



Re 151

Alameda County
APR 29 2004
Environmental Health

March 26, 2004

Project 53087 Task 007

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

**Quarterly Groundwater Remediation and Monitoring Report
October through December, 2003
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California**

Dear Mr. Christoff:

MACTEC Engineering and Consulting, Inc., 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 through December 31, 2003, 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 northwest 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 Municipal 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.

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 the ACHCS to terminate groundwater extraction and to modify the remediation technique to in situ-bioremediation using an oxygen-releasing compound (ORC™). ORC™ is manufactured and distributed by Regenesys, 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. The 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 bioremediation 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. As described in the Groundwater Monitoring Plan, the ORC™ socks are removed from the treatment wells two weeks before each quarterly groundwater monitoring event, then replaced after sampling is complete.

The Groundwater Monitoring Plan outlined procedures for groundwater sampling using a non-purge method approved by the Regional Water Quality Control Board in a letter dated January 31, 1997. 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).

During the Fourth Quarter 2002 groundwater monitoring event MACTEC removed the ORC™ socks from the treatment wells per a request from the ACHCS in a September 27, 2002 letter to BPS. The ACHCS suggested that contaminant concentrations may not be accurate due to the presence of the ORC™ socks and requested the socks be removed and DO allowed to return to back ground levels. Additionally, the ACHCS suggested in the same letter that the ORC™ socks appear to be ineffective as contaminant concentrations continue to be high in MW-1 and MW-5.

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During the ORC™ socks removal effort from MW-5 it was discovered that the socks were stuck. 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. The ORC™ socks remained stuck in MW-5 despite three removal attempts including attempts incorporating an industrial winch and tripod. An ORC™ sock removal effort was performed on September 17, 2003 utilizing a drill rig. The socks were successfully removed with no apparent damage to the monitoring well.

FOURTH QUARTER 2003 GROUNDWATER SAMPLING AND ANALYSIS

On December 29, 2003, MACTEC conducted the quarterly groundwater monitoring of MW-1, MW-3, MW-5 and MW-6 (Plate 1) using the purge and sample method as described in the September 27, 2002 ACHCS letter. Groundwater parameters collected during sampling are shown on Table 1. Prior to sampling, MACTEC measured the depth to groundwater from the top of casing (TOC) of wells MW-1, MW-3, MW-5 and MW-6 using an electronic water level indicator. These measurements are displayed on Plate 2 and tabulated in Table 2.

Monitoring well samples were collected according to methods described in the September 27, 2002 ACHCS letter and typical well purging protocol as described in *Ground-Water Sampling Preparations and Purging Methods at Water-Supply Wells and Monitoring Wells* dated September 1999 by Jacob Gibs and F.D. Wilde. This document was provided as a reference for groundwater monitoring procedures by the ACHCS case worker.

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 (CA ELAP Certificate #2374), 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.
- Ethylene Dichloride (EDC) by EPA Method 8260.

The analytical results for TPH-g, BTEX and MTBE are displayed on Plates 3 and 4. Historical groundwater elevations are shown graphically on Plate 5. Historical analytical results for TPH-g, BTEX and MTBE are shown on Table 3. Analytical results for groundwater samples collected pre-purge are presented on Table 4a. Analytical results for groundwater samples collected post-purge are presented on

Table 4b. Historical analytical results for Tert-amyl methyl ether (TAME), Tert-butyl alcohol (TBA), Di-isopropyl ether (DIPE), Ethylene Dibromide (EDB), Ethyl tert Butyl Ether (ETBE) and EDC are displayed on Table 5. The certified analytical reports (CARs) are presented in the Appendix A.

DISCUSSION

Groundwater Monitoring Data

As shown in Table 2 and on Plate 5, the groundwater surface elevation decreased an average of 0.29 feet across the site as compared to last quarter's measurements. Using the groundwater elevations from MW-1, MW-3, MW-5 and MW-6 as measured on December 29, 2003, groundwater contours were created and are shown on Plate 2. Based on the groundwater elevations, the groundwater gradient is approximately 0.003 ft/ft. The direction of flow appears to be West to Northwest.

Table 3 displays a summary of historical groundwater sample results through September 29, 1999, when the typical purge and sample protocol was terminated. Plate 3 presents the sample results from this quarter's sampling event. Table 4a and Plate 4 display historical groundwater sample results since instituting *in situ* bioremediation using ORC™ socks and a non-purge sampling protocol. As of December 2002 *in situ* bioremediation using ORC™ socks was suspended. Data shown on Table 4b was collected using the purge and sample protocol described in the previous section beginning the First Quarter 2003 up to the present event (Fourth Quarter 2003). The 2003 data shown on Plate 4 is a reflection of the same data shown on Table 4b.

As shown on Plate 4 and Tables 4a and 4b, concentrations of TPH-g, BTEX and MTBE remained within the range of historical values (including historical concentrations monitored prior to September 1999) for all the wells sampled. TPH-g and BTEX concentrations in MW-5 are within the historical range but appear to have rebounded to values typically seen before and just after initiating *in situ* remediation using ORC™ in September 1999. TPH-g and BTEX concentrations in MW-1 and Toluene and Ethylbenzene concentrations in MW-3 continue (since Second Quarter 2003) to be higher than typical concentrations monitored since initiating *in situ* remediation using ORC™ in September 1999. TPH-g and BTEX concentrations in MW-6 remained undetected.

TPH-g ranged from non-detectable with a detection limit of 0.05 mg/l (MW-6) to 46 mg/l (MW-1). Benzene ranged from non-detectable with a detection limit of 0.5 ug/l (MW-6) to 7,700 ug/l (MW-5). Toluene ranged from non-detectable with a detection limit of 0.05 ug/l (MW-6) to 7,900 ug/l (MW-1). Ethylbenzene ranged from non-detectable with a detection limit of 0.5 ug/l (MW-6) to 960 ug/l (MW-1). Total Xylenes ranged from non-detectable with a detection limit of 2.5 ug/l (MW-6) to 4,000 ug/l (MW-1). MTBE was not detected in samples from any of the groundwater monitoring wells this quarter with detection limits ranging from 2.5 ug/l (MW-6) to 250 ug/L (MW-1 and MW-5).

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Historical analytical results for TAME, TBA, DIPE, EDB, ETBE and EDC are displayed on Table 5. As described in the ACHCS September 27, 2002 letter to BPS these analyses were performed per ACHCS request during the Fourth Quarter 2002 monitoring event. 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 samples collected from MW-1 at a concentration of 370 ug/L and MW-5 at a concentration of 220 ug/L. As a result of these detections of EDC an analysis was performed for EDC in groundwater samples from MW-1 and MW-5 during the Fourth Quarter 2003 event. EDC was detected in the sample from MW-1 at a concentration of 360 ug/L. EDC was detected in the sample from MW-5 at a concentration of 410 ug/L.

As described above, the ORC™ socks were removed from all treatment wells during the Fourth Quarter 2002 monitoring event per ACHCS request (except MW-5, ORC™ socks removed from this well September 17, 2003). The ORC™ socks were removed to allow the DO concentrations in each well to return to background levels. Prior to sampling during the Fourth Quarter 2003 event, DO was monitored in each well. The DO concentrations ranged from 0.16 in MW-1 to 0.6 in MW-6. The DO concentrations appear to have returned to background levels. DO will continue to be monitored in these wells.

RECOMMENDATIONS

MACTEC recommends continued quarterly monitoring utilizing the procedures outlined in the ACHCS September 27, 2002 letter. Based upon the results of the statistical analysis of pre and post purge groundwater data presented in the Second Quarter 2003 Groundwater Monitoring Report, and the associated ACHCS approval letter dated February 13, 2004, MACTEC recommends initiating pre-purge groundwater monitoring during the First Quarter 2004 groundwater monitoring event.

The workplan requested in the ACHCS September 27, 2002 letter is currently being created and will contain responses to the remaining comments in the ACHCS letter that have not been addressed by this or previous quarterly reports.

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

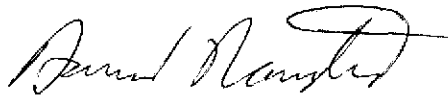
While under contract to BPS, MACTEC will continue to provide quarterly groundwater monitoring and reporting as required by The County.

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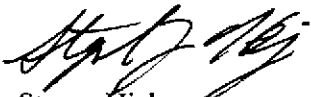
If you have any questions, please contact the undersigned at (415) 278-2118.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.



David S. Nanstad
Project Engineer



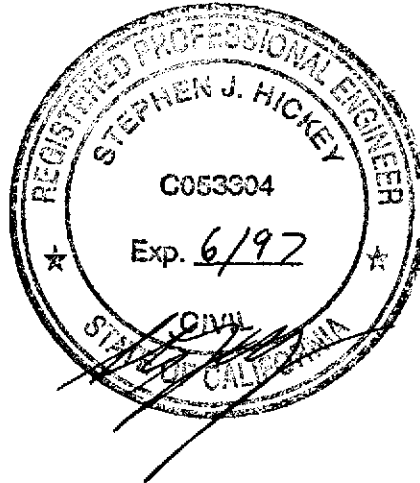
Steven Hickey
Senior Principal Engineer



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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 4a – Groundwater Monitoring Analytical Results – Non-Purge Method
 - Table 4b – Groundwater Monitoring Analytical Results – Comparison of Non-Purge and Purge Methods
 - Table 5 – Groundwater Monitoring Analytical Results – EPA Method 8260
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- Plate 1 – Site Map
 - Plate 2 – Groundwater Contours, Fourth Quarter 2003
 - Plate 3 – TPH-g, BTEX and MTBE Concentrations in Groundwater, Fourth Quarter 2003
 - 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 Reographic Services Facility
1700 Jefferson Street
Oakland, California**

Disolved 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	NA	5.00	5.30	NA
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	0.34	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
4/1/2003 ^b	0.30	1.06	*NA	NA ¹
7/1/2003 ^{ab}	7.65	7.70	NA	7.2
9/24/2003	6.25	7.16	0.55	0.9
12/29/2003	0.18	0.33	0.58	0.6
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	2	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
4/1/2003 ^b	-82	-75	NA	172
7/1/2003 ^b	212	230	NA	227
9/24/2003	-166	-300	-183	30
12/29/2003	-529	-198	-269.1	113.7
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	53.2	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	63.5	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
4/1/2003 ^b	64.6	67.6	NA	68.0
7/1/2003 ^{ab}	79.4	80.3	NA	81.9
9/24/2003	65.1	67.1	65.7	68.5
12/29/2003	65.0	67.5	67.1	68.0

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

pH	MW-1	MW-3	MW-5	MW-6
9/29/1999	8.59	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
4/1/2003 ^b	6.30	7.08	NA	6.70
7/1/2003 ^b	7.42	7.59	NA	7.68
9/24/2003	7.12	7.34	7.25	7.17
12/29/2003	6.72	6.47	6.75	6.69
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	715	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	601	848	977
6/14/2002	932	767	810	961
8/20/2002	1015	809	891	985
12/27/2002	956	791	NA	903
4/1/2003 ^b	1128	300	NA	1021
7/1/2003 ^b	1020	690	NA	970
9/24/2003	951	697	987	890
12/29/2003	1143	396	993	934

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

I = indicates data not available due to equipment malfunction


a = indicates dissolved oxygen and temperature readings collected on this date above typical range and should be considered suspect

b = indicates this data collected post purge

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

Date Sampled	MW-1 TOC Elev. 32.36		MW-3 TOC Elev. 31.77		MW-5 TOC Elev. 30.56		MW-6 TOC Elev. 31.26		Average Change Since Preceding Quarter
	Water Level	Water Elevation	Water Level	Water Elevation	Water Level	Water Elevation	Water Level	Water Elevation	
3/6/1996	NM	--	24.79	8.98	23.53	7.03	NA	--	
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
4/1/2003	23.75	8.61	22.90	8.87	*NA	*NA	23.16	8.10	0.35
7/1/2003	23.50	8.86	22.80	8.97	*NA	*NA	22.75	8.51	0.25
9/24/2003	23.82	8.54	23.15	8.62	22.21	8.35	23.16	8.10	-0.36
12/29/2003	24.07	8.29	23.45	8.32	22.56	8.00	23.47	7.79	-0.29

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

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

	Date Sampled																	Date Sampled									
	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	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	
TPHg (mg/L)																											
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP	FP	FP	68	59	41	44	32	26	26	26	18	21	
MW-1A	350	FP	FP	FP	170	95	190	67	53	52	62	200	140	100	FP	66	54	73	66	51	50	15	41	10	18	NA	
MW-3	74	FP	FP	FP	FP	39	4,600	51	20	6.2	19	7	16	6	FP	FP	85	47	32	32	16	17	3.2	9.6	7.9	5.0	
MW-4	86	FP	FP	FP	58	16	92	35	13	14	11	110	260	95	FP	37	24	41	48	NA	25	48	10	11	8.8	NA	
MW-5	120	51	74	80	63	64	59	51	41	50	45	51	48	48	45	44	35	36	39	48	17	16	15	23	7.7	11	
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)	ND(0.05)	
Benzene (µg/L)																											
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP	FP	FP	2,200	6,000	6,800	8,300	1,100	8,600	9,200	8,200	7,000	9,200	
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	FP	12,000	11,000	10,000	10,000	9,100	11,000	1,100	8,500	2,300	6,400	NA	
MW-3	1,600	FP	FP	FP	FP	3,200	1,500	1,100	270	70	220	120	170	45	FP	FP	8,500	610	640	690	180	84	39	86	31	120	
MW-4	1,500	FP	FP	FP	1,500	1,300	1,700	1,200	1,300	2,200	630	2,600	6,600	9,900	FP	2,600	2,600	2,900	6,000	NA	2,000	9,700	1,700	2,300	1,800	NA	
MW-5	20,000	13,000	16,000	19,000	14,000	29,000	13,000	15,000	12,000	1,600	13,000	15,000	12,000	12,000	12,000	11,000	8,900	7,900	13,000	10,000	9,500	5,400	8,400	14,000	5,200	9,600	
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)	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)	
Toluene (µg/L)																											
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP	FP	FP	14,000	4,500	3,000	3,000	3,700	3,800	2,300	4,300	5,900	5,800	10,000
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	FP	15,000	12,000	16,000	16,000	11,000	15,000	830	11,000	1,900	7,800	NA	
MW-3	4,600	FP	FP	FP	FP	2,900	4,200	2,300	550	140	480	170	270	30	FP	FP	13,000	6,000	5,300	3,800	1,500	1,100	85	540	330	340	
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	FP	6,900	3,200	5,000	11,000	NA	460	11,000	610	2,100	3,000	NA	
MW-5	14,000	5,900	5,000	8,200	3,500	5,400	3,800	2,200	2,100	2,700	2,100	2,800	2,900	4,500	2,200	1,100	560	270	500	400	310	160	120	300	270	710	
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)	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)	
Ethylbenzene (µg/L)																											
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP	FP	FP	1,500	1,600	1,400	1,100	550	730	820	870	950	1,200	
MW-1A	3,000	FP	FP	FP	2,100	1,500	1,400	910	500	710	790	2,700	2,800	2,100	FP	1,400	1,000	1,400	1,400	1,100	870	31	720	1,600	660	NA	
MW-3	670	FP	FP	FP	FP	580	6,000	580	190	68	140	49	68	15	FP	FP	2,400	930	800	870	490	430	25	250	200	230	
MW-4	1,000	FP	FP	FP	520	51	310	280	77	110	14	780	3,700	2,000	FP	540	140	350	580	NA	ND(15)	890	ND(15)	88	150	NA	
MW-5	1,900	1,400	1,800	1,400	1,500	2,800	1,800	2,800	1,400	2,000	16,000	2,000	2,000	2,300	2,700	1,900	1,500	1,500	1,900	2,000	420	1,100	1,500	1,800	1,100	1,100	
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(0.5)	ND(0.5)	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)	
Xylenes (µg/L)																											
MW-1	FP	FP	FP	FP	FP	FP	FP	NA	NA	NA	NA	NA	FP	FP	FP	FP	11,000	8,600	6,600	4,300	3,000	2,100	2,800	3,500	2,500	5,500	
MW-1A	22,000	FP	FP	FP	14,000	12,000	11,000	9,800	6,300	6,800	5,300	22,000	19,000	14,000	FP	100	7,200	8,500	12,000	6,800	5,800	3,000	6,700	2,300	4,100	NA	
MW-3	4,300	FP	FP	FP	FP	4,300	95,000	4,800	1,700	500	1,700	440	1,500	300	FP	FP	16,000	5,900	5,900	5,200	3,700	3,800	360	2,300	1,800	1,300	
MW-4	7,300	FP	FP	FP	3,200	3,400	5,400	5,800	1,800	2,100	1,800	10,000	28,000	13,000	FP	5,500	3,500	4,800	8,200	NA	6,400	5,000	2,300	1,600	2,700	NA	
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	6,500	2,800	1,700	1,300	1,700	2,200	850	900	840	1,100	690	1,100	
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	ND(2)	ND(2)	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)	
MTBE (µg/L)																											
MW-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	FP	FP	ND(500)	ND(500)	300	420	ND(50)	ND(50)	ND(50)	ND(50)	ND(25)	ND(250)	
MW-1A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,800	ND(500)	ND(500)	1,900	300	ND(50)	ND(50)	ND(50)	ND(50)	ND(25)	NA	
MW-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	FP	FP	ND(500)	ND(100)	ND(300)	350	ND(25)	ND(50)	ND(50)	ND(25)	ND(25)	10	
MW-4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,400	ND(300)	ND(500)	270	NA	ND(50)	ND(50)	ND(50)	ND(25)	ND(25)	NA	
MW-5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	600	300	ND(100)	ND(500)	ND(1000)	350	ND(10)	ND(50)	ND(50)	ND(50)	ND(25)	ND(100)	
MW-6	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA	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)	

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

Checked _____
 Approved _____

Table 4a. Groundwater Monitoring Analytical Results - Non-Purge Method Through 1Q03
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	4/1/2003
MW-1	14	24	19	19	20	18	19	39	31	34	35	35	26	28	16
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	5.9
MW-5	10	30	23	19	24	1.8	15	3.6	34	1.9	9.4	1.7	3.2	*6.2	NA ⁴
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	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	4500
MW-3	180	6.5	8.3	11	28	20	9	150	42	8	11	130	330	110	370
MW-5	14,000	11,000	12,000	9,900	3,800	470	7,400	300	8,300	300	2,300	110	320	*2200	NA ⁴
MW-6	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.3	ND<0.30	ND<0.30	ND<0.30	ND<0.50	3.6	ND<0.50	ND<0.50	ND<0.50	ND<0.5	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	6000
MW-3	340	33	20	5.6	14	34	6.2	240	48	5.2	4.8	470	170	280	150
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	NA ⁴
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	ND<0.05
Ethylbenzene (µg/L)															
MW-1	620	730	530	730	540	640	570	660	560	630	740	870	620	660	680
MW-3	130	27	2.4	0.45	2.6	25	1.4	38	26	1.1	0.72	91	40	57	44
MW-5	1,100	1,500	1,200	1,200	460	39	1000	16	1,400	55	300	7.2	22	*160	NA ⁴
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	ND<0.5
Total 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	3100
MW-3	580	260	28	17	160	28	8.1	160	210	7	1.4	390	150	260	230
MW-5	600	2,500	1,300	2,600	1,200	100	2,200	15	2,600	120	270	ND<2.5	19	*250	NA ⁴
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	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	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<0.50 ¹	ND<0.50 ¹	ND<1.0 ¹
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<0.50 ¹	ND<0.50 ¹	ND<0.50 ¹	*ND(25)	NA ⁴
MW-6	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	5 ^{1,2}	17 ¹	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5	ND<2.5
Ethylene Dichloride (µg/L) (EPA Method 8260)															
MW-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	370	ND<120
MW-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND<12	NA
MW-5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	220	NA ⁴
MW-6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND<0.5	NA

mg/l = milligrams per liter

µg/l = micrograms per liter

ND = Not detected above the reporting limit following the less than sign

NA = Not Applicable

MTBE = methyl t-butyl ether

1 Result of MTBE confirmation by EPA Method 8260.

2 Reporting limits elevated due to matrix interference.

3 Detection limit = 5 µg/L, backup sample analyzed after hold time had a result of ND<5 µg/L.

4 Data from April 1, 2003 sampling event not available due to ORC sock obstruction in well (see report for details)

5 Table 4b displays post purge sample analytical results

* = Fourth Quarter 2002 analytical data for MW-5 collected on January 3, 2003

Checked 

Approved 

**Table 4b. Groundwater Monitoring Analytical Results - Samples Collected Post Purge
Beginning 1Q03
EPA Method EPA 8015M/8020M
BPS Reprographic Services Facility
1700 Jefferson Street
Oakland, California**

	4/1/2003	7/1/2003	9/25/2003	12/29/2003
TPHg (mg/L)				
MW-1	23	61	59	46
MW-3	6.6	12	10	7.3
² MW-5	NA ¹	NA ¹	43	26
MW-6	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Benzene (µg/L)				
MW-1	5100	7,700	7600	6600
MW-3	240	200	150	160
² MW-5	NA ¹	NA ¹	12000	7700
MW-6	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Toluene (µg/L)				
MW-1	6900	11,000	9400	7900
MW-3	200	460	300	250
² MW-5	NA ¹	NA ¹	2800	1900
MW-6	ND<0.05	ND<0.05	ND<0.05	ND<0.05
Ethylbenzene (µg/L)				
MW-1	840	1200	1000	960
MW-3	63	130	120	79
² MW-5	NA ¹	NA ¹	1500	910
MW-6	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Xylenes (µg/L)				
MW-1	4100	6700	4800	4000
MW-3	220	390	280	210
² MW-5	NA ¹	NA ¹	3000	210
MW-6	ND<0.5	ND<2.5	ND<2.5	ND<0.5
MTBE (µg/L) (EPA Method 8020)				
MW-1	ND<120	ND<250	ND<1200	ND<250
MW-3	ND<2.5	ND<5 ¹	ND<2.5 ¹	ND<2.5 ¹
² MW-5	NA ¹	NA ¹	ND<1200	ND<2.5 ¹
MW-6	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

NA = Not Available

MTBE = methyl t-butyl ether

¹ Result of MTBE confirmation by EPA Method 8260.

² Data not available from April 1 and July 1, 2003 sampling events due to ORC socks stuck in well

* Detected at same concentration as reporting limit

Checked _____

Approved _____

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

	¹ 12/27/2002	4/1/2003	7/1/2003	9/25/2003	12/29/2003
tert Amyl Methyl Ether (µg/L)					
MW-1	ND<250	NA	NA	NA	NA
MW-3	ND<25	NA	NA	NA	NA
MW-5	*ND<100	NA	NA	NA	NA
MW-6	ND<1	NA	NA	NA	NA
Ethyl tert Butyl Ether (µg/L)					
MW-1	ND<250	NA	NA	NA	NA
MW-3	ND<25	NA	NA	NA	NA
MW-5	*ND<100	NA	NA	NA	NA
MW-6	ND<1	NA	NA	NA	NA
Di-isopropyl Ether (µg/L)					
MW-1	ND<250	NA	NA	NA	NA
MW-3	ND<25	NA	NA	NA	NA
MW-5	*ND<100	NA	NA	NA	NA
MW-6	ND<1	NA	NA	NA	NA
tert Butyl Alcohol (µg/L)					
MW-1	ND<5000	NA	NA	NA	NA
MW-3	ND<500	NA	NA	NA	NA
MW-5	*ND<2000	NA	NA	NA	NA
MW-6	ND<20	NA	NA	NA	NA
Ethylene Dibromide (µg/L)					
MW-1	ND<120	NA	NA	NA	NA
MW-3	ND<12	NA	NA	NA	NA
MW-5	*ND<50	NA	NA	NA	NA
MW-6	ND<0.5	NA	NA	NA	NA
Ethylene Dichloride (µg/L)					
MW-1	370	ND<120	400	*500	360
MW-3	ND<12	NA	NA	NA	NA
MW-5	*220	NA	NA	610	410
MW-6	ND<0.5	NA	NA	NA	NA

Notes:

Analytical results shown here collected post purge after 12/27/2002

µg/l = micrograms per liter


ND = Not detected above the reporting limit


NA = Not Available/MW-1 is the only well currently sampled for Ethylene Dichloride (see report for details)

* = Analytical data collected for MW-5 on January 3, 2003



a = EDC detected at same concentration as detection limit

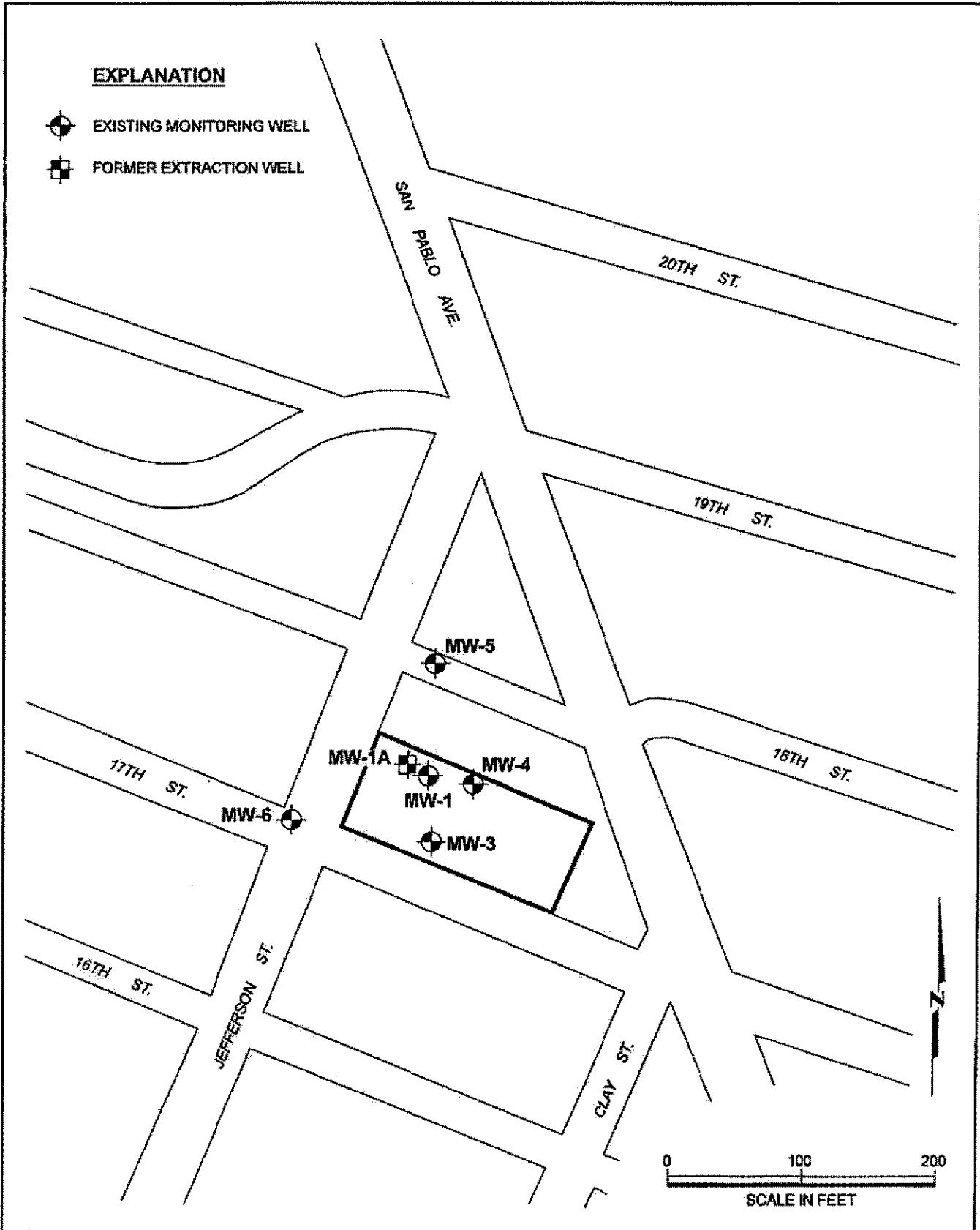
1 = Samples on this date collected pre-purge

Checked 

 Approved 

EXPLANATION

-  EXISTING MONITORING WELL
-  FORMER EXTRACTION WELL






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Site Map
Fourth Quarter 2003
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

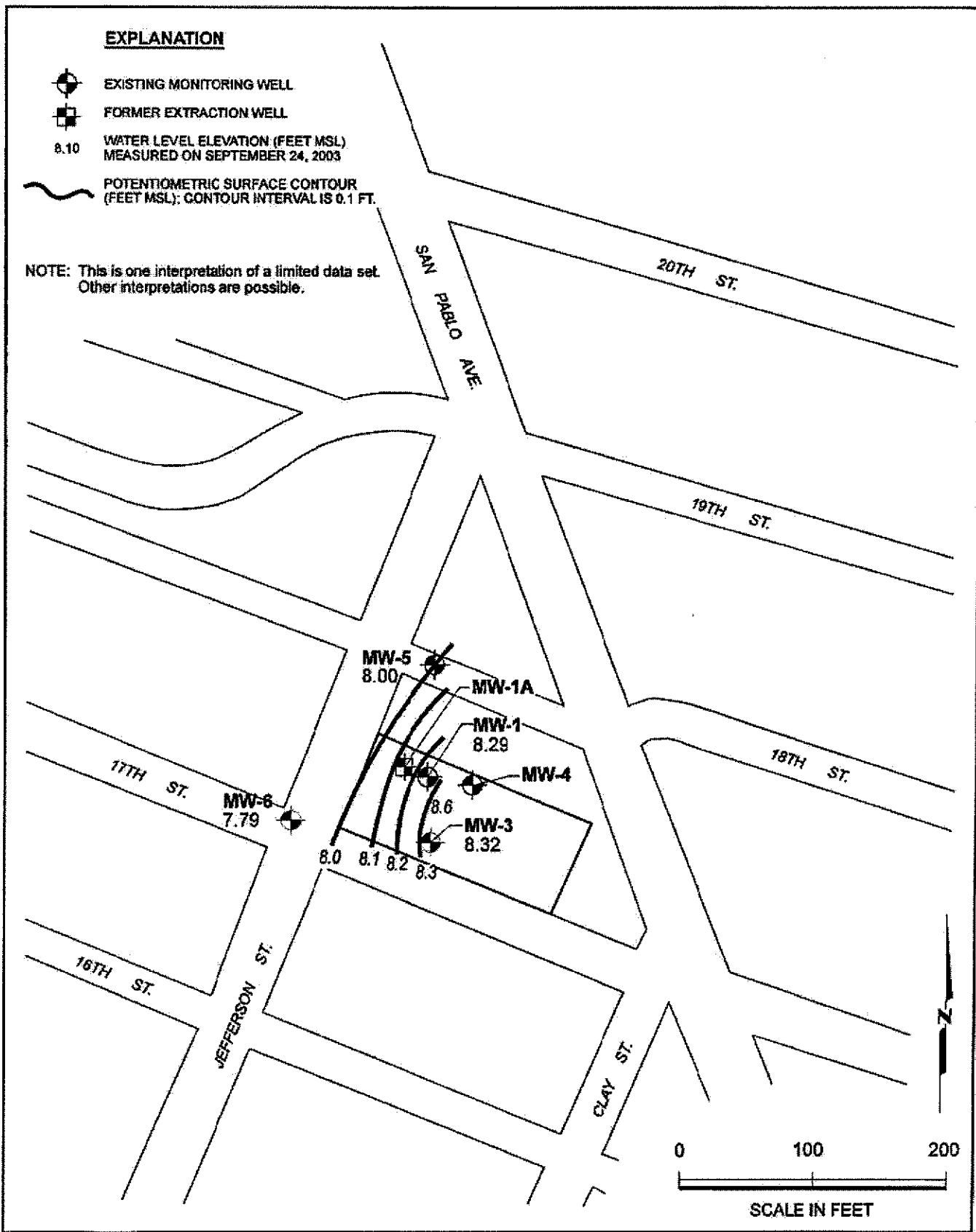
PLATE
1

DRAWN CN	PROJECT NUMBER 53087 070	APPROVED <i>[Signature]</i>	DATE 2/04	REVISED DATE
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EXPLANATION

-  EXISTING MONITORING WELL
-  FORMER EXTRACTION WELL
- 8.10 WATER LEVEL ELEVATION (FEET MSL)
MEASURED ON SEPTEMBER 24, 2003
-  POTENTIOMETRIC SURFACE CONTOUR
(FEET MSL); CONTOUR INTERVAL IS 0.1 FT.

NOTE: This is one interpretation of a limited data set.
Other interpretations are possible.



MACTEC

Groundwater Contours
Fourth Quarter 2003
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

PLATE

2

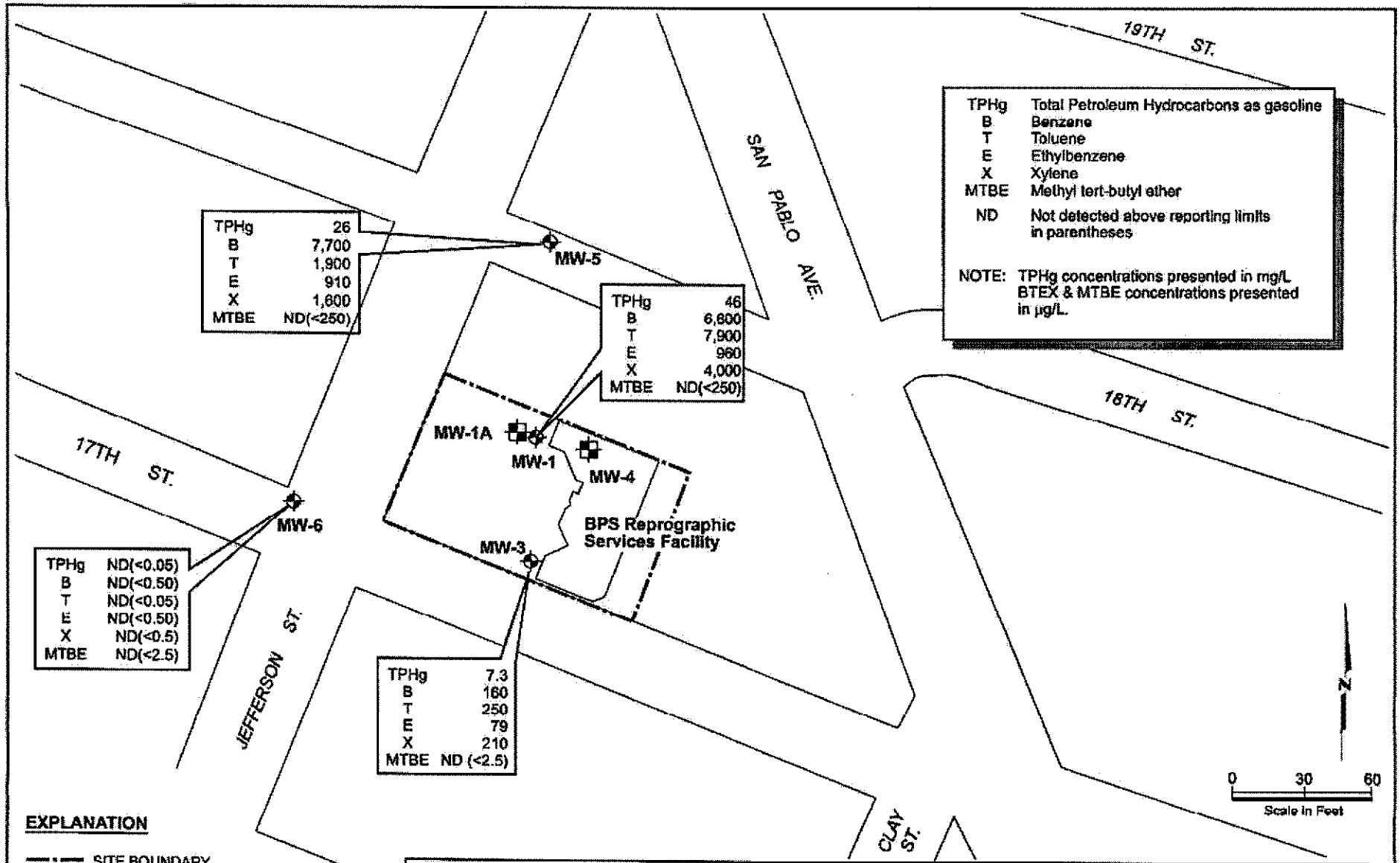
DRAWN
CN

PROJECT NUMBER
53087 070

APPROVED
[Signature]

DATE
2/04

REVISED DATE



EXPLANATION

- SITE BOUNDARY
- ⊕ MONITORING WELL
- ⊞ FORMER EXTRACTION WELL
- mg/L MILIGRAMS PER LITER
- µg/L MICROGRAMS PER LITER



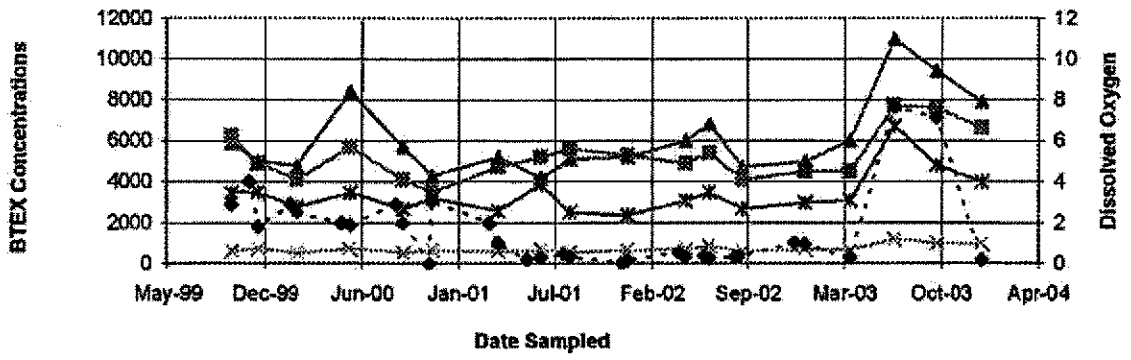
MACTEC

TPHg, BTEX, and MTBE Concentrations in Groundwater PLATE
Fourth Quarter 2003
1700 Jefferson Street
BPS Reprographic Services Facility
Oakland, California

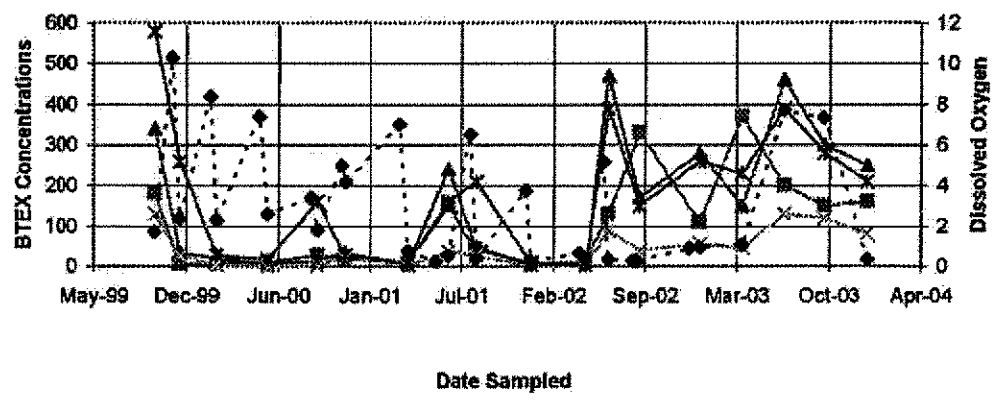
3

DRAWN CN	PROJECT NUMBER 53087 070	APPROVED <i>[Signature]</i>	DATE 2/04	REVISED DATE
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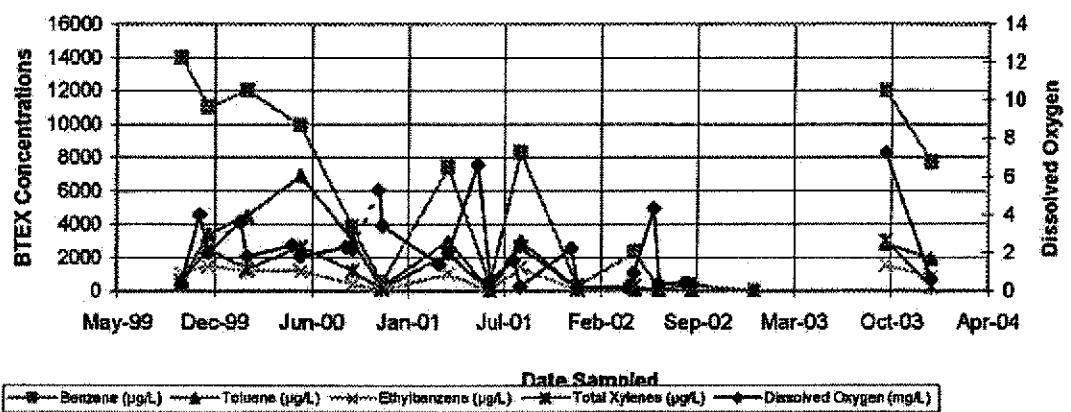
MW-1



MW-3



MW-5



Legend: Benzene (µg/L) —●—, Toluene (µg/L) - - -▲- - -, Ethylbenzenes (µg/L) ····×····, Total Xylenes (µg/L) - · - · - ·, Dissolved Oxygen (mg/L) —◆—

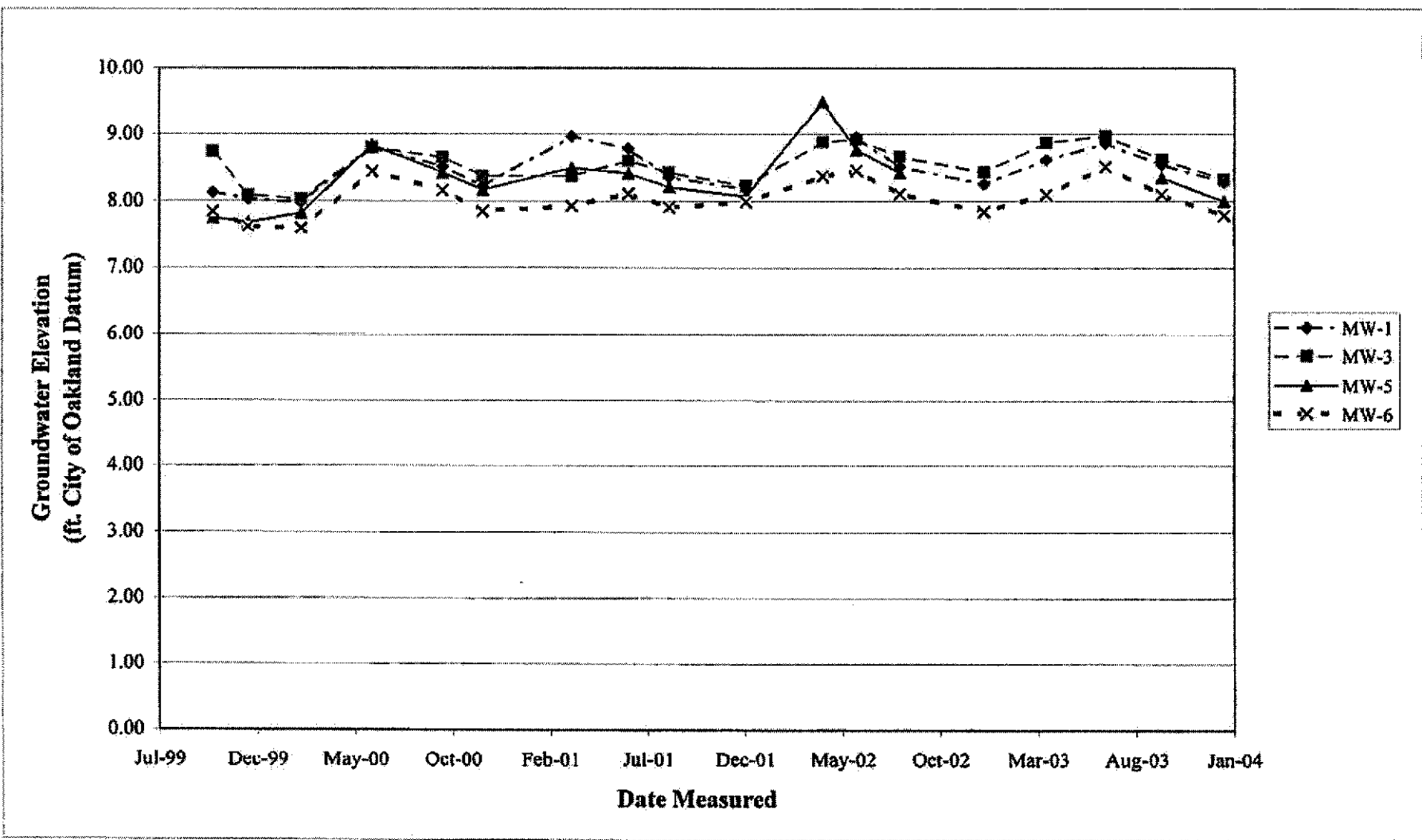


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Historical BTEX and DO Results
 Fourth Quarter 2003
 BPS Reprographic Services Facility
 1700 Jefferson Steet
 Oakland, California

Plate
4

Drawn by DSN	JOB NUMBER 53087.007	APPROVED <i>[Signature]</i>	DATE 2/2/2003	REVISION DATE
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Groundwater Elevation Data
 Fourth Quarter 2003
 BPS Reprographic Services Facility
 1700 Jefferson Steet
 Oakland, California

Plate

5

DRAWN DSN	JOB NUMBER 53087.007	APPROVED <i>[Signature]</i>	DATE 2/2/2004	REVISION DATE
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APPENDIX A
LABORATORY REPORTS



Harding ESE - Novato 5341 Old Redwood Highway, Suite 300 Petaluma CA, 94954	Project: General Commercial Project Number: 53087.007/BPS Oakland City Blue Project Manager: David Nanstad	P312745 Reported: 01/14/04 10:47
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
53087-4	P312745-01	Water	12/30/03 10:45	12/30/03 16:40
53087-3	P312745-02	Water	12/30/03 11:55	12/30/03 16:40
53087-2	P312745-03	Water	12/30/03 12:50	12/30/03 16:40
53087-1	P312745-04	Water	12/30/03 13:35	12/30/03 16:40

Checked 3.25.04

 Approved David Nanstad



**Sequoia
Analytical**

1455 McDowell Blvd, North Ste D
Petaluma, CA 94954
(707) 792-1855
FAX (707) 792-0342
www.sequoialabs.com

14 January, 2004

David Nanstad
Harding ESE - Novato
5341 Old Redwood Highway, Suite 300
Petaluma, CA 94954

RE: General Commercial
Work Order: P312745

Enclosed are the results of analyses for samples received by the laboratory on 12/30/03 16:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Stacy P. Hoch
Dept Manager - Client Services

CA ELAP Certificate #2374



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 Petaluma CA, 94954

Project: General Commercial
 Project Number: 53087.007/BPS Oakland City Blue
 Project Manager: David Nanstad

P312745
 Reported:
 01/14/04 10:47

Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
53087-4 (P312745-01) Water Sampled: 12/30/03 10:45 Received: 12/30/03 16:40									
Gasoline Range Organics	ND	50	ug/l	1	4010036	01/06/04	01/06/04	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: <i>a,a,a</i> -Trifluorotoluene		96 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		65-135	"	"	"	"	
53087-3 (P312745-02) Water Sampled: 12/30/03 11:55 Received: 12/30/03 16:40									
Gasoline Range Organics	26000	5000	ug/l	100	4010036	01/06/04	01/06/04	EPA 8015B/8021B	
Benzene	7700	50	"	"	"	"	"	"	
Toluene	1900	50	"	"	"	"	"	"	
Ethylbenzene	910	50	"	"	"	"	"	"	
Xylenes (total)	1600	50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	250	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		97 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %		65-135	"	"	"	"	
53087-2 (P312745-03) Water Sampled: 12/30/03 12:50 Received: 12/30/03 16:40									
Gasoline Range Organics	7300	500	ug/l	10	4010036	01/06/04	01/06/04	EPA 8015B/8021B	
Benzene	160	5.0	"	"	"	"	"	"	
Toluene	250	5.0	"	"	"	"	"	"	
Ethylbenzene	79	5.0	"	"	"	"	"	"	
Xylenes (total)	210	5.0	"	"	"	"	"	"	
Methyl tert-butyl ether	37	25	"	"	"	"	"	"	QR-04
Surrogate: <i>a,a,a</i> -Trifluorotoluene		95 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		65-135	"	"	"	"	



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Project Manager: David Nanstad

P312745
Reported:
01/14/04 10:47

Purgeable Hydrocarbons and BTEX by EPA 8015B/8021B

Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
53087-1 (P312745-04) Water Sampled: 12/30/03 13:35 Received: 12/30/03 16:40									
Gasoline Range Organics	46000	5000	ug/l	100	4010036	01/06/04	01/06/04	EPA 8015B/8021B	
Benzene	6600	50	"	"	"	"	"	"	
Toluene	7900	50	"	"	"	"	"	"	
Ethylbenzene	960	50	"	"	"	"	"	"	
Xylenes (total)	4000	50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	250	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		96 %		65-135	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		65-135	"	"	"	"	



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Project: General Commercial
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P312745
 Reported:
 01/14/04 10:47

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
53087-3 (P312745-02) Water Sampled: 12/30/03 11:55 Received: 12/30/03 16:40									
1,2-Dichloroethane	410	100	ug/l	100	4010127	01/09/04	01/10/04	EPA 8260B	
Surrogate: Dibromofluoromethane		102 %	84-122		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		101 %	74-135		"	"	"	"	
Surrogate: Toluene-d8		91 %	84-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98 %	86-119		"	"	"	"	
53087-2 (P312745-03) Water Sampled: 12/30/03 12:50 Received: 12/30/03 16:40									
Methyl tert-butyl ether	ND	2.5	ug/l	5	4010112	01/08/04	01/09/04	EPA 8260B	
Surrogate: Dibromofluoromethane		97 %	84-122		"	"	"	"	
53087-1 (P312745-04) Water Sampled: 12/30/03 13:35 Received: 12/30/03 16:40									
1,2-Dichloroethane	360	100	ug/l	100	4010127	01/09/04	01/10/04	EPA 8260B	
Surrogate: Dibromofluoromethane		99 %	84-122		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		93 %	74-135		"	"	"	"	
Surrogate: Toluene-d8		92 %	84-119		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97 %	86-119		"	"	"	"	

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 P312745
 Reported:
 01/14/04 10:47

Purgeable Hydrocarbons 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
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Batch 4010036 - EPA 5030B, waters
Blank (4010036-BLK1)

Prepared & Analyzed: 01/06/04

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	283		"	300		94	65-135			
Surrogate: 4-Bromofluorobenzene	317		"	300		106	65-135			

Laboratory Control Sample (4010036-BS1)

Prepared & Analyzed: 01/06/04

Gasoline Range Organics	2490	50	ug/l	2750		91	65-135			
Benzene	39.4	0.50	"	40.5		97	65-135			
Toluene	198	0.50	"	208		95	65-135			
Ethylbenzene	44.7	0.50	"	45.0		99	65-135			
Xylenes (total)	210	0.50	"	218		96	65-135			
Methyl tert-butyl ether	61.5	2.5	"	63.0		98	65-135			
Surrogate: a,a,a-Trifluorotoluene	312		"	300		104	65-135			
Surrogate: 4-Bromofluorobenzene	342		"	300		114	65-135			

Matrix Spike (4010036-MS1)

Source: P312664-01

Prepared & Analyzed: 01/06/04

Gasoline Range Organics	2530	50	ug/l	2750	26	91	65-135			
Benzene	39.8	0.50	"	40.5	0.47	97	65-135			
Toluene	200	0.50	"	208	0.22	96	65-135			
Ethylbenzene	45.9	0.50	"	45.0	ND	102	65-135			
Xylenes (total)	214	0.50	"	218	0.35	98	65-135			
Methyl tert-butyl ether	65.3	2.5	"	63.0	2.5	100	65-135			
Surrogate: a,a,a-Trifluorotoluene	304		"	300		101	65-135			
Surrogate: 4-Bromofluorobenzene	335		"	300		112	65-135			

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 P312745
 Reported:
 01/14/04 10:47

Purgeable Hydrocarbons 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
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Batch 4010036 - EPA 5030B, waters

Matrix Spike Dup (4010036-MSD1)	Source: P312664-01			Prepared & Analyzed: 01/06/04						
Gasoline Range Organics	2460	50	ug/l	2750	26	89	65-135	3	20	
Benzene	38.9	0.50	"	40.5	0.47	95	65-135	2	20	
Toluene	198	0.50	"	208	0.22	95	65-135	1	20	
Ethylbenzene	46.1	0.50	"	45.0	ND	102	65-135	0.4	20	
Xylenes (total)	212	0.50	"	218	0.35	97	65-135	0.9	20	
Methyl tert-butyl ether	64.3	2.5	"	63.0	2.5	98	65-135	2	20	
Surrogate: <i>a,a,a</i> -Trifluorotoluene	311		"	300		104	65-135			
Surrogate: 4-Bromofluorobenzene	333		"	300		111	65-135			

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 Reported:
 01/14/04 10:47

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 4010112 - EPA 5030B waters										
Blank (4010112-BLK1)					Prepared & Analyzed: 01/08/04					
Methyl tert-butyl ether	ND	0.50	ug/l							
Surrogate: Dibromofluoromethane	5.11		"	5.00		102	84-122			
Laboratory Control Sample (4010112-BS1)					Prepared & Analyzed: 01/08/04					
Methyl tert-butyl ether	5.56	0.50	ug/l	5.00		111	77-123			
Surrogate: Dibromofluoromethane	5.19		"	5.00		104	84-122			
Laboratory Control Sample Dup (4010112-BSD1)					Prepared & Analyzed: 01/08/04					
Methyl tert-butyl ether	4.88	0.50	ug/l	5.00		98	77-123	13	20	
Surrogate: Dibromofluoromethane	4.67		"	5.00		93	84-122			
Batch 4010127 - EPA 5030B waters										
Blank (4010127-BLK1)					Prepared & Analyzed: 01/09/04					
Acetone	ND	10	ug/l							
Benzene	ND	1.0	"							
Bromobenzene	ND	1.0	"							
Bromochloromethane	ND	1.0	"							
Bromodichloromethane	ND	1.0	"							
Bromoform	ND	1.0	"							
Bromomethane	ND	1.0	"							
2-Butanone	ND	10	"							
n-Butylbenzene	ND	1.0	"							
sec-Butylbenzene	ND	1.0	"							
tert-Butylbenzene	ND	1.0	"							
Carbon disulfide	ND	10	"							
Carbon tetrachloride	ND	1.0	"							
Chlorobenzene	ND	1.0	"							
Chloroethane	ND	1.0	"							
Chloroform	ND	1.0	"							
Chloromethane	ND	1.0	"							
2-Chlorotoluene	ND	1.0	"							
4-Chlorotoluene	ND	1.0	"							
Dibromochloromethane	ND	1.0	"							
1,2-Dibromo-3-chloropropane	ND	1.0	"							
1,2-Dibromoethane (EDB)	ND	1.0	"							
Dibromomethane	ND	1.0	"							

Sequoia Analytical - Petaluma

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Harding ESE - Novato
 5341 Old Redwood Highway, Suite 300
 Petaluma CA, 94954

 Project: General Commercial
 Project Number: 53087.007/BPS Oakland City Blue
 Project Manager: David Nanstad

 P312745
 Reported:
 01/14/04 10:47

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
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Batch 4010127 - EPA 5030B waters
Blank (4010127-BLK1)

Prepared & Analyzed: 01/09/04

1,2-Dichlorobenzene	ND	1.0	ug/l							
1,3-Dichlorobenzene	ND	1.0	"							
1,4-Dichlorobenzene	ND	1.0	"							
Dichlorodifluoromethane	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,2-Dichloropropane	ND	1.0	"							
1,3-Dichloropropane	ND	1.0	"							
2,2-Dichloropropane	ND	1.0	"							
1,1-Dichloropropene	ND	1.0	"							
cis-1,3-Dichloropropene	ND	1.0	"							
trans-1,3-Dichloropropene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Freon 113	ND	1.0	"							
Hexachlorobutadiene	ND	1.0	"							
2-Hexanone	ND	10	"							
Isopropylbenzene	ND	1.0	"							
p-Isopropyltoluene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
4-Methyl-2-pentanone	ND	10	"							
Methyl tert-butyl ether	ND	1.0	"							
Naphthalene	ND	1.0	"							
n-Propylbenzene	ND	1.0	"							
Styrene	ND	1.0	"							
1,1,2,2-Tetrachloroethane	ND	1.0	"							
1,1,1,2-Tetrachloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Toluene	ND	1.0	"							
1,2,3-Trichlorobenzene	ND	1.0	"							
1,2,4-Trichlorobenzene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Trichloroethene	ND	1.0	"							

Sequoia Analytical - Petaluma

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Harding ESE - Novato
 5341 Old Redwood Highway, Suite 300
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 Project: General Commercial
 Project Number: 53087.007/BPS Oakland City Blue
 Project Manager: David Nanstad

 P312745
 Reported:
 01/14/04 10:47

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
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Batch 4010127 - EPA 5030B waters
Blank (4010127-BLK1)

Prepared & Analyzed: 01/09/04

Trichlorofluoromethane	ND	1.0	ug/l							
1,2,3-Trichloropropane	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
Vinyl acetate	ND	20	"							
Vinyl chloride	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	"							
<i>Surrogate: Dibromofluoromethane</i>	5.38		"	5.00		108	84-122			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.35		"	5.00		107	74-135			
<i>Surrogate: Toluene-d8</i>	4.44		"	5.00		89	84-119			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.73		"	5.00		95	86-119			

Laboratory Control Sample (4010127-BS1)

Prepared & Analyzed: 01/09/04

Benzene	4.74	1.0	ug/l	5.00		95	81-118			
Chlorobenzene	5.20	1.0	"	5.00		104	88-119			
1,1-Dichloroethene	4.67	1.0	"	5.00		93	77-121			
Toluene	4.92	1.0	"	5.00		98	84-119			
Trichloroethene	4.84	1.0	"	5.00		97	83-126			
<i>Surrogate: Dibromofluoromethane</i>	5.05		"	5.00		101	84-122			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.74		"	5.00		95	74-135			
<i>Surrogate: Toluene-d8</i>	4.68		"	5.00		94	84-119			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.07		"	5.00		101	86-119			

Laboratory Control Sample Dup (4010127-BSD1)

Prepared & Analyzed: 01/09/04

Benzene	4.58	1.0	ug/l	5.00		92	81-118	3	20	
Chlorobenzene	5.23	1.0	"	5.00		105	88-119	0.6	20	
1,1-Dichloroethene	4.72	1.0	"	5.00		94	77-121	1	20	
Toluene	4.90	1.0	"	5.00		98	84-119	0.4	20	
Trichloroethene	4.64	1.0	"	5.00		93	83-126	4	20	
<i>Surrogate: Dibromofluoromethane</i>	5.13		"	5.00		103	84-122			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.32		"	5.00		106	74-135			
<i>Surrogate: Toluene-d8</i>	4.60		"	5.00		92	84-119			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.08		"	5.00		102	86-119			

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5341 Old Redwood Highway, Suite 300
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Project: **General Commercial**
Project Number: **53087.007/BPS Oakland City Blue**
Project Manager: **David Nanstad**

P312745
Reported:
01/14/04 10:47

Notes and Definitions

- QR-04 Primary and confirmation results varied by greater than 40% RPD. The results may still be useful for their intended purpose.
- 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 10265

Lab: Sequoia

Job Number: 53087, 007

Name/Location: BPS Oakland City Blue

Project Manager: David Nørstad

Samplers: David Browne

Recorder: David Browne
 (Signature Required)

MATRIX			#CONTAINERS & PRESERV.				SAMPLE NUMBER		DATE			
Water	Soil	Air	Unpres.	H ₂ O ₂	HNO ₃	HCL	YR	SEQ	YR	MO	DAY	TIME
X						3	53087	-4	03	12	20	1045
X						3	53087	-3	03	12	20	1155
X						3	53087	-2	03	12	20	1250
X						3	53087	-1	03	12	20	1335

STATION DESCRIPTION		DEPTH
P312745 - 1		
- 2		
- 3		
- 4		

ANALYSIS REQUESTED							
Gasoline Range Organics 8015B	Diesel Range Organics 8015B	BTEX plus <u>MBRE</u>	CCR Title 22 Metals (17)	EPA 8021B	EPA 8260B	EPA 8270C	
X	X	X	X	X	X	X	TPH gas (6015)
		X	X	X	X	X	MTBE
		X	X	X	X	X	ethylene Dichloride

ADDITIONAL INFORMATION		
SAMPLE NUMBER		TURNAROUND TIME/REMARKS
YR	SEQ	
		STANDARD TAG
		COOLER CUSTODY <input type="checkbox"/>
		NO <input type="checkbox"/>
		COOLER TEMPERATURE <u>4.2</u> °C

CHAIN OF CUSTODY RECORD			
Relinquished By: <u>David Browne</u> (signature)	<u>David Browne</u> (Print Name)	<u>Mactec</u> (Company)	<u>12/20/03 10</u> (Date/Time)
Received By: <u>Gail Hermann</u> (signature)	<u>GAIL HERMANN</u> (Print Name)	<u>Sequoia</u> (Company)	<u>12/30/03 10</u> (Date/Time)
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)
Relinquished By: _____ (signature)	_____ (Print Name)	_____ (Company)	_____ (Date/Time)
Received By: _____ (signature)	_____ (Print Name)	_____ (Company)	_____ (Date/Time)
Method of Shipment:			

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: HIA
 REC. BY (PRINT) SA
 WORKORDER: P312745

DATE Received at Lab: 12/30/03
 TIME Received at Lab: 11640
 LOG IN DATE: 12/31/03

(Drinking water) for regulatory purposes: YES/NO
 (Wastewater) for regulatory purposes: YES/NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	#	CLIENT ID	DESCRIPTION	SAMPLE MATRIX	DATE SAMPLED	CONDITION (ETC.)
1. Custody Seal(s) Present / <input checked="" type="radio"/> Absent Intact / Broken*			53087-4	3XDV	W	12/30/03	
2. Chain-of-Custody <input checked="" type="radio"/> Present / Absent*			3	↓	↓	↓	
3. Traffic Reports or Packing List: Present / <input checked="" type="radio"/> Absent			2	↓	↓	↓	
4. Airbill: Airbill / Sticker Present / <input checked="" type="radio"/> Absent			1	↓	↓	↓	
5. Airbill #:							
6. Sample Labels: <input checked="" type="radio"/> Present / Absent							
7. Sample IDs: <input checked="" type="radio"/> Listed / Not Listed on Chain-of-Custody							
8. Sample Condition: <input checked="" type="radio"/> Intact / Broken* / Leaking*							
9. Does information on custody reports, traffic reports and sample labels agree? <input checked="" type="radio"/> Yes / No*							
10. Sample received within hold time: <input checked="" type="radio"/> Yes / No*							
11. Proper Preservatives used: <input checked="" type="radio"/> Yes / No*							
12. Temp Rec. at Lab: (Acceptance range for samples requiring thermal pres.: 4+/-2°C) <input checked="" type="radio"/> Yes / No*							

***If Circled, contact Project Manager and attach record of resolution.**

APPENDIX B
GROUNDWATER SAMPLING FORM

**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	53087-1
MW-3	53087-2
MW-5	53087-3
MW-6	53087-6



GROUNDWATER SAMPLING FORM

Job Name: City Blue
Job Number: 53087 007
Recorded By: David Brown

Well Number: MW-1
Well Type: Monitor, Extraction, Other
Date: 12/23/2003
Sampled By: D.S.B

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 4
Total Depth of Casing (TD in ft BTOC): 33.5
Water Level Depth (WL in ft BTOC): 29.07
No. of Well Volumes to be purged (# V): 3

PURGE METHOD

X Baller - Type: P.V.C.
Submersible - Type:
Other - Type:

PURGE VOLUME CALCULATION

(33.5 - 29.07) x 4^2 x 3 x 0.0498 = 18.5 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

Table with columns: Minutes, pH, Conductivity (µS), Temp. (°C/°F), Turbidity (NTU). Rows include initial and 6, 12, 18.5 minute measurements.

PURGE TIME

Purge Start: 1310
Purge Stop: 1330
Elapsed: 20
GPM:

PURGE RATE

PURGE VOLUME

Volume: 18.5 gallons
D.O. 0.18 mg/lt Redox -329.2 mv
Observations During Purging (Well Condition, Color, Odor): cloudy black - moderate odor sheen on surface
Discharge Water Disposal: Sanitary Sewer, Storm Sewer, Other 55 Gal. drum on site

WELL SAMPLING

Bailer - Type: Sample Time: 1335

Table with columns: Sample No., Volume/Cont., Analysis Requested, Preservatives, Lab, Comments. Row 1: 53087-1, 3 VOA's, T.P.H gas (8015 Modified), HCL, Sequoia.

QUALITY CONTROL SAMPLES

Three tables for Duplicate Samples, Blank Samples, and Other Samples.

Checked: 3/15/04
Approved: [Signature]



GROUNDWATER SAMPLING FORM

Job Name: City Blue
 Job Number: 53087 007
 Recorded By: David Browne
 (Signature)

Well Number: MW-3
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 12/23/2003
 Sampled By: D.S.B
 (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 4
 Total Depth of Casing (TD in ft BTOC): 31
 Water Level Depth (WL in ft BTOC): 23.95
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD

Bailor - Type: P.V.C.
 Submersible - Type: _____
 Other - Type: _____

PURGE VOLUME CALCULATION

$(31.0 - 23.95) \times 4^2 \times 3 \times 0.0408 = 14.8$ 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. <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	Turbidity (NTU)
Initial	5.64	149.45	18.3	78.0
5	5.95	175	19.4	>1000
10	6.33	362	19.7	>1000
15	6.97	396	19.7	>1000
Meter S/N				

PURGE TIME

Purge Start: _____ GPM: _____
 Purge Stop: _____ GPM: _____
 Elapsed: _____

PURGE RATE

PURGE VOLUME

Volume: _____ gallons
 D.O. 0.33 mg/l Redox -198 mV

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

cloudy dark gray slight hydrocarbon odor - Shear on surface

Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 55 Gal. drum on site

WELL SAMPLING

Bailor - Type: dedicated Sample Time: 1 0 1250

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
<u>53087-2</u>	<u>3 VOA's</u>	<u>T.P.H gas (8015 Modified)</u> <u>BTEX (8020)</u> <u>MTBE (8020)</u>	<u>HCL</u>	<u>Sequola</u>	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Checked 3.25.04
 Approved D.S.B



GROUNDWATER SAMPLING FORM

Job Name: City Blue
Job Number: 53087 007
Recorded By: David Boone

Well Number: MW-5
Well Type: Monitor, Extraction, Other, PVC, St. Steel, Other
Date: 12/23/2003
Sampled By: D.S.B

WELL PURGING

PURGE VOLUME
Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 33.5
Water Level Depth (WL in ft BTOC): 22.56
No. of Well Volumes to be purged (# V): 3

PURGE METHOD
[X] Bailor - Type: P.V.C.
Submersible - Type:
Other - Type:

PURGE VOLUME CALCULATION

(33.5 - 22.56) x 2^2 x 3 x 0.0408 = 5.4 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

Table with columns: Minutes, pH, Conductivity (µS), Temp. (°C/°F), Turbidity (NTU). Rows include Initial, 2, 4, 5.5 minutes.

PURGE TIME
Purge Start: 1130
Purge Stop: 1150
Elapsed: 20
PURGE RATE
GPM: /

PURGE VOLUME
Volume: 5.5 gallons
D.O. 0.58 mg/L Redox -269.1 MV
Observations During Purging (Well Condition, Color, Odor): cloudy gray, slight hydrocarbon odor, No sheen
Discharge Water Disposal: [] Sanitary Sewer [X] Storm Sewer [X] Other 55 Gal. drum on site

WELL SAMPLING

Bailor - Type: Sample Time: 1155

Table with columns: Sample No., Volume/Cont., Analysis Requested, Preservatives, Lab, Comments. Row 1: 53087-3, 3 VOA's, T.P.H gas (8015 Modified), HCL, Seqoia.

QUALITY CONTROL SAMPLES

Duplicate Samples table with columns: Original Sample No., Dupl. Sample No.

Blank Samples table with columns: Type, Sample No.

Other Samples table with columns: Type, Sample No.

Checked: 7-25-04
Approved: [Signature]



GROUNDWATER SAMPLING FORM

Job Name: City Blue
 Job Number: 53087 007
 Recorded By: David Browne
 (Signature)

Well Number: MW-6
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 12/23/2003
 Sampled By: 29 D.S.B
 (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
 Total Depth of Casing (TD in ft BTOC): 32.5
 Water Level Depth (WL in ft BTOC): 23.97
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD

Bailor - Type: P.V.C.
 Submersible - Type: _____
 Other - Type: _____

PURGE VOLUME CALCULATION

$(32.5 - 23.97) \times 2^2 \times 3 \times 0.0408 = 4.4$ 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.		Turbidity (NTU)
			<input checked="" type="checkbox"/> °C	<input type="checkbox"/> °F	
Initial	6.66	897 µS	18.2		2.1
1.5	6.70	915	19.3		>1000
3.0	6.56	940	20.0		>1000
4.5	6.69	934	20.1		>1000
Meter S/N					

PURGE TIME

Purge Start: 1010 GPM: _____
 Purge Stop: 1040 GPM: _____
 Elapsed: 30

PURGE RATE

PURGE VOLUME

Volume: 4.5 gallons
 D.O. 0.60 mg/l Redox 113.7mv
 Observations During Purging (Well Condition, Color, Odor):
cloudy, olive brown
odorless, no smell
 Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 55 Gal. drum on site

WELL SAMPLING

Bailor - Type: Dedicated Sample Time: 1095

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
53087-4	3 VOA's	T.P.H gas (8015 Modified) BTEX (8020) MTBE (8020)	HCL	Sequoia	

QUALITY CONTROL SAMPLES

Duplicate Samples	
Original Sample No.	Dupl. Sample No.

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Checked 3-15-04
 Approved [Signature]

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	12/29	0920	29.07	29.07	Yes	No	Good	Good	4"	
MW-3	12/29/03	0825	73.45	73.45	Yes	Yes	Good	Good	4"	
MW-5	12/29/03	0855	22.56	22.56	Yes	Yes	Good	Good	2"	
MW-6	12/29/03	0800	29.47	29.47	Yes	Yes	Good	Good	2"	
MW-1A	12/29/03	0925	22.58	22.58	Yes	No	Good	Good	4"	
MW-4	12/29/03	0930	29.00	29.00	No	No	Good	Good	4"	

Please record all monitoring equipment model numbers, serial numbers and calibration dates here. Also record expiration dates of calibration fluids if applicable:

pH: Hanna DB3 / Redox meter the same

Temperature: See Field Notes

Specific Conductance: _____

Dissolved Oxygen: 0160075 m

Turbidity: _____

Checked 3.25.04

Approved [Signature]