PORT OF OAKLAND

APR 19 2002

April 16, 2002

Mr. Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

RE: 1st Quarter 2002, Quarterly Groundwater Monitoring and Product Recovery Report – 2277 and 2225 Seventh Street, Oakland, CA

Dear Mr. Chan: R0186 R0187

Please find enclosed the subject Port of Oakland (Port) groundwater monitoring and product recovery report for 2277 and 2225 Seventh Street in Oakland, California. This report is being submitted in accordance with Alameda County Health Care Services Agency (ACHCSA) requirements.

The next monitoring event will be performed during the second quarter of 2002, and will be in accordance with the aforementioned requirements. If you have any questions or comments regarding the results, please contact me at (510) 627-1134.

Sincerely,

Jeffrey L. Rubin, CPSS, REA
Associate Port Environmental Scientist
Environmental Health and Safety Compliance

Enclosure: noted

Cc (w encl.): Michele Heffes

Cc (w/o encl.): Jeff Jones
Terry McManus (Harding ESE)
Trish Eliasson (Harding ESE)

Harding ESE
A MACTEC COMPANY

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April 16, 2002

54821.1

Mr. Jeff Rubin
Associate Environmental Scientist
Port of Oakland
530 Water Street
Oakland, California 94607

First Quarter of 2002 Quarterly Groundwater Monitoring and Product Recovery Report
2277 and 2225 Seventh Street
Oakland, California

Dear Mr. Rubin:

Harding ESE, Inc. (Harding ESE), has prepared this report on behalf of the Port of Oakland for the groundwater monitoring and sampling programs at 2277 7th Street and 2225 7th Street in Oakland, California (Plate 1). This report summarizes the quarterly monitoring of six groundwater monitoring wells (MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8A) at 2277 7th Street and the quarterly water levels of three groundwater monitoring wells (MW-1, MW-2, and MW-3) at 2225 7th. The locations of these wells are shown on Plates 2 through 4.

This report also summarizes the operation of the product recovery system at the 2277 7th Street site during the first quarter of 2002. Monitoring well MW-3 at 2277 7th Street contains an active product skimmer that recovers separate-phase petroleum hydrocarbons from the groundwater surface; Harding ESE did not collect a groundwater sample from this well. Monitoring well MW-1 contains a passive product skimmer, and, therefore, Harding ESE did not collect a sample from this well either.

BACKGROUND

2277 7th Street

Monitoring wells were installed to assess groundwater quality following the removal of underground storage tanks (USTs) from the site in September 1993. The former USTs, located on the south side of Building C-401, consisted of two 10,000-gallon gasoline tanks (CF-17 and CF-18), one 500-gallon oil tank (CF-19), and one 300-gallon waste oil tank (CF-20). On April 20, 2000, Harding ESE oversaw the abandonment of monitoring well MW-8 located at the northern edge of the property. Because of the Port's plans to construct a railroad track associated with the Port of Oakland Vision 2000 improvements in the immediate vicinity of the well, all surface structures, including the well, needed to be removed.

After the railroad construction was completed, the Port had a new well, MW-8A, installed in the same vicinity on October 2, 2001 by Innovative Technical Solutions, Inc.

2225 7th Street

Monitoring wells were installed at the adjacent site to assess groundwater quality following the removal of underground storage tanks (USTs) from the site in 1989 and 1992. The former USTs consisted of seven diesel USTs and one bulk oil UST located on the east side of Building C-407 and one waste oil UST located north of Building C-407.

GROUNDWATER MONITORING

Harding ESE used the following procedures during groundwater monitoring at the 2277 7th Street site. Prior to purging and sampling the monitoring wells, Harding ESE measured the depth to groundwater below the top of the well casing with an electric water level indicator. After measuring the depth to water, Harding ESE purged the wells using a PVC bailer. Conductivity, pH, and temperature were monitored periodically during purging. Harding ESE collected the groundwater samples after removing a minimum of three well-casing volumes of water and when the conductivity, pH, and temperature measurements had stabilized. The depths to groundwater and field parameter measurements were recorded on Groundwater Sampling Forms included in Appendix A. The purge water was stored onsite in the treatment system's product recovery tank. The Port's waste disposal contractor, Foss Environmental Services Company, Inc. periodically off-hauls and disposes of the purge water along with the product in the tank.

Harding ESE collected groundwater samples from the monitoring wells using Teflon disposable bailers and then transferred the groundwater into laboratory-provided containers. A duplicate sample was collected for quality assurance. Sample containers were labeled with the sample number, date and time of collection, and sampler's initials, then placed in an insulated cooler with ice. The samples were accompanied by a laboratory provided trip blank and delivered under chain-of-custody protocol to STL San Francisco, a California certified analytical laboratory.

2277 7th Street

Harding ESE conducted this quarter's groundwater monitoring at 2277 7th Street on March 8th, 2002. In addition to measuring depth to groundwater, Harding ESE measured the depth to product in MW-1 and MW-3 to calculate product thickness. Groundwater level measurements are summarized in Table 1 and product thickness measurements are summarized on Table 2. The groundwater gradient direction is presented on Plate 3. Harding ESE did not use the groundwater measurements from MW-1 and MW-3 to develop the groundwater gradient because of the product recovery equipment in the well.

2225 7th Street

Harding ESE also conducted this quarter's groundwater level measurements at 2225 7th Street on March 8, 2002. Groundwater level measurements are summarized in Table 3. Groundwater elevations and the gradient direction are presented on Plate 3.

LABORATORY ANALYSIS GROUNDWATER SAMPLES

STL San Francisco. performed the chemical analyses of the groundwater samples using the following analytical methods:

- Total petroleum hydrocarbons as gasoline (TPHg) in accordance with EPA Method 8015 modified.
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl t-butyl ether (MTBE) in accordance with EPA Method 8021B with confirmation of MTBE by EPA Test Method 8260.
- TPH as diesel (TPHd) in accordance with EPA Method 8015 modified following a silica-gel cleanup procedure.
- TPH as motor oil (TPHmo) in accordance with EPA Method 8015 modified following a silica-gel cleanup procedure.

The laboratory results for 2277 7th Street are summarized in Table 4 and are shown on Plate 4. The historical sampling results for 2225 7th Street are summarized in Table 5. Copies of the laboratory results and chain-of-custody forms are provided in Appendix B.

FINDINGS

During this monitoring event, the groundwater measurements at both sites were conducted on March 8, 2002. The water levels are presented in Tables 1 and 3. Harding ESE used the computer program Surfer to create the contours on Plate 3 using the Kriging method. According to these contours, the groundwater appears to be moving towards the north from Building C-407 toward Building C-401. The groundwater flow direction observed during March 8, 2002 closely matched that observed during the third and fourth quarters of 2001.

2277 7th Street

Harding ESE monitored MW-8 from 1998 through its abandonment in April 2000. During this time, no groundwater samples were collected because the well contained a thick, viscous, tar-like petroleum product. The new well, MW-8A, was installed in October, 2001 near the location of abandoned well MW-8. Harding ESE sampled MW-8A for the second time in the first quarter 2002, and no separate-phase products have been detected in this well.

Results of the March 8, 2002 groundwater sampling at 2277 7th Street are summarized below:

- Harding ESE found measurable product in MW-1 and MW-3 and therefore did not collect a groundwater sample from either well.
- TPHg was reported at a concentration of 490 µg/L in MW-4, 160 µg/L in MW-6, and 52 µg/L in MW-7. TPHg was not detected in MW-2, MW-5, or MW-8A. Last quarter TPHg was reported at a concentration of 180 µg/L in MW-4, 53 µg/L in MW-6, 51 µg/L in MW-7, and 68 µg/L in MW-8A.
- Benzene was reported at a concentration of 180 µg/L in MW-4 and 30 µg/L in MW-6. Benzene was not detected in MW-2, MW-5, MW-7, or MW-8A. Last quarter, benzene was detected at a concentration of 4.4 µg/L in MW-2, 61 µg/L in MW-4, and 27 µg/L in MW-6.
- Toluene was not detected above the reporting limit in MW-2, MW-4, MW-5, MW-6, MW-7, or MW-8A this quarter or last quarter.
- Ethylbenzene was not detected in MW-2, MW-4, MW-5, MW-6, MW-7, or MW-8A. Ethylbenzene was detected at a concentration of 1.3 µg/L in MW-6 during the previous quarter.
- Total xylenes were not detected above the reporting limit in MW-2, MW-4, MW-5, MW-6, MW-7, or MW-8A this quarter or last quarter.
- MTBE was reported at a concentration of 5.0 µg/L in MW-6 and 24 µg/L in MW-7. The laboratory checked these detections for false-positives, and both detections of MTBE were confirmed by the laboratory. Wells MW-2, MW-4, MW-5, and MW-8A did not contain detectable amounts of MTBE this quarter. Last quarter, MTBE was detected at concentrations of 5.0 µg/L in MW-2, 3.8 µg/L in MW-4, and 98 and 96 µg/L in MW-7.
- TPHd was reported at a concentration of 54 µg/l in MW-4, 640 µg/L in MW-6, and 760 and 350 µg/L in MW-8A. TPHd was not detected in MW-2, MW-5, or MW-7. During the previous quarter, TPHd was detected at 550 µg/l in MW-6, 52 µg/L in the MW-7 duplicate sample, and 720 µg/L in MW-8A.
- TPHmo was not detected above the reporting limit in any of the wells sampled this quarter or last.

QUALITY ASSURANCE AND QUALITY CONTROL

A duplicate sample was collected from monitoring well MW-8A at 2277 7th Street on March 8, 2002 and submitted to the analytical laboratory to evaluate the precision of the analytical results. Precision is an indication of the reproducibility of results and is assessed by calculating the relative percent difference (RPD) between the primary sample result (X1) and the duplicate sample result (X2), as follows:

RPD = $|X1 - X2|/\{(X1 + X2)/2\} \times 100$. (For example: A low RPD indicates high precision; a RPD of 67 percent indicates the two results differ by a factor of two.)

As shown below, the RPD was calculated for chemical compounds detected above the reporting limit in either the duplicate or primary sample.

2277 7th St.
MW-8A
12/12/01

ANALYTE	X1	X2	X1-X2	(X1+X2)/2	RPD
MTBE	<5.0	<5.0	--	--	--
B	<0.5	<0.5	--	--	--
T	<0.5	<0.5	--	--	--
E	<0.5	<0.5	--	--	--
X	<0.5	<0.5	--	--	--
TPHd	760	350	--	--	74%
TPHg	<50	<50	--	--	

- The relative percent difference between the analytical results from MW-8A and its duplicate sample was 74% for the one detected compound.

PRODUCT RECOVERY SYSTEM AT 2277 7TH STREET

The product recovery system at 2277 7th Street consists of an air-actuated (active) product skimmer in MW-3. Since MW-1 contained no measurable product, the passive product skimmer was removed on May 22, 2000. However in the following months, product was measured in the well and skimmer was replaced. Harding ESE completed product recovery at MW-6 and removed the passive skimmer on April 19, 1999. The product in MW-3 discharges to a product recovery tank, and Harding ESE conducts bi-weekly inspections of the treatment system. The Port's waste disposal contractor, Foss Environmental Services Company, Inc., removes product from the product recovery tank at various times throughout the quarter. Table 2 presents a summary of the product thickness data. A summary of the activities during the past quarter associated with the operation and maintenance of the product recovery system is presented in Table 6.

CLOSURE

We trust that this provides the information required at this time. If you have any questions, please contact Trish Eliasson at (510) 451-1001.

Yours very truly,

HARDING ESE, INC.

Trish Eliasson
Senior Staff Engineer

Buck King, RG, CHG
Senior Project Hydrogeologist

REGISTERED GEOLOGIST
JON BUCKALEW KING
No. 6353
EXP. 8/05
STATE OF CALIFORNIA

TAE/BK:lv/P:wpdata/54821/038073R.doc

Attachments: Table 1 – Groundwater Elevations Data, 2277 7th Street
Table 2 – Summary of Product Removal and Product Thickness, 2277 7th Street
Table 3 – Groundwater Elevations Data, 2225 7th
Table 4 – Groundwater Sample Results, 2277 7th Street
Table 5 – Groundwater Sample Results, 2225 7th Street
Table 6 – Summary of Operation and Maintenance Activities

Plate 1 – Vicinity Map
Plate 2 – Site Plan
Plate 3 – Groundwater Elevations, 2277 and 2225 7th Street, March 8, 2002
Plate 4 – Groundwater Sample Results, 2277 7th Street, March 8, 2001

Appendix A - Groundwater Sampling Forms
Appendix B - Laboratory Reports

TABLES

Table 1. Groundwater Elevations Data, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
MW-1	14.14	4/18/00	8.21	5.93
		5/22/00	8.17	5.97
		7/10/01	10.00	4.14
		12/12/01	NA	NA
		3/8/02	NA	NA
MW-2	14.36	12/31/97	8.73	5.63
		4/13/98	7.72	6.64
		11/6/98	9.43	4.93
		3/19/99	8.21	6.15
		6/24/99	8.91	5.45
		9/28/99	9.42	4.94
		11/12/99	9.63	4.73
		2/11/00	8.54	5.82
		5/22/00	8.10	6.26
		9/6/00	8.79	5.57
		12/19/00	9.19	5.17
		2/21/01	7.99	6.37
		4/3/01	8.23	6.13
		7/10/01	8.70	5.66
		12/12/01	8.16	6.20
		1/22/02	7.64	6.72
		3/8/02	8.31	6.05
MW-4	13.15	12/31/97	7.09	6.06
		4/13/98	7.71	5.44
		11/6/98	8.69	4.46
		3/19/99	8.00	5.15
		6/24/99	8.45	4 70
		9/28/99	8.73	4.42
		11/12/99	8.83	4.32
		2/11/00	7.71	5.44
		5/22/00	8.09	5.06
		9/6/00	8.32	4.83
		12/19/00	8.47	4.68
		2/21/01	7.51	5.64
		4/3/01	8.13	5.02
		7/10/01	8.12	5.03
		12/12/01	7.65	5.50
		1/22/02	7.60	5.55
		3/8/02	7.96	5.19
MW-5	13.49	12/31/97	6.38	7.11
		4/13/98	5.56	7.93
		11/6/98	6.59	6.90
		3/19/99	6.20	7.29
		6/24/99	6.73	6.76
		9/28/99	6.91	6.58
		11/12/99	7.06	6.43
		2/11/00	7.00	6.49
		5/22/00	6.21	7.28
		9/6/00	6.56	6.93
		12/19/00	6.68	6.81
		2/21/01	6.08	7.41
		4/3/01	6.38	7.11
		7/10/01	6.58	6.91
		12/12/01	6 40	7.09
		1/22/02	6.10	7.39
		3/8/02	6.10	7.39

Table 1. Groundwater Elevations Data, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
MW-6	14.00	6/24/99	8.61	5.39
		9/28/99	9.26	4.74
		11/12/99	8.01	5.99
		2/11/00	7.20	6.80
		5/22/00	7.13	6.87
		9/6/00	7.12	6.88
		12/19/00	7.57	6.43
		2/21/01	7.50	6.50
		4/3/01	6.88	7.12
		7/10/01	7.15	6.85
		12/12/01	9.50	4.50
		1/22/02	6.69	7.31
		3/8/02	6.98	7.02
MW-7	14.35	12/31/97	8.88	5.47
		4/13/98	7.86	6.49
		11/6/98	9.55	4.80
		3/19/99	8.41	5.94
		6/24/99	9.08	5.27
		9/28/99	9.60	4.75
		11/12/99	9.77	4.58
		2/11/00	8.67	5.68
		5/22/00	8.43	5.92
		9/6/00	8.88	5.47
		12/19/00	9.21	5.14
		2/21/01	8.13	6.22
		4/3/01	8.45	5.90
		7/10/01	8.87	5.48
		12/12/01	8.39	5.96
		1/22/02	7.99	6.36
		3/8/02	8.51	5.84
MW-8A	12.94	12/12/01	7.20	NA
		1/22/02	7.20	5.74
		3/8/02	7.70	5.24

[1] Elevation data relative to Port of Oakland datum; well surveys performed on September 12, 1996, and February 4, 1998, by PLS Surveys.

- Data prior to November 6, 1998 taken from *Groundwater Monitoring, Sampling and Product Removal System O&M Report* dated July 21, 1998, by Innovative Technical Solutions, Inc.
- Monitoring MW-8 was abandoned on April 20, 2000 in order to construct a railroad track associated with the Port of Oakland Vision 2000.

NA = Not available

Table 2. Product Removal and Product Thickness Data, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Well ID	Elevation of Top of Casing[1] (feet)	Date Of Monitoring	Depth to Free Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Estimated Product Removed (gallons)	Product Removal Method [2]
MW-1	14.14	12/31/97	-	-	-	0.2	passive skimmer
		1/29/98	-	-	-	0.2	passive skimmer
		3/2/98	-	-	-	0.018	passive skimmer
		5/11/98	-	-	-	0.02	passive skimmer
		6/15/98	-	-	-	0.2	passive skimmer
		11/6/98	9.34	10.3	0.96	1.2	passive skimmer
		1/7/99	-	-	-	0.2	passive skimmer
		2/11/99	-	-	-	0.2	passive skimmer
		3/12/99	-	-	-	0.2	passive skimmer
		3/19/99	NM	8.45	>0.01	0.07	passive skimmer
		4/14/99	-	-	-	0.2	passive skimmer
		5/11/99	-	-	-	0.2	passive skimmer
		6/24/99	8.88	9.63	0.8	0.2	passive skimmer
		7/15/99	--	--	--	0.2	passive skimmer
		7/16/99	--	--	--	0.2	passive skimmer
		8/27/99	--	--	--	0.2	passive skimmer
		9/28/99	--	--	0.65	0.2	passive skimmer
		10/5/99	--	--	--	0.2	passive skimmer
		11/12/99	9.38	10.27	0.89	0.2	passive skimmer
		12/21/99	--	--	--	0.2	passive skimmer
		1/26/00	--	--	--	0.2	passive skimmer
		1/28/00	9.22	9.24	0.02	--	passive skimmer
		2/11/00	--	7.00	0.00	0.2	passive skimmer
		3/1/00	--	7.45	0.00	0.0	passive skimmer
		3/21/00	NM	7.34	0.00	0.0	passive skimmer
		4/18/00	NM	8.21	0.00	0.0	passive skimmer
		5/22/2000 [3]	NM	8.51	0.00	0.0	passive skimmer
		9/6/2000 [4]	8.52	9.24	0.72	0.0	passive skimmer
		9/21/00	8.71	9.26	0.55	0.0	passive skimmer
		10/11/00	--	--	--	0.0	passive skimmer
		11/30/00	--	--	--	0.0	passive skimmer
		12/19/00	9.5	9.89	0.39	0.0	passive skimmer
		2/22/01	8.3	8.4	0.13	0.0	passive skimmer
		4/3/01	8.3	8.55	0.25	0.0	passive skimmer
		4/23/01	--	--	--	0.0	passive skimmer
		5/11/01	--	--	--	0.0	passive skimmer
		5/30/01	8.5	8.9	0.40	0.0	passive skimmer
		6/14/01	--	--	--	0.0	passive skimmer
		7/10/01	8.8	10	1.20	0.0	passive skimmer
		12/12/01	NA	NA	NA	1.0	passive skimmer
		3/8/02	NA	NA	NA	NA	passive skimmer
MW-3	14.22	12/31/97	-	-	-	30	active skimmer
		1/29/98	-	-	-	10	active skimmer
		4/13/98	-	-	-	240	active skimmer
		5/11/98	-	-	-	1,545	active skimmer
		6/15/98	-	-	-	1,950	active skimmer
		11/6/98	8.84	9.94	1.1	500	active skimmer
		1/5/99	-	-	-	275[5]	active skimmer
		1/14/99	-	-	-	400[5]	active skimmer
		2/3/99	-	-	-	400[5]	active skimmer
		2/26/99	-	-	-	570[5]	active skimmer
		3/19/99	7.52	8.05	0.5	211	active skimmer
		6/16/99	-	-	-	310	active skimmer
		6/24/99	8.38	8.56	0.2	--	active skimmer
		7/14/99	--	--	--	50[5]	active skimmer
		9/28/99	--	--	0.2	--	active skimmer
		10/29/99	--	--	--	125[5]	active skimmer
		11/12/99	9.14	9.23	0.09	--	active skimmer
		1/28/00	--	--	--	135	active skimmer
		2/11/00	7.97	8.37	0.40	40	active skimmer
		3/1/00	6.59	7.24	0.65	0.0	active skimmer
		3/21/00	6.50	6.56	0.06	35	active skimmer
		4/18/00	--	--	--	--	active skimmer
		5/22/00	7.51	8.05	0.54	40	active skimmer

Table 2. Product Removal and Product Thickness Data, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Well ID	Elevation of Top of Casing[1] (feet)	Date Of Monitoring	Depth to Free Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Estimated Product Removed (gallons)	Product Removal Method [2]
MW-3		6/26/00	7.82	8.2	0.38	90	active skimmer
		7/25/00	7.90	8.92	1.02	20	active skimmer
		8/31/00	8.15	9.5	1.35	30	active skimmer
		9/6/00	8.21	9.42	1.21	--	active skimmer
		9/21/00	8.30	8.88	0.58	115	active skimmer
		10/11/00	--	--	--	170	active skimmer
		11/30/00	--	--	--	105	active skimmer
		12/19/00	8.60	9.65	1.05	10	active skimmer
		2/22/01	6.36	8.15	1.79	--	active skimmer
		4/3/01	7.48	8.88	1.40	--	active skimmer
		4/23/01	7.85	9.1	1.25	--	active skimmer
		5/11/01	--	--	--	--	active skimmer
		5/30/01	7.75	9.1	1.35	--	active skimmer
		6/14/01	--	--	--	--	active skimmer
		7/10/01	8.10	9.6	1.50	--	active skimmer
		12/12/01	NA	NA	NA	1,000 [5]	active skimmer
		3/8/02	7.80	8	0.20	1,000 [5]	active skimmer
MW-6	14.00	13/31/97	-	-	-	0.0014	passive skimmer
		1/29/98	-	-	-	0.0014	passive skimmer
		3/2/98	-	-	-	0.0014	passive skimmer
		11/6/98	NM	9.62	>0.01	0.0	passive skimmer
		3/19/99	NM	7.37	>0.01	0.0	passive skimmer
MW-8 [1]	12.94	12/31/97	8.49	8.82	0.33	4.38	-
		11/6/98	9.25	10.3	1.1	3.48	-

- Data prior to November 6, 1998 taken from *Groundwater Monitoring, Sampling and Product Removal System O&M Report* dated July 21, 1998, by Innovative Technical Solutions, Inc.
- Data prior to November 6, 1998 taken from *Groundwater Monitoring, Sampling and Product*
- Product removal volumes from 11/6/98 on represent total product removed during that reporting period.

[1] Free product in well is too viscous to allow product thickness or groundwater level measurements.

[2] Product removal totals for MW-3 are estimated from documentation of product removal from the treatment system performed by Performance Excavators, Inc.

[3] The passive skimmer was removed from MW-1 on 5/22/00.

[4] The passive skimmer replaced MW-1 on 9/6/00.

[5] Removal total is the volume of both product and wastewater removed from the treatment system by Foss Environmental Services Company, Inc.

NM - Well checked for free product but not able to detect a measurable amount in the well.

Shaded areas indicate data from this reporting period.

NA - Not Available

Table 3. Groundwater Elevations Data, 2225 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
MW-1	13.72	1/15/93	5 21	8.51
		9/12/94	6.37	7 35
		11/30/94	5 76	7.96
		3/29/95	4 57	9.15
		5/25/95	5.14	8 58
		6/21/95	5.41	8.31
		6/23/95	5 44	8.28
		11/20/95	6 28	7.44
		12/27/95	5.86	7.86
		3/25/96	5.21	8 51
		6/26/96	5.58	8 14
		10/14/96	6 22	7.50
		3/19/97	5.48	8 24
		6/26/00	5.19	8 53
		9/6/00	5.62	8.10
		12/19/00	5 57	8.15
		4/3/01	5 03	8.69
		7/10/01	5.57	8.15
		12/12/01	5.60	8 12
		1/22/02	5 19	8.53
		3/8/02	5 17	8.55
MW-2	13 8	1/15/93	6 21	7 59
		9/12/94	6.47	7 33
		11/30/94	6.34	7 46
		3/29/95	5.51	8.29
		5/25/95	5 60	8 20
		6/21/95	5 72	8 08
		6/23/95	5.72	8 08
		9/28/95	6.15	7 65
		11/20/95	6 42	7 38
		12/27/95	6 31	7.49
		3/25/96	5 74	8 06
		6/26/96	5 85	7.95
		10/14/96	6.36	7.44
		3/19/97	5.90	7.90
		6/26/00	5.37	8.43
		9/6/00	5.62	8 18
		12/19/00	5 81	7 99
		4/3/01	5 38	8.42
		7/10/01	5 80	8 00
		12/12/01	10 00	3 80
		1/22/02	5.45	8.35
		3/8/02	5.49	8.31
MW-3	15.06	1/15/93	6.44	8 62
		9/12/94	7.35	7.71
		11/30/94	7.12	7.94
		3/29/95	6 31	8.75
		5/25/95	6.75	8 31
		6/21/95	6.87	8.19
		6/23/95	6 88	8.18
		9/28/95	7.28	7.78
		11/20/95	7 51	7.55
		12/27/95	7.20	7.86
		3/25/96	6 64	8 42
		6/26/96	6.98	8 08
		10/14/96	7 47	7.59
		3/19/97	6.99	8 07
		6/26/00	6.82	8.24
		9/6/00	6 82	8 24
		12/19/00	7.10	7.96
		4/3/01	6.66	8.40
		7/10/01	7.00	8 06
		12/12/01	7 04	8.02
		1/22/02	6 67	8 39
		3/8/02	6 86	8.20

[1] Elevation data relative to Port of Oakland datum; well surveys performed on December 6, 1994
- Data prior to June 26, 2000 taken from *First Quarter 1997 Groundwater Monitoring and Sampling report* dated May 6, 1999, by Fluor Daniel GTI

Table 4. Groundwater Sample Result, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Monitoring Well ID	Date	TPHg (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
MW-1	05/22/00	3,600	41,000	<3,000	100	13 [8]	2 9	2.05	3.2 [8]
MW-2	05/27/94	87	470	NA	<0.5	<0 5	<0.5	<0 5	NA
	03/29/95	<50	110	1,400	<0.4	<0 3	<0.3	<0.4	NA
	09/06/95	<50	NA	NA	<0 4	<0 3	<0 3	<0.4	NA
	01/08/96	<50	<50	1200	<0.4	<0 3	<0 3	<0.4	NA
	04/04/96	<50	160	320	<0 5	<0.5	<0.5	<1 0	NA
	07/10/96	<50	120	1400	<0 4	<0 3	<0.3	<0 4	NA
	12/03/96	<50	230 [1,2]	<250	<0 5	<0 5	<0 5	<1 0	NA
	03/28/97	<50	714	<250	<0.5	<0.5	<0 5	<1.0	NA
	06/13/97	51	<50	<250	<0 5	<0 5	<0 5	<1.0	NA
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1 0	NA
	12/31/97	<50	<47	<280	1 4	<0.5	<0.5	<1 0	NA
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1 0	NA
	11/06/98	<50	<50	<300	<0.5	<0 5	<0.5	<0 5	<2
	03/19/99	<50	<50	<300	<0 5	<0 5	<0 5	<0.5	<2
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0 5	<2
	09/28/99	<50	<50	<300	<0 5	<0 5	<0 5	<0.5	<2
	11/12/99	<50	120 [2,6]	<300	<0 5	<0.5	<0 5	<0 5	6.3 [8,9]
	02/11/00	<50	<50	<300	5 4	<0 5	<0 5	<0.5	<2
	05/22/00	<50	<50	<300	<0.5	<0 5	<0 5	<0.5	<2
	09/06/00	<50	<50	<300	0.76 [8]	<0.5	<0.5	<0 5	<0 5 [10]
	12/19/00	200 [3,11]	<50	<300	39	1.8	<0.5	2 6	<0 5 [10,12]
	02/21/01	<50	<50	<300	<0 5	<0.5	<0 5	<0.5	<2 0
	07/10/01	<50	<50	<300	<0.5	<0 5	<0.5	<0.5	<2.0
	12/05/01	<50	<50	<300	4.4	<0 5	<0.5	<0 5	5 0 [14]
	03/08/02	<50	<50	<500	<0.5	<0 5	<0.5	<0.5	<5.0
MW-4	09/11/95	150	<200	500	23	<0 3	<0 3	<0.4	NA
	01/08/96	790	90	400	170	1 2	0 6	0.6	NA
	04/04/96	1,100	180	300	320	1.6	1 1	1.2	NA
	07/10/96	1,200	120	300	470	1.5	0.8	0 8	NA
	12/03/96	990	220 [1 2]	<250	350	3 3	1.3	1.3	NA
	03/28/97	440 [2]	<50	<250	190	1 2	0.64	<1.0	NA
	06/13/97	1,300	92 [5]	<250	500	5 5	3 4	2.8	NA
	09/18/97	1,300	150	<250	550	4.9	2 1	2 00	NA
	12/31/97	73 [1,2 3]	<47	<280	110 [1]	1 0 [1]	<0.5	<1 0	NA
	04/13/98	150 [2,3]	<50	<300	520	2 9	<2 5	<5 0	NA
	11/06/98	<50	<50	<300	250	1.7	<1	<1	<4
	03/19/99	81	<50	<300	250	<1	1 2	<1	<4
	06/24/99	190	<50	<300	360	1.4	2.2	1	24
	09/28/99	750 [3,5]	63 [3,5]	<300	280	1 5	<1	<1	<4
	11/12/99	330 [3]	840 [2]	<300	740	<2 5	<2.5	<2 5	42 [9]
	02/11/00	200 [2]	<50	<300	58	0.73	<0.5	<0.5	4.4 [8]
	05/22/00	240	<50	<300	500	<2.5	<2 5	<2.5	17
	09/06/00	530 [2,3]	<50	<300	190	0 93	0.6	0 57	<0.5 [10]
	12/19/00	960 [3,11]	70 [5]	<300	420	<2 5	<2.5	<2 5	<0 5 [10,12]
Dup.	12/19/00	1,200 [3,11]	<50	<300	440	<2.5	<2.5	<2 5	<0.5 [10,12]
	02/21/01	450 [13]	<50	<300	120	<0.5	<0 5	<0 5	<0 5 [10]
	07/10/01	<250	110 [2,13]	<300	620	2 6	2 9	<2 5	<0 5 [8,10]
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 [14]
	03/08/02	490 [2]	54 [2]	<500	180	<2 5	<2.5	<2 5	<25
MW-5	09/11/95	90	<300	2,500	3 3	<0 3	<0.3	<0 4	NA
	04/04/96	<50	180	520	<0.5	<0 5	<0.5	<1 0	NA
	07/10/96	<50	120	1,500	<0.4	<0.3	<0 3	<0 4	NA
	12/03/96	<50	200 [1 2]	<250	<0 5	<0 5	<0.5	<1.0	NA
	03/28/97	<50	<50	<250	<0 5	<0 5	<0.5	<1.0	NA
	06/13/97	<50	<50	<250	<0.5	<0.5	<0 5	<1 0	NA

Table 4. Groundwater Sample Result, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Monitoring Well ID	Date	TPHg (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
MW-5	09/18/97	<50	<50	<250	<0 5	<0.5	<0.5	<1 0	NA
(cont.)	12/31/97	<50	<47	<280	<0.5	<0 5	<0.5	<1 0	NA
	04/13/98	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0 5	<0 5	<2
	03/19/99	<50	<50	<300	<0 5	<0.5	<0.5	<0.5	<2
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3 1
	09/28/99	<50	<50	<300	<0.5	<0 5	<0.5	<0.5	<2
	11/12/99	<50	110 [2,6]	<300	<0 5	<0 5	<0.5	<0.5	5 5 [9]
	02/11/00	<50	<50	<300	<0.5	<0.5	<0 5	<0.5	<2
	05/22/00	<50	<50	<300	<0.5	<0 5	<0.5	<0 5	<2
	09/06/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	12/19/00	<50	<50	<300	<0 5	<0.5	<0.5	<0.5	<2
	02/21/01	<50	<50	<300	<0.5	<0 5	<0.5	<0.5	<2
	07/10/01	<50	<50	<300	<0.5	<0 5	<0.5	<0 5	<2
	12/05/01	<50	<50	<300	<0.5	<0.5	<0 5	<0 5	<2
	03/08/02	<50	<50	<500	<0.5	<0.5	<0 5	<0 5	<5.0
MW-6	11/06/98	120	12,000	1,200	19	0 65	1 8	<0.5	<2
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2
	06/24/99	120	1,700 [7]	<300 [7]	18	<0.5	1.0	<0 5	54
	09/28/99	130 [3,5]	820	<300	20	0.51	2.2	<0 5	<2
	11/12/99	150	11,000 [2,6]	3,000 [3,6]	27	<0.5	2.2	<0 5	13 [9]
	02/11/00	270 [2]	2,300	<300	23	0.51	2 7	<0.5	5 8
	05/22/00	350	3,000	<300	18	0.51	<0 5	<0 5	7.7
	09/06/00	190	610	<300	26	<0.5	1 7	<0 5	<0.5 [10]
	12/19/00	130 [3,11]	620	<300	24	<0 5	1 6	<0.5	<2
	02/21/01	120 [13]	440	<300	21	<0.5	0.96	<0 5	<2
	07/10/01	120	560	<300	29	<0 5	0 99	<0.5	<2
	12/12/01	53	550	<300	27	<0.5	1 3	<0.5	<2 0
	03/08/02	160 [2]	640 [2]	<500	30	<0 5	<0.5	<0 5	5.0 [14]
MW-7	09/06/95	<50	<300	800	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	410	110	<0 4	<0.3	<0 3	<0 4	NA
	04/04/96	<50	530	340	<0.5	<0 5	<0.5	<1 0	NA
	07/10/96	80	840	1,700	<0 4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	280 [1,2]	<250	<0.5	<0 5	<0.5	<1.0	NA
	03/28/97	65 [6]	94 [2]	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	<50	100	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	<50	240	<250	<0.5	<0 5	<0.5	<1.0	NA
	12/31/97	<50	53 [2,3]	<280	<0.5	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<48	<290	<0.5	<0 5	<0.5	<1 0	NA
	11/06/98	<50	<50	<300	<0.5	<0 5	<0 5	<0 5	<2
	03/19/99	<50	<50	<300	<0 5	<0.5	<0.5	<0 5	5.3
	06/24/99	73	<50	<300	<0.5	<0.5	<0 5	<0.5	12
	09/28/99	<50	<50	<300	<0 5	<0.5	<0.5	<0.5	14
	11/12/99	<50	600 [2,6]	420 [3]	<0.5	<0 5	<0.5	<0.5	15 [9]
	02/11/00	<50	<50	<300	<0 5	<0 5	<0.5	<0.5	51
	05/22/00	110	53 [2]	<300	<0.5	<0 5	<0 5	<0.5	75
	09/06/00	50 [6]	<50	<300	<0 5	<0.5	<0.5	<0 5	40 [10]
	12/19/00	54 [11]	51 [5]	<300	<0.5	<0.5	<0.5	<0.5	47 [10,12]
	02/21/01	<50	<50	<300	<0 5	<0.5	<0 5	<0 5	66 [10]
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0 5	60 [10]
	07/10/01	<50	51 [2]	<300	<0.5	<0.5	<0 5	<0.5	76 [10]
Dup.	07/10/01	<50	<50	<300	<0.5	<0 5	<0.5	<0 5	75 [10]
	12/12/01	51	<50	<300	<0.5	<0 5	<0 5	<0.5	98 [14]
Dup.	12/12/01	64	52 [13,15]	<300	<0 5	<0 5	<0.5	<0.5	96 [14]
	03/08/02	52 [2]	<50	<500	<0 5	<0.5	<0.5	<0.5	24 [14]

Table 4. Groundwater Sample Result, 2277 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Monitoring Well ID	Date	TPHg (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
MW-8A	12/12/01	68	720 [11,15]	<300	<0 5	<0.5	<0 5	<0.5	<2.0
	03/08/02	<50	760 [2]	<570	<0 5	<0 5	<0 5	<0.5	<5.0
Dup	03/08/02	<50	350 [2]	<580	<0 5	<0 5	<0 5	<0 5	<5.0

1 Analyte found in the associated blank as well as in the sample.

2 Hydrocarbons present do not match profile of laboratory standard.

3 Low-boiling-point/lighter hydrocarbons are present in the sample

4 Chromatographic pattern matches known laboratory contaminant.

5 Hydrocarbons are present in the requested fuel quantification range, but do not resemble pattern of available fuel standard

6 High-boiling-point/heavier hydrocarbons are present in sample.

7 Sample did not pass laboratory QA/QC and may be biased low

8 Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor or two.

9 Trip blank contained MTBE at a concentration of 4 2 µg/l

10 MTBE detections confirmed by EPA Test Method 8260. 8260 results displayed

11 Sample exhibits unknown single peak or peaks

12 EPA Method 8260 confirmation analyzed past holding time

15 Lighter hydrocarbons contributed to the quantitation

14 MTBE results from EPA Test Method 8021B.

15 Sample exhibits fuel pattern which does not resemle standard

- Data from December 1997 through April 1998 taken from *Groundwater Monitoring, Sampling and Product Removal System O&M Report* dated July 21, 1998, by Innovative Technical Solutions, Inc.

-Data prior to December 1997 taken from *Groundwater Analytical Results, Quarterly Groundwater Monitoring Report. Third Quarter 1997, Building C-401, 2277 7th Street, Oakland, CA,* dated October 24, 1997, by Uribe and Associate

NA Not Analyzed

Table 5. Groundwater Sample Results, 2225 7th Street
Port of Oakland
2277 and 2225 7th Street, Oakland California

Monitoring Well ID	Date	TPHg (µg/l)	TPHd (µg/1)	TPHmo (µg/1)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/1)	MTBE (µg/1)
MW-1	1/15/93	<50	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	9/12/94	<10 [1]	10,000	NA	0.5	<0.3	<0.3	<0.3	NA
	11/30/94	<10	2,800	NA	<0.3	<0.3	<0.3	<0.3	NA
	3/29/95	<50	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	6/21/95	<50	<50 [2]	NA	<0.3	<0.3	<0.3	<0.3	NA
	9/28/95	<50	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	12/27/95	<50	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	3/25/96	<50	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	6/26/96	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	10/14/96	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	3/19/97	<50	<50	NA	<0.5	<0.5	<0 5	<0.5	<5.0
	6/26/00	<50	<50	<300	<0.5	<0.5	<0 5	<0.5	<0.5[5]
	12/19/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
Dup.	12/19/00	<50	<50	<300	<0.5	<0.5	<0 5	<0.5	<2
	7/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
Dup.	7/10/01	<50	<50	310	<0.5	<0.5	<0.5	<0.5	<2
	12/12/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
MW-2	1/15/93	<50	<50	NA	<0.3	<0.3	<0 3	<0.3	NA
	9/12/94	34 [1]	<50	NA	0.5	<0.3	<0.3	<0.3	NA
	11/30/94	<10	81	NA	0.9	<0.3	<0.3	<0.3	NA
	3/29/95	<50 [3]	75	NA	0.3	<0.3	<0.3	<0.3	NA
	6/21/95	<50 [3]	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	9/28/95	250 [3]	<50	NA	<0.3	<0.3	<0.3	<0 3	NA
	12/27/95	220 [1]	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	3/25/96	200 [1]	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	6/26/96	77 [4]	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	10/14/96	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	3/19/97	150	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	6/26/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5[5]
	12/19/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	7/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	12/12/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
MW-3	1/15/93	<50	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	9/12/94	<50	<50	NA	0.3	<0.3	<0.3	<0.3	NA
	11/30/94	110	150	NA	<0.3	<0.3	<0.3	<0.3	NA
	3/29/95	<50	<50	NA	<0.3	<0.3	<0.3	<0.3	NA
	6/21/95	<50 [3]	<50 [2]	NA	<0.3	<0.3	<0.3	<0.3	NA
	9/28/95	51 [1]	<50	NA	<0.3	<0.3	<0.3	<0 3	NA
	12/27/95	55 [1]	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	3/25/96	53	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
	6/26/96	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	10/14/96	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	3/19/97	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0
	6/26/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5[5]
	12/19/00	<50	50 [2]	<300	<0.5	<0.5	<0.5	<0.5	<2
	7/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	12/12/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2

NA Not Analyzed.

[1] Hydrocarbon pattern is not characteristic of gasoline

[2] Hydrocarbon pattern present in sample is not characteristic of diesel

[3] Uncategorized compound not included in the gasoline concentration

[4] Product is not typical gasoline

[5] MTBE detected by EPA Test Method 8021B but reported as ND<0.5 by EPA Test Method 8260

[6] Heavier hydrocarbons contributed to the quantitation

- Data prior to June 26, 2000 taken from *First Quarter 1997 Groundwater Monitoring and Sampling report* dated May 6, 1999, by Fluor Daniel GTI.

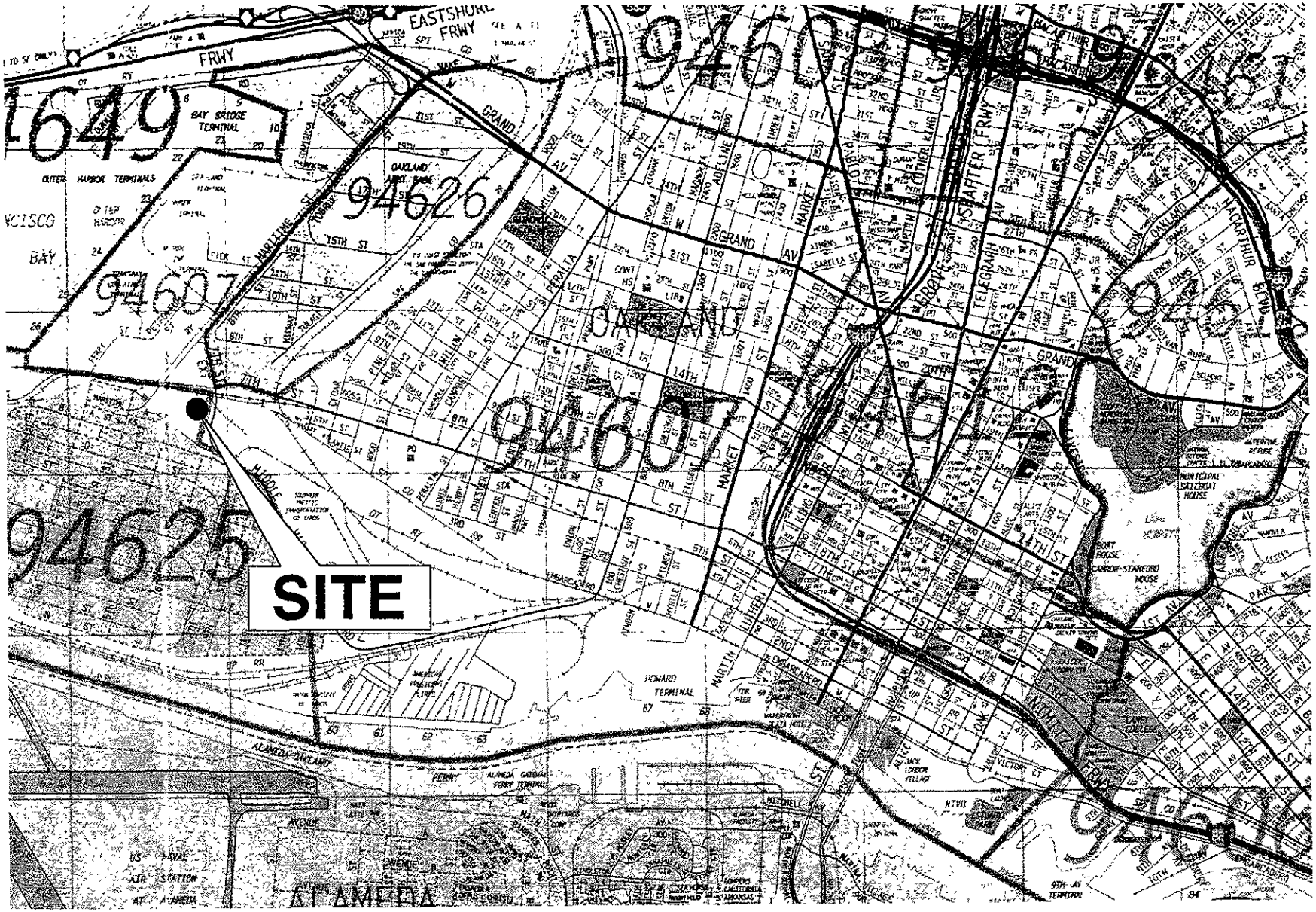
Table 6. Summary of Operation and Maintenance Activities

Port of Oakland

2277 and 2225 7th Street, Oakland California

Date	System Status	Comments
1/18/02	System not running.	Tank full shut-off alarm is on and will not clear.
1/22/02	System running	Cleared clog from the tank full shut-off valve and system is now operating. Re-measured groundwater levels at all wells for fourth quarter 2001.
2/8/02	System not running	Tank has approximately 700 gallons of product. Tank-full shut off alarm is on. Cleared alarm. Informed the Port that the product tank will be full within several days and needs to be emptied.
2/12/02	System running	Foss Environmental emptied the product recovery tank.
2/17/02	System running	System operating OK.
3/8/02	System running	Quarterly groundwater sampling event. Measured water levels at all wells. Purge water was emptied into the recovery tank. Tank has approximately 300 gallons.
3/13/02	System running	Clean Environment Equipment at the site to install the repaired ative skimmer pump and replace the selective oil screen. Harding at the site in late morning, tank full shut-off alarm is on. Cleared alarm and system is running. Emptied purge water from 801 Maritime into recovery tank.

PLATES



54821003.DWG 1.0
20020124.1617

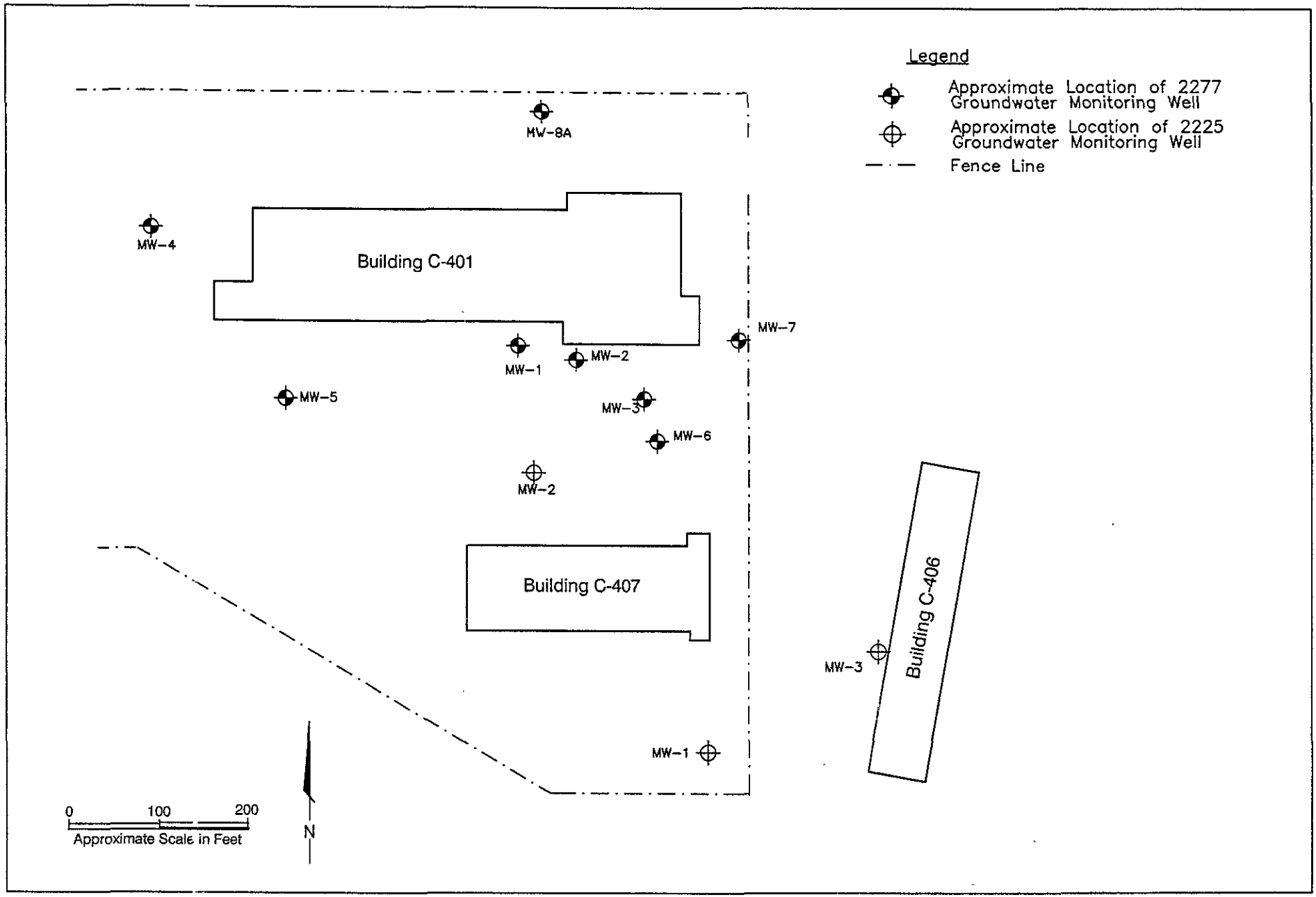
PLATE

1

Harding ESE
A MACTEC COMPANY

Vicinity Map
Quarterly Groundwater Monitoring Report
2277 and 2225 Seventh Street
Oakland, California 94607

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54821.1		01/02	



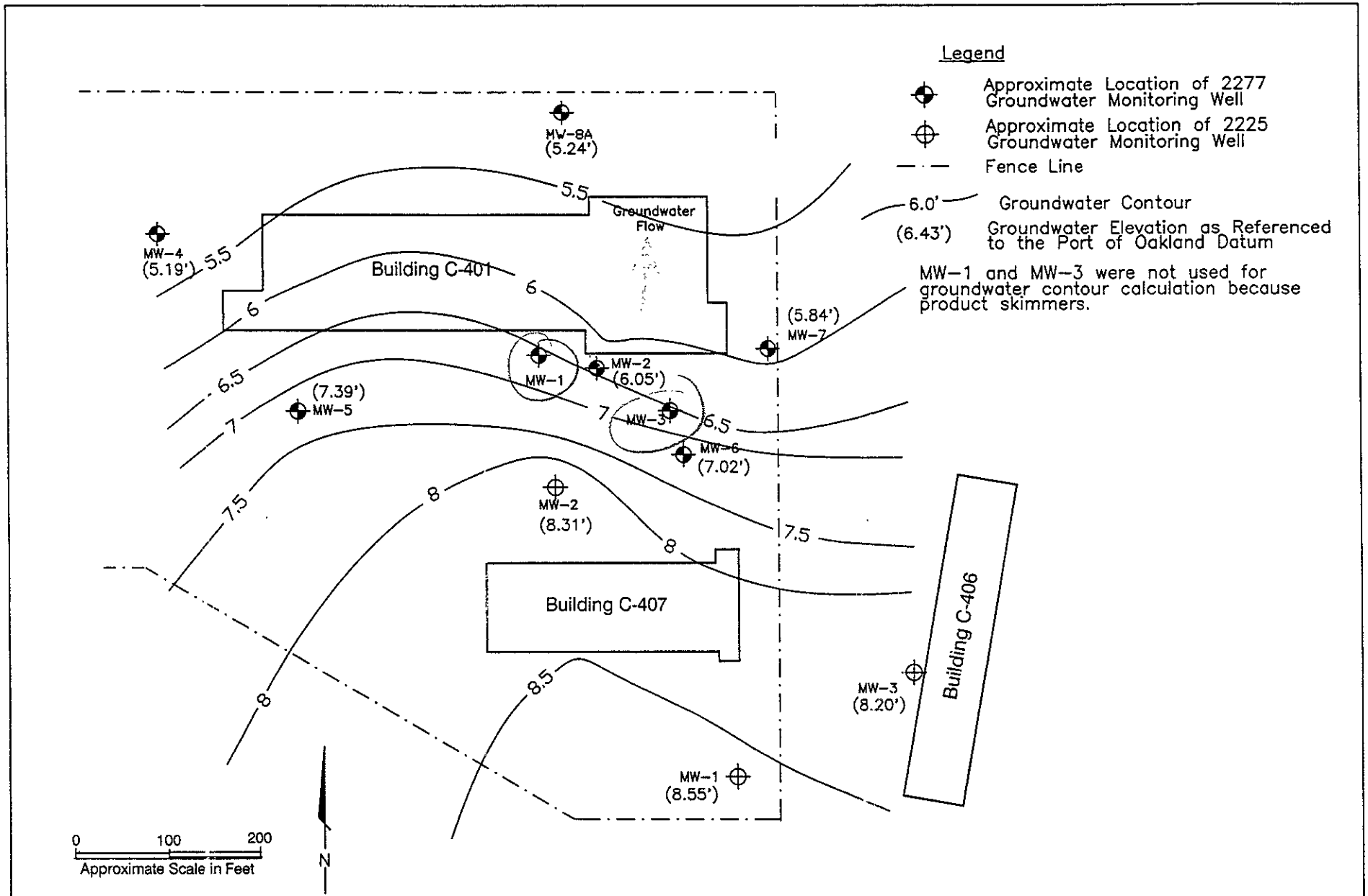
Harding ESE
A MACTEC COMPANY

Site Plan
Quarterly Groundwater Monitoring Report
2227 and 2225 Seventh Street
Oakland, California 95607

PLATE
2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54821.1		01/02	

54821004.DWG 1.0
20020129.1351



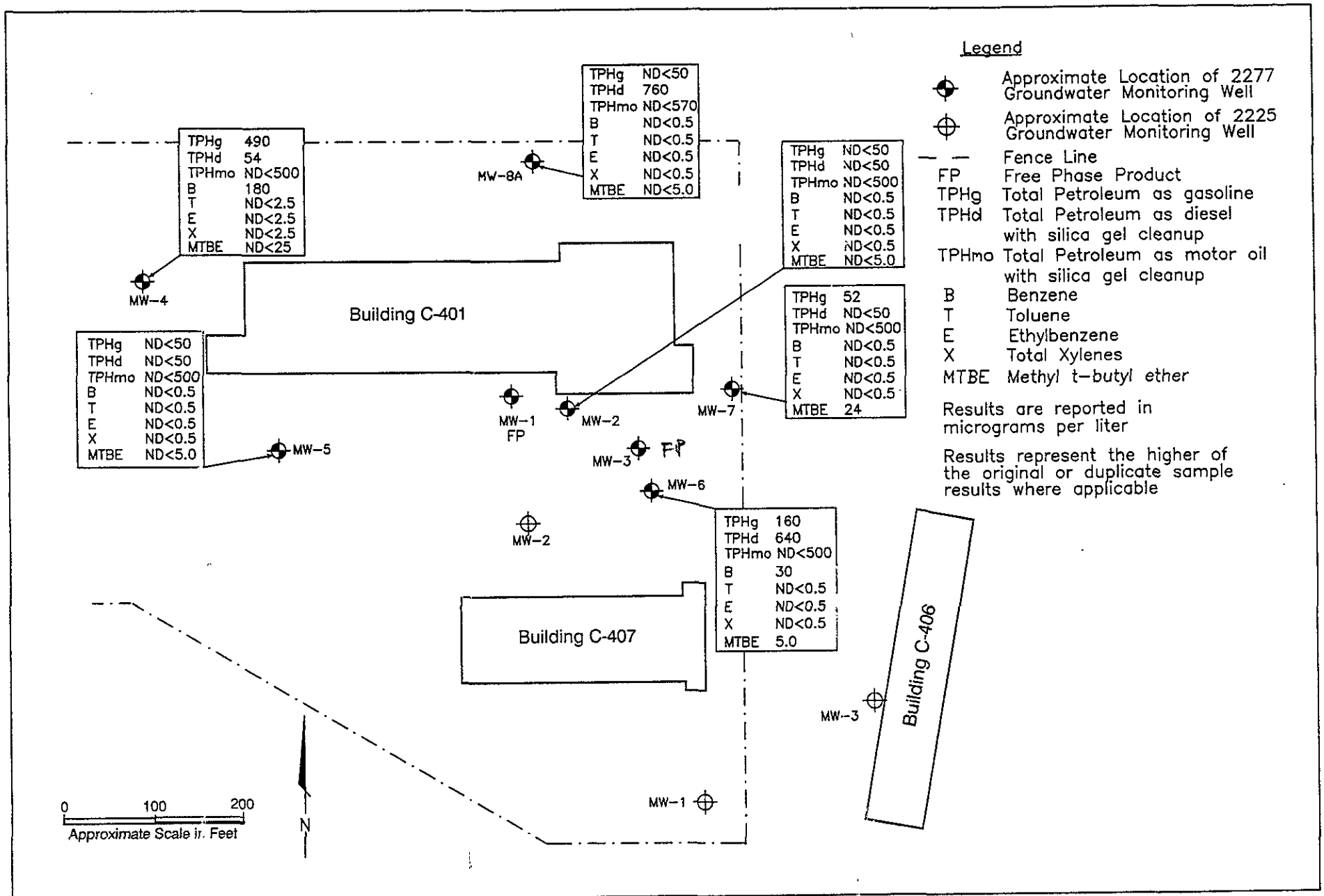
Harding ESE
A MACTEC COMPANY

Groundwater Elevations, March 8, 2002
Quarterly Groundwater Monitoring Report
2227 and 2225 Seventh Street
Oakland, California 95607

PLATE
3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54821.1		01/02	

54821009.DWG 1.0
20020327.1358



54821010.DWG 1.0
20020416.0907

PLATE

4

Harding ESE
A MACTEC COMPANY

Groundwater Sample Results, March 8, 2002
Quarterly Groundwater Monitoring Report
2227 and 2225 Seventh Street
Oakland, California 95607

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54821.1		01/02	

APPENDIX A

GROUNDWATER SAMPLE FORMS

Harding ESE

A MACTEC COMPANY

GROUNDWATER SAMPLING FORM

Well Number: MW-2

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

Job Name: 2277 7th St.

Job Number: 54821.1

Recorded By: (Signature)

Date: 3/8/02

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2

Total Depth of Casing (TD in ft BTOC): 15.27

Water Level Depth (WL in ft BTOC): 8.31

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[x] Bailer - Type: disposable

[ ] Submersible - Type:

[ ] Other - Type:

PURGE VOLUME CALCULATION

(15.27 - 8.31) X 2 ² X 3 X 0.0408 = 3.4 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. [ ] °C [x] °F	Turbidity (NTU)
Initial	7.19	1664	64.3	
1 GAL	7.22	1622	64.0	
2 GAL	7.22	1626	63.9	
3 GAL	7.23	1668	64.7	
FINAL	7.21	1677	65.4	
Meter S/N				

PURGE TIME

Purge Start: ___ GPM: ___

Purge Stop: ___ GPM: ___

Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: 3.5 gallons

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

light brown
no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 1300

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-2	1 L Amber	TEPH	none	STL	
	3 voas	TPHg, MTBE, BTEX	HCL	STL	

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

Job Name: 2277 7th St.

Job Number: 54821.1

Recorded By: [signature] (Signature)

Well Number: MW-4

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

Date: 3/8/02

Sampled By: TAE (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2

Total Depth of Casing (TD in ft BTOC): 18.84

Water Level Depth (WL in ft BTOC): 7.96

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[x] Bailer - Type: disposable

[ ] Submersible - Type:

[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other

Depth in feet (BTOC):

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

PURGE VOLUME CALCULATION

(18.84 - 7.96) x 2 ² x 3 X 0.0408 = 5.3 gals

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

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	8.05	1248	59.9	
2 GAL	7.18	800	60.3	
3 GAL	7.80	826	58.5	
4 GAL	7.24	868	59.2	
5 GAL	7.25	810	60.1	
FINAL	7.22	865	60.7	
Meter S/N				

PURGE TIME

Purge Start: ___

Purge Stop: ___

Elapsed: ___

PURGE RATE

GPM: ___

GPM: ___

PURGE VOLUME

Volume: 5.5 gallons

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

brown, slightly turbid; no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 1030

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-4	1 L Amber	TEPH	none	STL	
	3 voas	TPHg, MTBE, BTEX	HCL	STL	

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

Job Name: 2277 7th St.

Job Number: 54821.1

Recorded By: [signature] (Signature)

Well Number: MW-5

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

Date: 3/8/02

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2

Total Depth of Casing (TD in ft BTOC): 17.68

Water Level Depth (WL in ft BTOC): 6.1

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[x] Bailer - Type: disposable

[ ] Submersible - Type:

[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other

Depth in feet (BTOC):

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

PURGE VOLUME CALCULATION

(17.68 - 6.1) X 2 ² X 3 X 0.0408 = 5.7 gals

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

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	7.31	905	62.8	
2 GAL	7.27	1319	62.6	
4 GAL	7.27	1341	62.7	
5 GAL	7.29	1243	62.2	
FINAL	7.26	1284	62.5	
Meter S/N				

PURGE TIME

Purge Start: ___

Purge Stop: ___

Elapsed: ___

PURGE RATE

GPM: ___

GPM: ___

PURGE VOLUME

Volume: 5.75 gallons

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

brown, turbid, no odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 1110

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-	1 L Amber	TEPH	none	STL	
	3 voas	TPHg, MTBE, BTEX	HCL	STL	

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: 2277 7th St.

Job Number: 54821.1

Recorded By: Tim Eliason (Signature)

Date: 3/8/02

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2

Total Depth of Casing (TD in ft BTOC): 18.05

Water Level Depth (WL in ft BTOC): 6.98

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[x] Bailer - Type: disposable

[ ] Submersible - Type: ___

[ ] Other - Type: ___

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other ___

Depth in feet (BTOC): ___

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

PURGE VOLUME CALCULATION

(18.05 - 6.98) X 2 ² X 3 X 0.0408 = 5.4 gals

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

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	7.19	18,73	63.8	
2 GAL	7.18	2690	64.4	
4 GAL	7.22	2750	64.2	
5 GAL	7.23	2750	65.1	
FINAL	7.28	2740	65.0	
Meter S/N				

PURGE TIME

Purge Start: ___ GPM: ___

Purge Stop: ___ GPM: ___

Elapsed: ___

PURGE RATE

PURGE VOLUME

Volume: ___ gallons

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

turbid brown with sheen petroleum odor

Discharge Water Disposal: [ ] Sanitary Sewer

[ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 1215

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-6	1 L Amber	TEPH	none	STL	
	3 voas	TPHg, MTBE, BTEX	HCL	STL	

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

Job Name: 2277 7th St.

Job Number: 54821.1

Recorded By: [signature] (Signature)

Well Number: MW-7

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

Date: 3/8/02

Sampled By: TAE (initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 2
Total Depth of Casing (TD in ft BTOC): 18.16
Water Level Depth (WL in ft BTOC): 8.51
No.of Well Volumes to be purged (# V): 3

PURGE METHOD

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

PUMP INTAKE SETTING

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

PURGE VOLUME CALCULATION

(18.16 - 8.51) x 2 ² x 3 X 0.0408 = 4.7 gals
TD (feet) WL (Feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	7.43	1014	59.7	
1 GAL	7.33	1023	60.9	
2 GAL	7.33	1058	61.4	
3 GAL	7.29	1083	61.9	
4 GAL	7.32	1108	62.5	
FINAL	7.29	1113	62.6	
Meter S/N				

PURGE TIME

Purge Start: ____ GPM: ____
Purge Stop: ____ GPM: ____
Elapsed: ____

PURGE RATE

PURGE VOLUME

Volume: ____ gallons

Observations During Purging (Well Condition, Color, Odor):
brown, turbid, a few orange flecks. no sheen. slight odor

Discharge Water Disposal: [ ] Sanitary Sewer
[ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 0950

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-7	1 L Amber	TEPH	none	STL	
	3 voas	TPHg, MTBE, BTEX	HCL	STL	

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

Job Name: 2277 7th St.

Job Number: 54821.1

Recorded By: (Signature)

Well Number: MW-8A

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

Date: 3/8/02

Sampled By: TAE (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): 7.70

No.of Well Volumes to be purged (# V): 3

PURGE METHOD

[x] Bailer - Type: disposable

[ ] Submersible - Type:

[ ] Other - Type:

PUMP INTAKE SETTING

[ ] Near Bottom [ ] Near Top

[ ] Other

Depth in feet (BTOC):

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

PURGE VOLUME CALCULATION

(20.75 - 7.7) X 2 ² X 3 X 0.0408 = 6.4 gals

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

PURGE TIME

Purge Start:

Purge Stop:

Elapsed:

PURGE RATE

GPM:

GPM:

PURGE VOLUME

Volume: 6.5 gallons

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp. [ ] °C [x] °F	Turbidity (NTU)
Initial	7.25	1947	62.1	
2 GAL	7.31	1907	60.2	
4 GAL	7.33	1840	57.6	
5 GAL	7.34	1833	58.9	
6 GAL	7.33	1839	59.3	
FINAL	7.33	1834	58.3	
Meter S/N				

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

Dark brown, very turbid petroleum odor

Discharge Water Disposal: [ ] Sanitary Sewer [ ] Storm Sewer [x] Other 2277 System

WELL SAMPLING

[x] Bailer - Type: Disposable

Sample Time: 0850

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-8A	2 L Amber	TEPH	none	STL	
	4 voas	TPHg, MTBE, BTEX	HCL	STL	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Dupl. Sample No.
MW-8A @0850	MW-8AD @0855

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

APPENDIX B

LABORATORY REPORTS

Submission #: 2002-03-0192

Date: March 21, 2002

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com
CA DHS ELAP#1094

Harding ESE, Inc.
600 Grand Ave, Suite 300
Oakland, CA 94607

Attn: Trish Eliasson

Project: 54821
Port of Oakland

Site: 2277 7 th St.

Attached is our report for your samples received on Friday March 8, 2002
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after April 22, 2002 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.
You can also contact me via email. My email address is: ssidhu@chromalab.com

Sincerely,

Surinder Sidhu

Surinder Sidhu
Project Manager

Submission #: 2002-03-0192

Gas/BTEX Compounds by 8015M/8021

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Harding ESE, Inc.	✉ 600 Grand Ave, Suite 300 Oakland, CA 94607
Attn: Luis Fraticelli	Phone: (510) 628-3212 Fax: (510) 451-3165
54821 Site2277 7 th St.	Project: Port of Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-8A	Water	03/08/2002 08:50	1
MW-8AD	Water	03/08/2002 08:55	2
MW-7	Water	03/08/2002 09:50	3
MW-4	Water	03/08/2002 10:30	4
MW-5	Water	03/08/2002 11:10	5
MW-6	Water	03/08/2002 12:15	6
MW-2	Water	03/08/2002 13:00	7

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Attn: Luis Fraticelli

Test Method: 8015M 8021B

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**MW-8A**	Lab Sample ID:	2002-03-0192-001
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/15/2002 18:18
Sampled:	03/08/2002 08:50	QC-Batch:	2002/03/15-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/15/2002 18:18	
Benzene	ND	0.50	ug/L	1.00	03/15/2002 18:18	
Toluene	ND	0.50	ug/L	1.00	03/15/2002 18:18	
Ethyl benzene	ND	0.50	ug/L	1.00	03/15/2002 18:18	
Xylene(s)	ND	0.50	ug/L	1.00	03/15/2002 18:18	
MTBE	ND	5.0	ug/L	1.00	03/15/2002 18:18	
Surrogate(s)						
Trifluorotoluene	84.9	58-124	%	1.00	03/15/2002 18:18	
4-Bromofluorobenzene-FID	92.2	50-150	%	1.00	03/15/2002 18:18	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Attn: Luis Fraticelli

Test Method: 8015M
8021B

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**MW-8AD**	Lab Sample ID:	2002-03-0192-002
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/15/2002 18:50
Sampled:	03/08/2002 08:55	QC-Batch:	2002/03/15-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/15/2002 18:50	
Benzene	ND	0.50	ug/L	1.00	03/15/2002 18:50	
Toluene	ND	0.50	ug/L	1.00	03/15/2002 18:50	
Ethyl benzene	ND	0.50	ug/L	1.00	03/15/2002 18:50	
Xylene(s)	ND	0.50	ug/L	1.00	03/15/2002 18:50	
MTBE	ND	5.0	ug/L	1.00	03/15/2002 18:50	
Surrogate(s)						
Trifluorotoluene	82.5	58-124	%	1.00	03/15/2002 18:50	
4-Bromofluorobenzene-FID	88.9	50-150	%	1.00	03/15/2002 18:50	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8015M
8021B

Attn: Luis Fraticelli

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**MW-7**	Lab Sample ID:	2002-03-0192-003
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/18/2002 12:33
Sampled:	03/08/2002 09:50	QC-Batch:	2002/03/18-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	52	50	ug/L	1.00	03/18/2002 12:33	g
Benzene	ND	0.50	ug/L	1.00	03/18/2002 12:33	
Toluene	ND	0.50	ug/L	1.00	03/18/2002 12:33	
Ethyl benzene	ND	0.50	ug/L	1.00	03/18/2002 12:33	
Xylene(s)	ND	0.50	ug/L	1.00	03/18/2002 12:33	
MTBE	24	5.0	ug/L	1.00	03/18/2002 12:33	
Surrogate(s)						
Trifluorotoluene	91.9	58-124	%	1.00	03/18/2002 12:33	
4-Bromofluorobenzene-FID	89.5	50-150	%	1.00	03/18/2002 12:33	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Attn: Luis Fraticelli

Test Method: 8015M 8021B

Prep Method: 5030

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CA DHS ELAP#1094

Sample ID:	**MW-4**	Lab Sample ID:	2002-03-0192-004
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/18/2002 17:01
Sampled:	03/08/2002 10:30	QC-Batch:	2002/03/18-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	490	250	ug/L	5.00	03/18/2002 17:01	g
Benzene	180	2.5	ug/L	5.00	03/18/2002 17:01	
Toluene	ND	2.5	ug/L	5.00	03/18/2002 17:01	
Ethyl benzene	ND	2.5	ug/L	5.00	03/18/2002 17:01	
Xylene(s)	ND	2.5	ug/L	5.00	03/18/2002 17:01	
MTBE	ND	25	ug/L	5.00	03/18/2002 17:01	
Surrogate(s)						
Trifluorotoluene	86.3	58-124	%	5.00	03/18/2002 17:01	
4-Bromofluorobenzene-FID	85.5	50-150	%	5.00	03/18/2002 17:01	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Attn: Luis Fraticelli

Test Method: 8015M
8021B

Prep Method: 5030

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CA DHS ELAP#1094

Sample ID:	**MW-5**	Lab Sample ID:	2002-03-0192-005
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/18/2002 13:36
Sampled:	03/08/2002 11:10	QC-Batch:	2002/03/18-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/18/2002 13:36	
Benzene	ND	0.50	ug/L	1.00	03/18/2002 13:36	
Toluene	ND	0.50	ug/L	1.00	03/18/2002 13:36	
Ethyl benzene	ND	0.50	ug/L	1.00	03/18/2002 13:36	
Xylene(s)	ND	0.50	ug/L	1.00	03/18/2002 13:36	
MTBE	ND	5.0	ug/L	1.00	03/18/2002 13:36	
Surrogate(s)						
Trifluorotoluene	88.1	58-124	%	1.00	03/18/2002 13:36	
4-Bromofluorobenzene-FID	88.5	50-150	%	1.00	03/18/2002 13:36	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8015M
8021B

Attn: Luis Fraticelli

Prep Method: 5030

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CA DHS ELAP#1094

Sample ID:	**MW-6**	Lab Sample ID:	2002-03-0192-006
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/18/2002 14:08
Sampled:	03/08/2002 12:15	QC-Batch:	2002/03/18-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	160	50	ug/L	1.00	03/18/2002 14:08	g
Benzene	30	0.50	ug/L	1.00	03/18/2002 14:08	
Toluene	ND	0.50	ug/L	1.00	03/18/2002 14:08	
Ethyl benzene	ND	0.50	ug/L	1.00	03/18/2002 14:08	
Xylene(s)	ND	0.50	ug/L	1.00	03/18/2002 14:08	
MTBE	5.0	5.0	ug/L	1.00	03/18/2002 14:08	
Surrogate(s)						
Trifluorotoluene	87.7	58-124	%	1.00	03/18/2002 14:08	
4-Bromofluorobenzene-FID	93.3	50-150	%	1.00	03/18/2002 14:08	

Submission #: 2002-03-0192

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Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Attn: Luis Fraticelli

Test Method: 8015M
8021B

Prep Method: 5030

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CA DHS ELAP#1094

Sample ID:	**MW-2**	Lab Sample ID:	2002-03-0192-007
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/18/2002 14:39
Sampled:	03/08/2002 13:00	QC-Batch:	2002/03/18-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/18/2002 14:39	
Benzene	ND	0.50	ug/L	1.00	03/18/2002 14:39	
Toluene	ND	0.50	ug/L	1.00	03/18/2002 14:39	
Ethyl benzene	ND	0.50	ug/L	1.00	03/18/2002 14:39	
Xylene(s)	ND	0.50	ug/L	1.00	03/18/2002 14:39	
MTBE	ND	5.0	ug/L	1.00	03/18/2002 14:39	
Surrogate(s)						
Trifluorotoluene	89.0	58-124	%	1.00	03/18/2002 14:39	
4-Bromofluorobenzene-FID	93.3	50-150	%	1.00	03/18/2002 14:39	

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CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M
8021B

Prep Method: 5030

Method Blank **Water** **QC Batch # 2002/03/15-01.02**

MB: 2002/03/15-01.02-003 Date Extracted: 03/15/2002 08:09

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/15/2002 08:09	
Benzene	ND	0.5	ug/L	03/15/2002 08:09	
Toluene	ND	0.5	ug/L	03/15/2002 08:09	
Ethyl benzene	ND	0.5	ug/L	03/15/2002 08:09	
Xylene(s)	ND	0.5	ug/L	03/15/2002 08:09	
MTBE	ND	5.0	ug/L	03/15/2002 08:09	
Surrogate(s)					
4-Bromofluorobenzene	87.8	50-150	%	03/15/2002 08:09	
Trifluorotoluene	90.5	58-124	%	03/15/2002 08:09	
4-Bromofluorobenzene-FID	103.5	50-150	%	03/15/2002 08:09	
Trifluorotoluene-FID	98.6	58-124	%	03/15/2002 08:09	

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M
8021B

Prep Method: 5030

Method Blank **Water** **QC Batch # 2002/03/18-01.02**

MB: 2002/03/18-01.02-004

Date Extracted: 03/18/2002 08:53

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/18/2002 08:53	
Benzene	ND	0.5	ug/L	03/18/2002 08:53	
Toluene	ND	0.5	ug/L	03/18/2002 08:53	
Ethyl benzene	ND	0.5	ug/L	03/18/2002 08:53	
Xylene(s)	ND	0.5	ug/L	03/18/2002 08:53	
MTBE	ND	5.0	ug/L	03/18/2002 08:53	
Surrogate(s)					
Trifluorotoluene	94.8	58-124	%	03/18/2002 08:53	
4-Bromofluorobenzene-FID	100.7	50-150	%	03/18/2002 08:53	

Submission #: 2002-03-0192

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/15-01.02**

LCS: 2002/03/15-01.02-004 Extracted: 03/15/2002 08:40 Analyzed: 03/15/2002 08:40

LCSD: 2002/03/15-01.02-005 Extracted: 03/15/2002 09:11 Analyzed: 03/15/2002 09:11

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	95.1	92.9	100.0	100.0	95.1	92.9	2.3	77-123	20		
Toluene	94.0	91.4	100.0	100.0	94.0	91.4	2.8	78-122	20		
Ethyl benzene	100	98.7	100.0	100.0	100.0	98.7	1.3	78-130	20		
Xylene(s)	294	292	300	300	98.0	97.3	0.7	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	436	419	500	500	87.2	83.8		50-150			
Trifluorotoluene	466	442	500	500	93.2	88.4		58-124			

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/15-01.02**

LCS: 2002/03/15-01.02-006 Extracted: 03/15/2002 09:42 Analyzed: 03/15/2002 09:42

LCSD: 2002/03/15-01.02-007 Extracted: 03/15/2002 10:14 Analyzed: 03/15/2002 10:14

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	547	540	500	500	109.4	108.0	1.3	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	535	532	500	500	107.0	106.4		50-150			
Trifluorotoluene-FID	461	467	500	500	92.2	93.4		58-124			

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/18-01.02**

LCS: 2002/03/18-01.02-007 Extracted: 03/18/2002 10:28 Analyzed: 03/18/2002 10:28

LCSD: 2002/03/18-01.02-008 Extracted: 03/18/2002 11:00 Analyzed: 03/18/2002 11:00

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	539	536	500	500	107.8	107.2	0.6	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	520	513	500	500	104.0	102.6		50-150			

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CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/18-01.02**

LCS: 2002/03/18-01.02-009 Extracted: 03/18/2002 09:25 Analyzed: 03/18/2002 09:25

LCSD: 2002/03/18-01.02-006 Extracted: 03/18/2002 09:56 Analyzed: 03/18/2002 09:56

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	97.2	95.2	100.0	100.0	97.2	95.2	2.1	77-123	20		
Toluene	96.6	94.2	100.0	100.0	96.6	94.2	2.5	78-122	20		
Ethyl benzene	102	100	100.0	100.0	102.0	100.0	2.0	70-130	20		
Xylene(s)	299	294	300	300	99.7	98.0	1.7	75-125	20		
Surrogate(s)											
Trifluorotoluene	464	446	500	500	92.8	89.2		58-124	0		

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Gas/BTEX Compounds by 8015M/8021

Legend & Notes

Test Method: 8021B
8015M

Prep Method: 5030

Analyte Flags

g

Hydrocarbon reported in the gasoline range does not match our gasoline standard

Submission #: 2002-03-0192

TEPH w/ Silica Gel Clean-up

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CA DHS ELAP#1094

Harding ESE, Inc.	✉ 600 Grand Ave, Suite 300 Oakland, CA 94607
Attn: Trish Eliasson	Phone: (510) 628-3240 Fax: (510) 451-3165
54821 Site 2277 7 th St.	Project: Port of Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-8A	Water	03/08/2002 08:50	1
MW-8AD	Water	03/08/2002 08:55	2
MW-7	Water	03/08/2002 09:50	3
MW-4	Water	03/08/2002 10:30	4
MW-5	Water	03/08/2002 11:10	5
MW-6	Water	03/08/2002 12:15	6
MW-2	Water	03/08/2002 13:00	7

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-8A**	Lab Sample ID:	2002-03-0192-001
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 08:50	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Sample/Analysis Flag: rl (See Legend & Note section)

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	760	57	ug/L	1.10	03/13/2002 19:15	ndp
Motor Oil	ND	570	ug/L	1.10	03/13/2002 19:15	
Surrogate(s)						
o-Terphenyl	78.6	60-130	%	1.10	03/13/2002 19:15	

Submission #: 2002-03-0192

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TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID: **MW-8AD**
Project: 54821 Port of Oakland
Site: 2277 7 th St.
Sampled: 03/08/2002 08:55
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-03-0192-002
Received: 03/08/2002 17:00
Extracted: 03/12/2002 19:06
QC-Batch: 2002/03/12-04.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	350	58	ug/L	1.20	03/13/2002 18:38	ndp
Motor Oil	ND	580	ug/L	1.20	03/13/2002 18:38	
Surrogate(s)						
o-Terphenyl	87.4	60-130	%	1.20	03/13/2002 18:38	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-7**	Lab Sample ID:	2002-03-0192-003
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 09:50	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/13/2002 19:15	
Motor Oil	ND	500	ug/L	1.00	03/13/2002 19:15	
Surrogate(s)						
o-Terphenyl	86.0	60-130	%	1.00	03/13/2002 19:15	

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-4**	Lab Sample ID:	2002-03-0192-004
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 10:30	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	54	50	ug/L	1.00	03/13/2002 18:38	ndp
Motor Oil	ND	500	ug/L	1.00	03/13/2002 18:38	
Surrogate(s)						
o-Terphenyl	81.9	60-130	%	1.00	03/13/2002 18:38	

Submission #: 2002-03-0192

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TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-5**	Lab Sample ID:	2002-03-0192-005
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 11:10	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/13/2002 16:57	
Motor Oil	ND	500	ug/L	1.00	03/13/2002 16:57	
Surrogate(s)						
o-Terphenyl	96.9	60-130	%	1.00	03/13/2002 16:57	

Submission #: 2002-03-0192

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TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-6**	Lab Sample ID:	2002-03-0192-006
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 12:15	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	640	50	ug/L	1.00	03/14/2002 10:34	ndp
Motor Oil	ND	500	ug/L	1.00	03/14/2002 10:34	
Surrogate(s)						
o-Terphenyl	101.6	60-130	%	1.00	03/14/2002 10:34	

Submission #: 2002-03-0192

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TEPH w/ Silica Gel Clean-up

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Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**MW-2**	Lab Sample ID:	2002-03-0192-007
Project:	54821 Port of Oakland	Received:	03/08/2002 17:00
Site:	2277 7 th St.	Extracted:	03/12/2002 19:06
Sampled:	03/08/2002 13:00	QC-Batch:	2002/03/12-04.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/13/2002 15:37	
Motor Oil	ND	500	ug/L	1.00	03/13/2002 15:37	
Surrogate(s)						
o-Terphenyl	92.8	60-130	%	1.00	03/13/2002 15:37	

Submission #: 2002-03-0192

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TEPH w/ Silica Gel Clean-up

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015 M

Method Blank | **Water** | **QC Batch # 2002/03/12-04.10**

MB: 2002/03/12-04.10-001

Date Extracted: 03/12/2002 19:06

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	03/13/2002 16:10	
Motor Oil	ND	500	ug/L	03/13/2002 16:10	
Surrogate(s)					
o-Terphenyl	85.0	60-130	%	03/13/2002 16:10	

Submission #: 2002-03-0192

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www.chromalab.com

CA DHS ELAP#1094

TEPH w/ Silica Gel Clean-up

Batch QC report

Test Method: 8015M Prep Method: 3510/8015M

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/12-04.10**

LCS: 2002/03/12-04.10-002 Extracted: 03/12/2002 19:06 Analyzed: 03/13/2002 14:56

LCSD: 2002/03/12-04.10-003 Extracted: 03/12/2002 19:06 Analyzed: 03/13/2002 15:32

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	1040	1070	1250	1250	83.2	85.6	2.8	60-130	25		
Surrogate(s)											
o-Terphenyl	19.2	19.7	20.0	20.0	96.[illegible]	98.5		60-130	0		

Submission #: 2002-03-0192

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

TEPH w/ Silica Gel Clean-up

Legend & Notes

Test Method: 8015M

Prep Method: 3510/8015M

Analysis Flags

rl

Reporting limits raised due to reduced sample size.

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Harding ESE
A MACTEC COMPANY
600 Grand Ave, Suite 300
Oakland, CA 94610
(510) 451-1001

CHAIN OF CUSTODY FORM

2002-03-0192

Seq. No.: № 10571

Lab: STL Chromalab

Samplers: Trish Eliasson

Job Number: 54821.1

Name/Location: Port of Oakland 2277 7th St.

Project Manager: Luis Fraticelli

Recorder: Trish Eliasson (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			2			4	0	MW-8A *	02	03	08	0850	* Recd 1 amber only - DSF	
X			2			4		MW-8AD	02	03	08	0855		
X			2			4		MW-7	02	03	08	0950		
X			2			4		MW-4	02	03	08	1030		
X			2			4		MW-5	02	03	08	1110		
X			2			4		MW-6	02	03	08	1215		
X			2			4		MW-2	02	03	08	1300		

ANALYSIS REQUESTED

Gasoline Range Organics 8015B	Diesel Range Organics 8015B	BTEX plus MTBE 8021	CCR Title 22 Metals (17)	EPA 8021B	EPA 8260B	EPA 8270C	Motor oil	MTBE confirmation by 8260
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	X					X	X
X	X	X					X	X

ADDITIONAL INFORMATION

SAMPLE NUMBER		TURNAROUND TIME/REMARKS
YR	SEQ	
		MTBE confirmation by 8260
		Silica gel cleanup for TPHd,mo
		Standard TAT
		4.5°C

CHAIN OF CUSTODY RECORD

	(Print Name)	(Company)	Date/Time
Relinquished By (signature): Trish Eliasson	Trish Eliasson	Harding ESE	3/8/02
Received By (signature):	Mus A	STL SF	3/8/02 B:30
Relinquished By (signature):	Mus A	STL SF	3/8/02 1700
Received By (signature):			
Relinquished By (signature):			
Received By (signature):			
Received By (signature): Denise Washington		STL-SF	3/8/02 1700

Method of Shipment:

Project Office Copy Field or Office Copy 00291 1