54	0.49	1.5	1.3	0.17	4.9	3.1	0.95	300	4.6	4.9	4
*MW-5	10	30	23	19	24	1.8	15	3.6	34	1.9	9.4	1.7	3.2	6.2
MW-6	ND<0.5	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05	0.066	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Benzene (µg/L)														
MW-1	6,200	4,900	4,100	5,700	4,100	3,500	4,700	5,200	5,600	5,300	4,900	5400	4100	4,500
MW-3	180	6.5	8.3	11	28	20	9	150	42	8	11	130	330	110
*MW-5	14,000	11,000	12,000	9,900	3,800	470	7,400	300	8,300	300	2,300	110	320	2,200
MW-6	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.30	ND<0.30	ND<0.50	ND<0.50	3.6	ND<0.50	ND<0.50	ND<0.50	ND<0.5
Toluene (µg/L)														
MW-1	5,900	5,000	4,800	8,400	5,700	4,300	5,200	4,200	5,100	5,200	6,000	6,800	4700	5,000
MW-3	340	33	20	5.6	14	34	6.2	240	48	5.2	4.8	470	170	280
*MW-5	470	3,400	4,500	6,900	3,000	220	3,000	11	3,000	110	130	ND<2.5	8.6	140
MW-6	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.30	ND<0.30	2.9	ND<0.50	3.6	ND<0.50	ND<0.50	ND<0.50	ND<0.05
Ethylbenzene (µg/L)														
MW-1	620	730	530	730	540	640	570	660	560	630	740	870	620	660
MW-3	130	27	2.4	0.45	2.6	25	1.4	38	26	1.1	0.72	91	40	57
*MW-5	1,100	1,500	1,200	1,200	460	39	1000	16	1,400	55	300	7.2	22	160
MW-6	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.30	ND<0.30	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.5
Xylenes (µg/L)														
MW-1	3,500	3,500	2,800	3,500	2,700	3,200	2,600	3,900	2,500	2,400	3,100	3500	2700	3,000
MW-3	580	260	28	17	160	28	8.1	160	210	7	1.4	390	150	260
*MW-5	600	2,500	1,300	2,600	1,200	100	2,200	15	2,600	120	270	ND<2.5	19	250
MW-6	ND<0.6	ND<0.6	ND<0.6	ND<0.6	ND<0.6	ND<0.60	ND<0.30	2.7	ND<0.50	8.7	ND<0.50	ND<0.50	ND<0.50	ND<0.5
MTBE (µg/L) (EPA Method 8020)														
MW-1	ND<250	ND<100	6.6	ND<5.0[1]	ND<12 [1,2]	ND<40[1,2]	50 [1]	8.5 [1]	ND<100[1,2]	ND<120	ND<120	ND<250	ND<120	ND(120)
MW-3	14	ND<1.0	31	ND<5.0[1]	ND<5 [1]	ND<5 [1]	77 [1]	ND<2 [1]	ND<1.2 [1]	ND<0.50[1]	ND<0.50[1]	ND<0.50[1]	ND<5 [1]	19
*MW-5	ND<100	ND<100	6.6	ND<200	ND<10 [1,2]	ND<5 [1]	ND<50[1]	4.4 [1]	ND<50[1]	ND<10[1]	ND<50	ND<0.50[1]	ND<0.50[1]	ND(25)
MW-6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	5 [1,3]	17 [1]	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND(2.5)

mg/l = milligrams per liter
µg/l = micrograms per liter
ND = Not detected above the reporting limit following the less than sign
MTBE = methyl t-butyl ether
1 Result of MTBE confirmation by EPA Method 8260.
2 Reporting limits have been elevated due to matrix interference.
3 Detection limit = 5 ug/L., Backup sample analyzed after hold time had a result of ND< 5 µg/l.
* = Analytical data collected for MW-5 on January 3, 2003

Table 5. Groundwater Monitoring Analytical Results
EPA Method 8260
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

tert Amyl Methyl Ether (µg/L)	12/27/2002
MW-1	ND<250
MW-3	ND<25
*MW-5	ND<100
MW-6	ND<1
Ethyl tert Butyl Ether (µg/L)	
MW-1	ND<250
MW-3	ND<25
*MW-5	ND<100
MW-6	ND<1
Di-isopropyl Ether (µg/L)	
MW-1	ND<250
MW-3	ND<25
*MW-5	ND<100
MW-6	ND<1
tert Butyl Alcohol (µg/L)	
MW-1	ND<5000
MW-3	ND<500
*MW-5	ND<2000
MW-6	ND<20
Ethylene Dibromide (µg/L)	
MW-1	ND<120
MW-3	ND<12
*MW-5	ND<50
MW-6	ND<0.5
Ethylene Dichloride (µg/L)	
MW-1	370
MW-3	ND<12
*MW-5	220
MW-6	ND<0.5

µg/l = micrograms per liter
ND = Not detected above the reporting limit following the less than sign
* = Analytical data collected for MW-5 on January 3, 2003

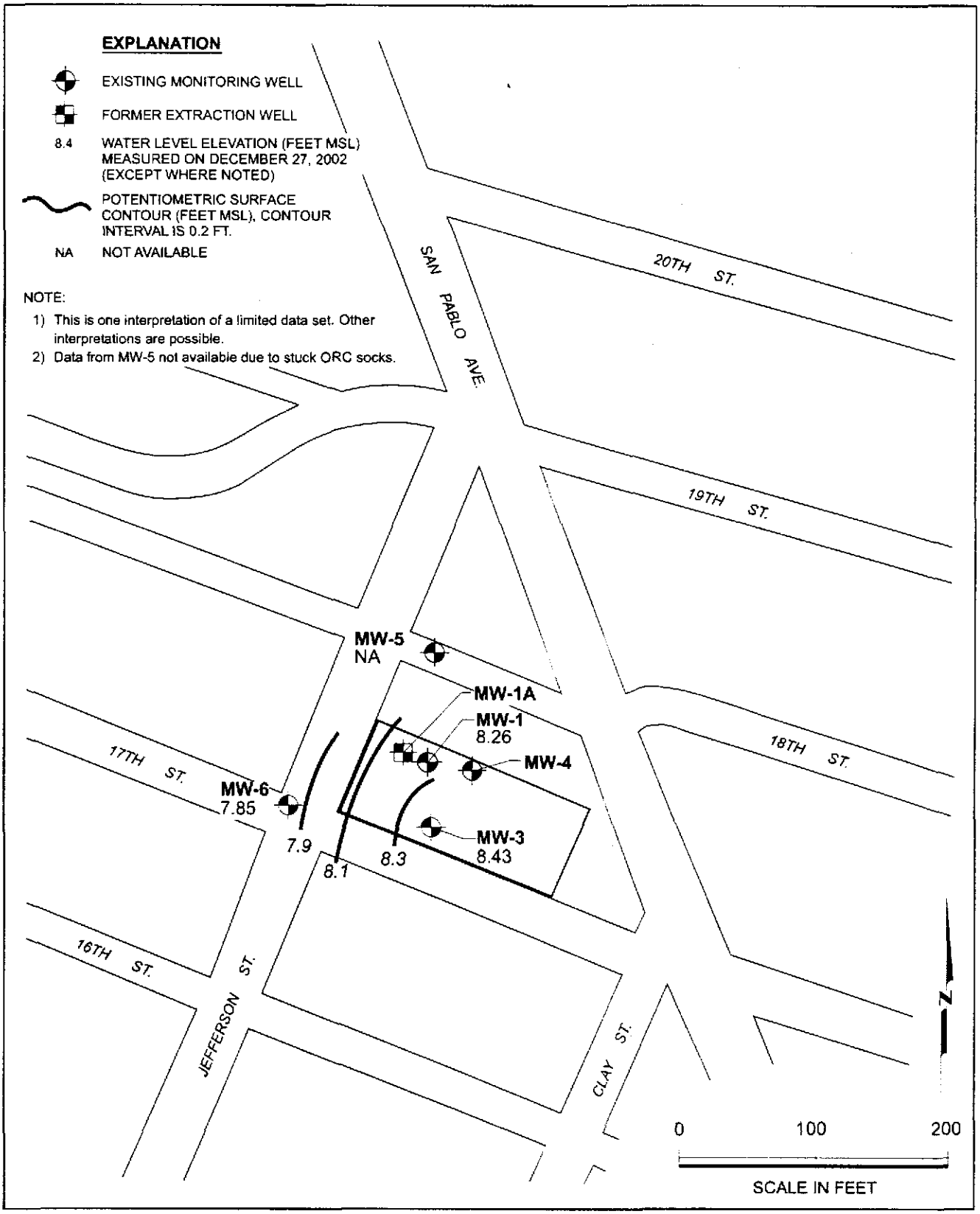


MACTEC

Site Map
December 27, 2002
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

PLATE
1

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
CN	53087 004		2/03	

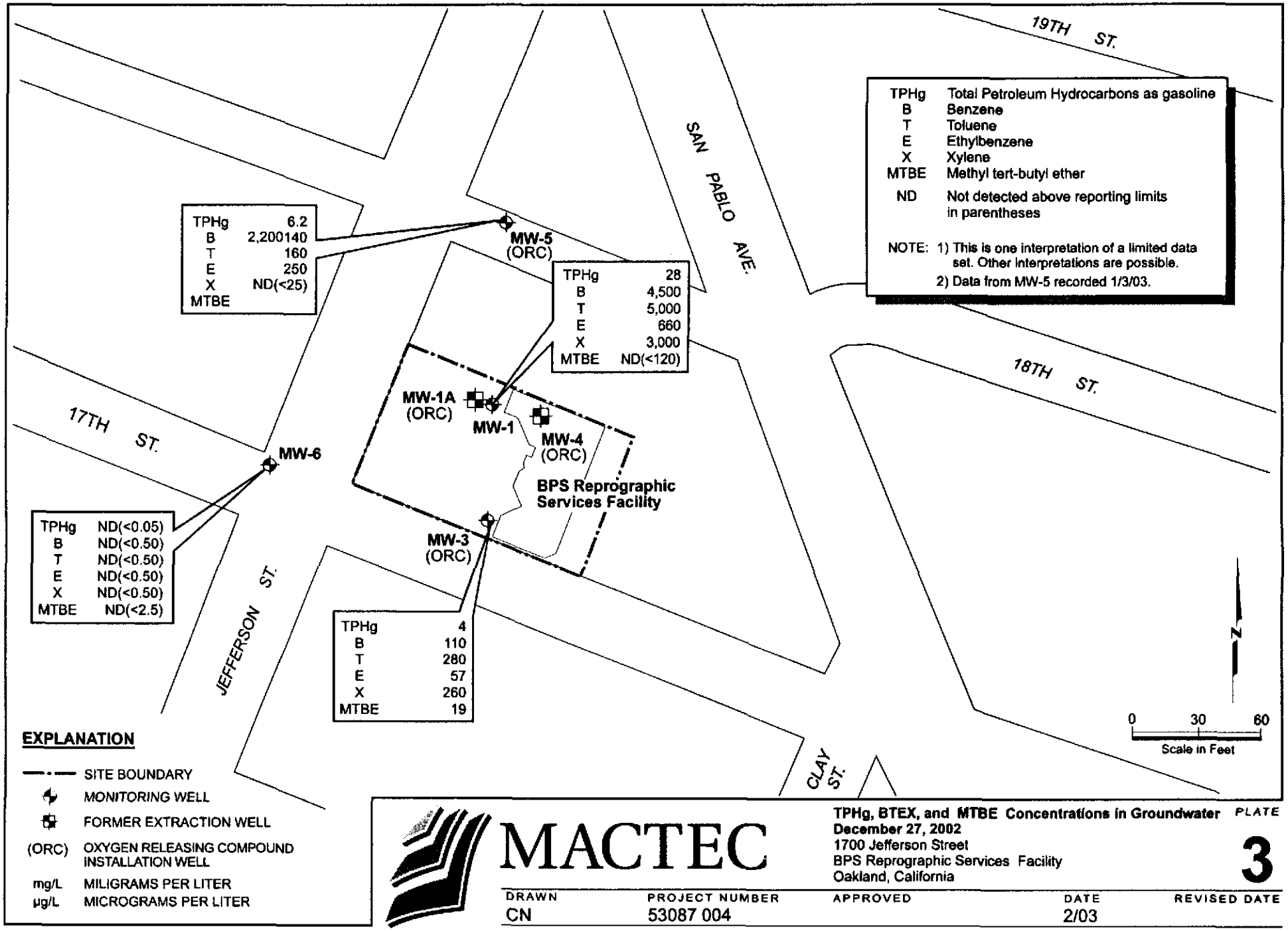


MACTEC

Groundwater Contours
December 27, 2002
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

PLATE
2

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
CN	53087 004		2/03	



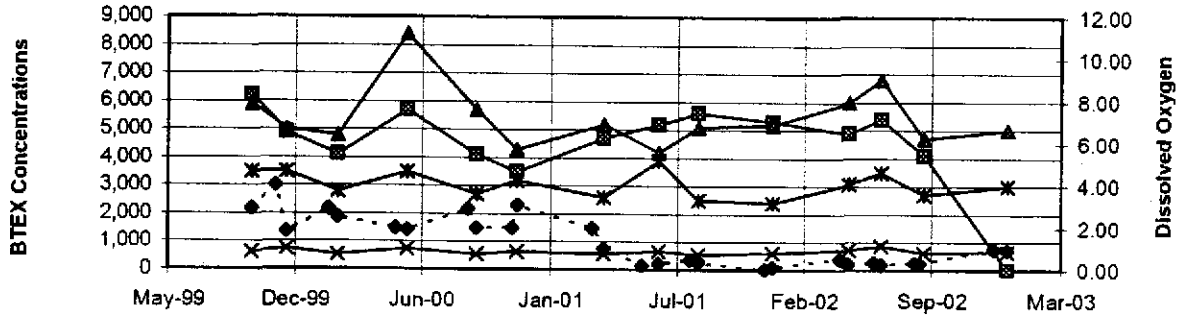
MACTEC

TPHg, BTEX, and MTBE Concentrations in Groundwater PLATE
December 27, 2002
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

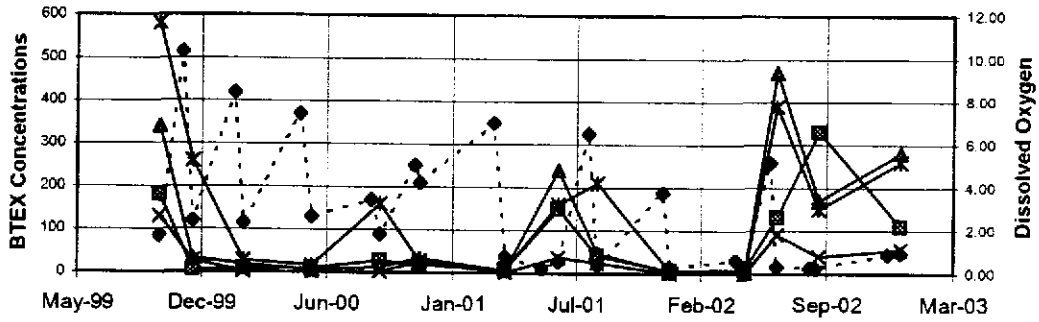
3

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
CN	53087 004		2/03	

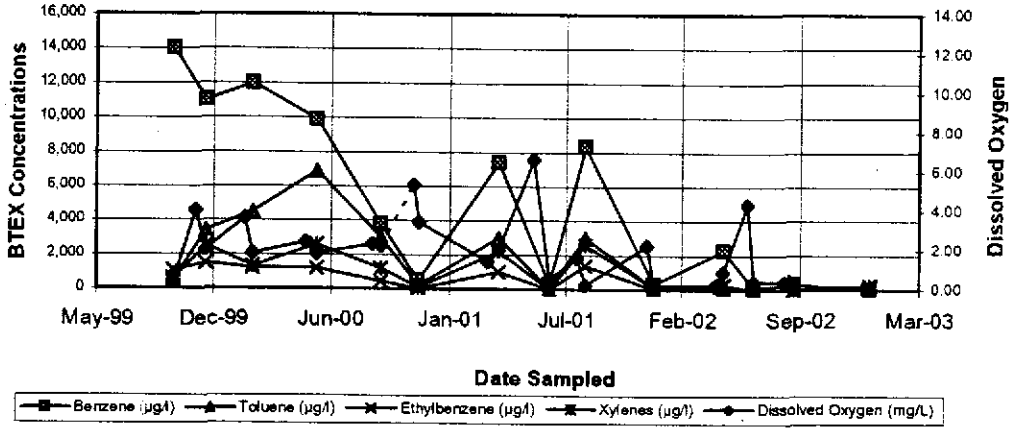
MW-1



MW-3



MW-5



Harding ESE
A MACTEC COMPANY

BTEX and DO Results
Quarterly Groundwater Monitoring Report
BPS Reprographic Services Facility
1700 Jefferson Steet
Oakland, California

Plate
4

Drawn by	JOB NUMBER	APPROVED	DATE	REVISED DATE
DSN	53087.004		1/20/2003	

APPENDIX A

LABORATORY REPORTS

Sequoia Analytical

1455 McDowell Blvd. North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

15 January, 2003

David Nanstad
Harding ESE - SF
28 2nd Street, Suite 700
San Francisco, CA 94105

RE: City Blue
Sequoia Work Order: P212525

Enclosed are the results of analyses for samples received by the laboratory on 12/27/02 14:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michelle M. Wiita
Project Manager

CA ELAP Certificate #2374

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0252001	P212525-01	Water	12/27/02 09:15	12/27/02 14:25
0252002	P212525-02	Water	12/27/02 09:30	12/27/02 14:25
0252003	P212525-03	Water	12/27/02 10:00	12/27/02 14:25
0252004	P212525-04	Water	12/27/02 10:30	12/27/02 14:25

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015B/8021B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0252001 (P212525-01) Water Sampled: 12/27/02 09:15 Received: 12/27/02 14:25									
Gasoline Range Organics	ND	50	ug/l	1	3010009	01/02/03	01/02/03	EPA 8015B/8021B	
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		*89 %*		*65-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92 %*		*65-135*	"	"	"	"	
0252002 (P212525-02) Water Sampled: 12/27/02 09:30 Received: 12/27/02 14:25									
Gasoline Range Organics	**4000**	100	ug/l	2	3010009	01/02/03	01/02/03	EPA 8015B/8021B	
Benzene	**110**	1.0	"	"	"	"	"	"	
Toluene	**280**	1.0	"	"	"	"	"	"	
Ethylbenzene	**57**	1.0	"	"	"	"	"	"	
Xylenes (total)	**260**	1.0	"	"	"	"	"	"	
Methyl tert-butyl ether	**19**	5.0	"	"	"	"	"	"	QR-04
Surrogate: a,a,a-Trifluorotoluene		*103 %*		*65-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91 %*		*65-135*	"	"	"	"	
0252003 (P212525-03) Water Sampled: 12/27/02 10:00 Received: 12/27/02 14:25									
Gasoline Range Organics	**28000**	2500	ug/l	50	3010009	01/02/03	01/02/03	EPA 8015B/8021B	
Benzene	**4500**	25	"	"	"	"	"	"	
Toluene	**5000**	25	"	"	"	"	"	"	
Ethylbenzene	**660**	25	"	"	"	"	"	"	
Xylenes (total)	**3000**	25	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	120	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*103 %*		*65-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89 %*		*65-135*	"	"	"	"	

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015B/8021B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0252004 (P212525-04) Water Sampled: 12/27/02 10:30 Received: 12/27/02 14:25									**HDSP**
Gasoline Range Organics	ND	50	ug/l	1	3010009	01/02/03	01/02/03	EPA 8015B 8021B	
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		*103 %*		*65-135*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90 %*		*65-135*	"	"	"	"	

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0252001 (P212525-01) Water Sampled: 12/27/02 09:15 Received: 12/27/02 14:25									
Tert-amyl methyl ether	ND	1.0	ug/l	1	3010193	01/10/03	01/10/03	EPA 8260B	
Tert-butyl alcohol	ND	20	"	"	"	"	"	"	
Di-isopropyl ether	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*105 %*		*84-122*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*102 %*		*74-135*	"	"	"	"	
Surrogate: Toluene-d8		*88 %*		*84-119*	"	"	"	"	
0252002 (P212525-02) Water Sampled: 12/27/02 09:30 Received: 12/27/02 14:25									**R-05**
Tert-amyl methyl ether	ND	25	ug/l	25	3010193	01/10/03	01/10/03	EPA 8260B	
Tert-butyl alcohol	ND	500	"	"	"	"	"	"	
Di-isopropyl ether	ND	25	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	12	"	"	"	"	"	"	
1,2-Dichloroethane	ND	12	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	25	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	12	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*76 %*		*84-122*	"	"	"	"	*S-04*
Surrogate: 1,2-Dichloroethane-d4		*74 %*		*74-135*	"	"	"	"	
Surrogate: Toluene-d8		*86 %*		*84-119*	"	"	"	"	
0252003 (P212525-03) Water Sampled: 12/27/02 10:00 Received: 12/27/02 14:25									
Tert-amyl methyl ether	ND	250	ug/l	250	3010193	01/10/03	01/10/03	EPA 8260B	
Tert-butyl alcohol	ND	5000	"	"	"	"	"	"	
Di-isopropyl ether	ND	250	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	120	"	"	"	"	"	"	
1,2-Dichloroethane	**370**	120	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	250	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*85 %*		*84-122*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*84 %*		*74-135*	"	"	"	"	
Surrogate: Toluene-d8		*79 %*		*84-119*	"	"	"	"	*S-04*

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0252004 (P212525-04) Water Sampled: 12/27/02 10:30 Received: 12/27/02 14:25									**HDSP**
Tert-amyl methyl ether	ND	1.0	ug/l	1	3010193	01/10/03	01/10/03	EPA 8260B	
Tert-butyl alcohol	ND	20	"	"	"	"	"	"	
Di-isopropyl ether	ND	1.0	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*107 %*		*84-122*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*102 %*		*74-135*	"	"	"	"	
Surrogate: Toluene-d8		*88 %*		*84-119*	"	"	"	"	

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015B/8021B - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3010009 - EPA 5030, waters										
Blank (3010009-BLK1)				Prepared & Analyzed: 01/02/03						
Gasoline Range Organics	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	*302*		"	*300*		*101*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*274*		"	*300*		*91*	*65-135*			
Laboratory Control Sample (3010009-BS1)				Prepared & Analyzed: 01/02/03						
Gasoline Range Organics	2570	50	ug/l	2750		93	65-135			
Benzene	41.8	0.50	"	34.0		123	65-135			
Toluene	212	0.50	"	208		102	65-135			
Ethylbenzene	47.8	0.50	"	49.0		98	65-135			
Xylenes (total)	228	0.50	"	241		95	65-135			
Methyl tert-butyl ether	68.7	2.5	"	56.0		123	65-135			
Surrogate: a,a,a-Trifluorotoluene	*342*		"	*300*		*114*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*292*		"	*300*		*97*	*65-135*			
Laboratory Control Sample Dup (3010009-BSD1)				Prepared & Analyzed: 01/02/03						
Gasoline Range Organics	2550	50	ug/l	2750		93	65-135	0.8	20	
Benzene	41.1	0.50	"	34.0		121	65-135	2	20	
Toluene	203	0.50	"	208		98	65-135	4	20	
Ethylbenzene	47.0	0.50	"	49.0		96	65-135	2	20	
Xylenes (total)	224	0.50	"	241		93	65-135	2	20	
Methyl tert-butyl ether	72.0	2.5	"	56.0		129	65-135	5	20	
Surrogate: a,a,a-Trifluorotoluene	*327*		"	*300*		*109*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*292*		"	*300*		*97*	*65-135*			

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3010193 - EPA 5030 waters										
Blank (3010193-BLK1)				Prepared & Analyzed: 01/10/03						
Tert-amyl methyl ether	ND	1.0	ug/l							
Tert-butyl alcohol	ND	20	"							
Di-isopropyl ether	ND	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
Ethanol	ND	100	"							
Ethyl tert-butyl ether	ND	1.0	"							
Methyl tert-butyl ether	ND	0.50	"							
Surrogate: Dibromofluoromethane	*6.08*		"	*5.80*		*105*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*5.84*		"	*5.80*		*101*	*74-135*			
Surrogate: Toluene-d8	*5.04*		"	*5.80*		*87*	*84-119*			
Laboratory Control Sample (3010193-BS1)				Prepared & Analyzed: 01/10/03						
Methyl tert-butyl ether	0.996	0.50	ug/l	1.00		100	79-118			
Surrogate: Dibromofluoromethane	*5.42*		"	*5.80*		*93*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*5.26*		"	*5.80*		*91*	*74-135*			
Surrogate: Toluene-d8	*5.97*		"	*5.80*		*103*	*84-119*			
Laboratory Control Sample Dup (3010193-BSD1)				Prepared & Analyzed: 01/10/03						
Methyl tert-butyl ether	0.983	0.50	ug/l	1.00		98	79-118	1	20	
Surrogate: Dibromofluoromethane	*5.76*		"	*5.80*		*99*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*5.50*		"	*5.80*		*95*	*74-135*			
Surrogate: Toluene-d8	*6.02*		"	*5.80*		*104*	*84-119*			

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Harding ESE - SF	Project: City Blue	P212525
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/15/03 15:54

Notes and Definitions

HDSP	The sample aliquot was taken from a VOA vial with headspace (air bubble greater than 6 mm diameter) which may have resulted in the loss of volatile analytes.
QR-04	Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
R-05	The sample was diluted due to the presence of high levels of non-target analytes resulting in elevated reporting limits.
S-04	The surrogate recovery for this sample is outside control limits due to interference from the sample matrix.
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

Harding ESE
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Novato, CA 94949
(415) 883-0112

CHAIN OF CUSTODY FORM

Seq. No.: Nº 010674

Lab: Sequoia Analytical

Samplers: David Browne

Job Number: 53087.004

Name/Location: City Blue

Project Manager: David Nanstad

Recorder: David Browne (Signature Required)

MATRIX: Water	Soil	Air	#CONTAINERS & PRESERV.: Unpres	H_2SO_4	HNO_3	HCl		SAMPLE NUMBER: YR	SEQ	DATE: YR	MO	DAY	TIME	STATION DESCRIPTION	DEPTH
X						3		02	52001	02	12	27	0915	P212525-01	
X						3		02	52002	02	12	27	0930	2	
X						3		02	52003	02	12	27	1000	3	
X						1		02	52004	02	12	27	1030	4	

ANALYSIS REQUESTED

Gasoline Range Organics 8015B	Diesel Range Organics 8015B	* BTEX plus MTBE (8020)	CCR Title 22 Metals (17)	EPA 8021B	EPA 8260B	EPA 8270C	TPHgas 8015M	TAME	ETBE	DIPE	TBA	EDB	EDC
		X					X	X	X	X	X	X	X
		X					X	X	X	X	X	X	X
		X					X	X	X	X	X	X	X
		X					X	X	X	X	X	X	X

ADDITIONAL INFORMATION

SAMPLE NUMBER: YR	SEQ	TURNAROUND TIME/REMARKS
		STANDARD TAT
		* Detection of MTBE are to be confirmed using EPA Method 8260

CHAIN OF CUSTODY RECORD

	(Print Name)	(Company)	Date/Time
Relinquished By (signature): David Browne	David Browne	Harding ESE	12/27/02
Received By (signature): Alfredo Lorenzo	Alfredo Lorenzo	SEQUOIA	12/27/02 1425
Relinquished By (signature):			
Received By (signature):			
Relinquished By (signature):			
Received By (signature):			
Received By (signature):			

Method of Shipment:

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20 January, 2003

David Nanstad
Harding ESE - SF
28 2nd Street, Suite 700
San Francisco, CA 94105

RE: City Blue
Sequoia Work Order: P301024

Enclosed are the results of analyses for samples received by the laboratory on 01/03/03 17:07. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mark Shipman For Michelle M. Wiita
Project Manager

CA ELAP Certificate #2374

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0301001	P301024-01	Water	01/03/03 08:40	01/03/03 17:07

Sequoia Analytical

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015B/8021B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0301001 (P301024-01) Water Sampled: 01/03/03 08:40 Received: 01/03/03 17:07									
Gasoline Range Organics	**6200**	500	ug/l	10	3010064	01/06/03	01/06/03	EPA 8015B/8021B	
Benzene	**2200**	5.0	"	"	"	"	"	"	
Toluene	**140**	5.0	"	"	"	"	"	"	
Ethylbenzene	**160**	5.0	"	"	"	"	"	"	
Xylenes (total)	**250**	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	25	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*103 %*	*65-135*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88 %*	*65-135*		"	"	"	"	

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

Volatile Organic Compounds by EPA Method 8260B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
0301001 (P301024-01) Water Sampled: 01/03/03 08:40 Received: 01/03/03 17:07									
Tert-amyl methyl ether	ND	100	ug/l	100	3010383	01/16/03	01/16/03	EPA 8260B	
Tert-butyl alcohol	ND	2000	"	"	"	"	"	"	
Di-isopropyl ether	ND	100	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	50	"	"	"	"	"	"	
1,2-Dichloroethane	**220**	50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	100	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*	*84-122*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*74-135*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*84-119*		"	"	"	"	

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

Total Petroleum Hydrocarbons as Gasoline and BTEX by EPA 8015B/8021B - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3010064 - EPA 5030, waters										
Blank (3010064-BLK1)				Prepared & Analyzed: 01/06/03						
Gasoline Range Organics	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	*310*		"	*300*		*103*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*269*		"	*300*		*90*	*65-135*			
Laboratory Control Sample (3010064-BS1)				Prepared & Analyzed: 01/06/03						
Gasoline Range Organics	2480	50	ug/l	2750		90	65-135			
Benzene	41.2	0.50	"	34.0		121	65-135			
Toluene	204	0.50	"	208		98	65-135			
Ethylbenzene	47.4	0.50	"	49.0		97	65-135			
Xylenes (total)	227	0.50	"	241		94	65-135			
Methyl tert-butyl ether	68.2	2.5	"	56.0		122	65-135			
Surrogate: a,a,a-Trifluorotoluene	*332*		"	*300*		*111*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*285*		"	*300*		*95*	*65-135*			
Laboratory Control Sample Dup (3010064-BSD1)				Prepared & Analyzed: 01/06/03						
Gasoline Range Organics	2500	50	ug/l	2750		91	65-135	0.8	20	
Benzene	41.1	0.50	"	34.0		121	65-135	0.2	20	
Toluene	203	0.50	"	208		98	65-135	0.5	20	
Ethylbenzene	47.4	0.50	"	49.0		97	65-135	0	20	
Xylenes (total)	226	0.50	"	241		94	65-135	0.4	20	
Methyl tert-butyl ether	67.5	2.5	"	56.0		121	65-135	1	20	
Surrogate: a,a,a-Trifluorotoluene	*327*		"	*300*		*109*	*65-135*			
Surrogate: 4-Bromofluorobenzene	*289*		"	*300*		*96*	*65-135*			

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3010383 - EPA 5030 waters										
Blank (3010383-BLK1)				Prepared & Analyzed: 01 16/03						
Tert-amyl methyl ether	ND	1.0	ug/l							
Tert-butyl alcohol	ND	20	"							
Di-isopropyl ether	ND	1.0	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
Ethanol	ND	100	"							
Ethyl tert-butyl ether	ND	1.0	"							
Methyl tert-butyl ether	ND	0.50	"							
Surrogate: Dibromofluoromethane	*6.35*		"	*6.00*		*106*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*6.39*		"	*6.00*		*106*	*74-135*			
Surrogate: Toluene-d8	*6.12*		"	*6.00*		*102*	*84-119*			
Laboratory Control Sample (3010383-BS1)				Prepared & Analyzed: 01 16/03						
Methyl tert-butyl ether	5.02	0.50	ug/l	5.00		100	79-118			
Surrogate: Dibromofluoromethane	*6.49*		"	*6.00*		*108*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*6.43*		"	*6.00*		*107*	*74-135*			
Surrogate: Toluene-d8	*6.16*		"	*6.00*		*103*	*84-119*			
Laboratory Control Sample Dup (3010383-BSD1)				Prepared & Analyzed: 01 16/03						
Methyl tert-butyl ether	5.16	0.50	ug/l	5.00		103	79-118	3	20	
Surrogate: Dibromofluoromethane	*6.55*		"	*6.00*		*109*	*84-122*			
Surrogate: 1,2-Dichloroethane-d4	*6.27*		"	*6.00*		*104*	*74-135*			
Surrogate: Toluene-d8	*6.24*		"	*6.00*		*104*	*84-119*			

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Harding ESE - SF	Project: City Blue	P301024
28 2nd Street, Suite 700	Project Number: 53087.004	**Reported:**
San Francisco CA, 94105	Project Manager: David Nanstad	01/20/03 10:11

Notes and Definitions

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

Harding ESE
A MACTEC Company
90 Digital Drive
Novato, CA 94949
(415) 883-0112

CHAIN OF CUSTODY FORM

Seq. No.: Nº 010686

Lab:

Samplers: David Browne
Steve Korbay

Job Number: 53087.004

Name/Location: City Blue - San F OAKland

Project Manager: David Nanstad

Recorder: David Browne (Signature Required)

MATRIX			#CONTAINERS & PRESERV.				SAMPLE NUMBER		DATE				STATION DESCRIPTION	
Water	Soil	Air	Unpres	H_2SO_4	HNO_3	HCL	YR	SEQ	YR	MO	DAY	TIME		DEPTH
X						3	03	0100 1	03	01	03	0840	PZ01024-01	

COOLER CUSTODY SEALS INTACT ☐
NOT INTACT ☐
COOLER TEMPERATURE 6.0 °c

ANALYSIS REQUESTED

Gasoline Range Organics 8015B	Diesel Range Organics 8015B	BTEX plus MTBE (8020)	CCR Title 22 Metals (17)	EPA 8021B	EPA 8260B	EPA 8270C	TPH gas 8015	TAME	ETBE	DIPE	TBA	EDB	EDC
		X					X	X	X	X	X	X	X

ADDITIONAL INFORMATION

SAMPLE NUMBER YR	SEQ	TURNAROUND TIME/REMARKS
		STANDARD TAT
		* Detection of MTBE are to be confirmed using EPA Method 8260

CHAIN OF CUSTODY RECORD

Relinquished By (signature): David Browne	(Print Name): David Browne	(Company): Mactec	Date/Time: 01/03/03 1705
Received By (signature): Sarah Aguilm	(Print Name): Sarah Aguilm	(Company): Seq	Date/Time: 1/5/03 1107
Relinquished By (signature)	(Print Name)	(Company)	Date/Time
Received By (signature)	(Print Name)	(Company)	Date/Time
Relinquished By (signature)	(Print Name)	(Company)	Date/Time
Received By (signature)	(Print Name)	(Company)	Date/Time
Received By (signature)	(Print Name)	(Company)	Date/Time

Method of Shipment:

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

00291.1

APPENDIX B

GROUNDWATER SAMPLING FORMS

Table B1. Sample Location/Sample Description Cross-Reference
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California

Well/Sample Number	Client Sample ID
MW-1	252003
MW-3	252002
MW-5	301001
MW-6	252001
Trip Blank	252004

Groundwater Monitoring Data Sheet

City Blue/BPS Services
1700 Jefferson Street
Oakland, CA

Name: Steve Korbay

Well Number	Date	Time	First D.O. Reading (ppm)	Second D.O. Reading (ppm)	Cap	Lock	Casing	Box/Lid	Diameter (inches)	Comments
MW-1	12-6	1600	1.00	0.98	O.K.	None	O.K.	O.K.	4	no ORC socks in well
MW-3	↓	1555	0.90	0.89	O.K.	None	O.K.	O.K.	4	
MW-5		1545	—	—	O.K.	None	O.K.	O.K.	2	ORC rope is stuck
MW-6	↓	1530	0.62	0.60	O.K.	None	O.K.	O.K.	2	

Notes:

Groundwater Monitoring Data Sheet

City Blue
1700 Jefferson Street
Oakland, CA

Well Number	Date	Time	Water Depth First Reading (TOC)	Water Depth Second Reading (TOC)	Cap	Lock	Casing	Box/Lid	Well Diameter	Comments
MW-1	12/27/12	0845	24.10	24.10	Y	N	G	G	4	DO = 0.94 ms/cf Redox = -315
MW-3	↓	0830	23.34	23.34	Y	No	G	G	4	DO = 0.96 ms/cf Redox = -357.2
MW-5		0815	obstructed		Y	Y	G	G	2	
MW-6	↓	0730	23.41	23.41	Y	No	G	G	2	D.O. = 1.24 ms/cf Redox = -11.7mV

MW-1A Diameter: 4 **inches**

Harding ESE
A BECHTEL COMPANY

GROUNDWATER SAMPLING FORM

Well Number: MW-1

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

Job Name: City Blue

Job Number: 53087 004

Date: 12/27/02

Recorded By: David Bruns (Signature)

Sampled By: DSB (Initials)

WELL PURGING

PURGE VOLUME

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

PURGE METHOD

___ Bailer - Type:
___ Submersible - Type:
X Other - Type: Micropurge/Parastaltic

PUMP INTAKE SETTING

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

PURGE VOLUME CALCULATION

(TD (feet) - WL (Feet)) X D (inches)^2 X 3 X 0.0408 = Calculated Purge Volume ___ gals

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. X °C ___ °F	Turbidity (NTU)
Initial	6.33	956 us	17.5	17.8
Meter S/N	D803	1394	1394	8964

PURGE TIME

Purge Start: ___ GPM: ___
Purge Stop: ___ GPM: ___
Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: ___ gallons

Observations During Purging (Well Condition, Color, Odor):
cloudy gray, slight hydrocarbon odor

Discharge Water Disposal: ___ Sanitary Sewer ___ Storm Sewer ___ Other

WELL SAMPLING

___ Bailer - Type:

Sample Time: 1000

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
025 2003	3 VOAs	TPH g, BTEX MTBE, TAME ETBE, DIPE, TBA EDB, EDC	HCl	STL	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original Sample No.	Dupl. Sample No.	Type	Sample No.	Type	Sample No.
		TRIP	0252004		

Harding ESE
A BECHTEL Company

GROUNDWATER SAMPLING FORM

Well Number: MW-3

Well Type: X Monitor ___ Extraction ___ Other ___

X PVC ___ St. Steel ___ Other ___

Job Name: City Blue

Job Number: 53087 004

Date: 12/27/02

Recorded By: David (Signature)

Sampled By: DSB (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 4

Total Depth of Casing (TD in ft BTOC):

Water Level Depth (WL in ft BTOC):

No. of Well Volumes to be purged (# V):

PURGE METHOD

___ Bailer - Type:

___ Submersible - Type:

X Other - Type: Micropurge/Parastaltic

PUMP INTAKE SETTING

___ Near Bottom ___ Near Top

___ Other

Depth in feet (BTOC):

Screen Interval in feet (BTOC): from ___ to ___

PURGE VOLUME CALCULATION

(_____ - _____) X _____ ² X 3 X 0.0408 = _____ gals

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

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. X °C ☐ °F	Turbidity (NTU)
Initial	6.41	791 µs	18.9	25.4
Meter S/N	DB03	1394	1394	8966

PURGE TIME

Purge Start: ___ GPM: ___

Purge Stop: ___ GPM: ___

Elapsed: ___

PURGE VOLUME

Volume: ___ gallons

Observations During Purging (Well Condition, Color, Odor):

cloudy gray - slight hydrocarbon odor

Discharge Water Disposal: ___ Sanitary Sewer ___ Storm Sewer ___ Other

WELL SAMPLING

___ Bailer - Type:

Sample Time: 0930

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
0252002	3 VOAs	TPHg, BTEX, MTBE, TAME, ETBE, DIPE, TBA, EDB, EDC	HCl	Sey	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Harding ESE
A MACTEC Company

GROUNDWATER SAMPLING FORM

Well Number: MW-6

Well Type: X Monitor ___ Extraction ___ Other ___
X PVC ___ St. Steel ___ Other ___

Job Name: City Blue

Job Number: 53087 004

Date: 12/27/02

Recorded By: David Burma (Signature)

Sampled By: DSB (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2"

Total Depth of Casing (TD in ft BTOC): ___

Water Level Depth (WL in ft BTOC): ___

No. of Well Volumes to be purged (# V): ___

PURGE METHOD

___ Bailer - Type: ___

___ Submersible - Type: ___

X Other - Type: Micropurge/Parastaltic

PURGE VOLUME CALCULATION

(_____ - _____) X ____ X 3 X 0.0408 = _____ 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. X °C ___ °F	Turbidity (NTU)
Initial	6.49	903.45	17.5	37.7
Meter S/N	DB03	1394	1394	8966

PURGE TIME

Purge Start: ___

Purge Stop: ___

Elapsed: ___

PURGE RATE

GPM: ___

GPM: ___

PURGE VOLUME

Volume: ___ gallons

Observations During Purging (Well Condition, Color, Odor):

cloudy, gray, odorless

Discharge Water Disposal: ___ Sanitary Sewer ___ Storm Sewer ___ Other

WELL SAMPLING

___ Bailer - Type: ___

Sample Time: 0915

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
025200 1	3 VOAs	TPH gas, BTEX, MTBE, TAME, ETBE, DIPE, TBA EDB, EDC	HCl ↓	Sag	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Sheet 1 of 1

Project: City Blue
Subject: FIELD INVESTIGATION DAILY REPORT
Equipment Rental: ______ **Company:** ______
Equipment Hours: ______ **F.E. Time from:** ______ **to:** ______

Job No.: 53087004
Date: 12/27/02
To: David Noackel
By: D Browne

(Outside service and expense record must be attached for any outside costs)

0600 @ HLA Houston - Pick up paperwork, equipment & supplies
0630 Depart for site
0730 @ MW-4 - Calibrate D.O. Meter to sea level
WL = 23.41 D.O. = 1.24 mg/lt @ 21.0°C
Redox = ~~11.7~~ -11.7 mV
0815 @ MW-5 ORC socs are stuck & unable to get water level - Block is above water
0830 @ MW-3 WL = 23.39 D.O. = 0.96 mg/lt @ 20.2°C
Redox = -357.2
0845 MW-1 WL = 24.10 D.O. = 0.94 mg/lt @ 18.8°C
Redox = ~~11.39~~ -315 mV
0900 Calibrate Meters pH meter Serial # DB03 @ 7 & 4
YSI 30 serial # 1394 @ 1000 us = 783 us @ 13.0°C
Turbidity meter serial # 8966 0-10 = 5.70, 10-100 = 51.5, 100-1000 = 456
0915 @ MW-6 2" Ø
Sample # 0252001
Conduct 903 us T = 17.5°C pH = 6.49 Turb. 37.7
0930 @ MW-3
Sample # 0252002
Conduct = 791 us C = 18.9 pH = 6.41 Turb = 25.4
Cloudy dark gray - Slight hydrocarbon odor
1000 ~~Sar~~ @ MW-1
Sample # 0252003
Conduct 956 us T = 17.5°C pH = 6.33 Turb = 77.8
Cloudy gray, Slight & Hydrocarbon odor
1030 Trip blank
Sample # 0252004 - 1 VOAs
1100 Depart site
1200 @ HLA Houston
Note: MW-5 - May be saved by either pushing socs down first to dislodge from casing - if this doesn't work - maybe get a small rig.

Attachments:

Initial DB

Harding ESE, Inc.

Sheet 1 of 1

Project: City Blue
Subject: FIELD INVESTIGATION DAILY REPORT
Equipment Rental: Company:
Equipment Hours: F.E. Time from: to:

Job No.: 53087.004
Date: 02/03/03
To: David Nordstad
By: DSB - STIC

(Outside service and expense record must be attached for any outside costs)

0600 @ Hwy Nordstr - Pick up equipment & Supplies
0700 @ City Blue - Set up tripod & Winch
0830 - Stretched Rope 5' without pulling bags up - we were able to push bags down
0835 Call David Nordstad - left message
0840 Sample MW-5
Sample # 030100 1
Conductivity 105.7 ms, temp = 15.6 pH = 8.49, TWB = 552
D.O. = 1.93 @ 17.7°C Redox = 161

DSB
1/3/03

Attachments:

Initial DSB

Harding ESE, Inc.