



PORT OF OAKLAND

July 19, 2002

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

~~RE: 2277~~
~~RE: 2225~~

RE: Second Quarter 2002, Quarterly Groundwater Monitoring and Product Recovery Report – 2277 Seventh Street and Semi-Annual 2002 Groundwater Monitoring Report - 2225 Seventh Street, Oakland, CA

Dear Mr. Chan:

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

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The next monitoring event will be performed during the third 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
Buck King (Harding ESE)
Trish Eliasson (Harding ESE)



Harding ESE

A MACTEC COMPANY

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

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

**Semi-Annual 2002 Groundwater Monitoring Report
2225 Seventh Street
Oakland, California**

Dear Mr. Rubin:

Harding ESE, Inc. (Harding ESE), has prepared this report on behalf of the Port of Oakland (Port) 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 semi-annual monitoring of three groundwater monitoring wells (MW-1, MW-2, and MW-3) at 2225 7th Street. The locations of these wells are shown on Plates 2 through 5.

This report also summarizes the operation of the product recovery system at the 2277 7th Street site during the second 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

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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 and 2225 7th Street sites. 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 disposable or 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 June 13th, 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.

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2225 7th Street

Harding ESE also conducted the semi-annual groundwater monitoring at 2225 7th Street on June 13th, 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 laboratory results for 2225 7th Street are summarized in Table 5 and shown on Plate 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 June 13, 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 June 2002 closely matched that observed during the fourth quarter 2001 and first quarter 2002.

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 third time in the second quarter 2002, and no separate-phase products have been detected in this well.

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Results of the June 13, 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 62 µg/L in MW-2, 830 µg/L and 820 µg/L in MW-4, 160 µg/L in MW-6, and 87 µg/L in MW-7. TPHg was not detected in MW-5 or MW-8A. Last quarter 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.
- Benzene was reported at a concentration of 250 µg/L and 240 µg/L in MW-4 and 34 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 180 µg/L in MW-4 and 30 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 above the reporting limit in MW-2, MW-4, MW-5, MW-6, MW-7, or MW-8A this quarter or last 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 51 µg/L in MW-7. The laboratory confirmed this detection of MTBE. Wells MW-2, MW-4, MW-5, MW-6, 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-6 and 24 µg/L in MW-7.
- TPHd was reported at a concentration of 670 µg/l in MW-6, 54 µg/L in MW-7, and 570 µg/L in MW-8A. TPHd was not detected in MW-2 or MW-5. During the previous quarter, TPHd was detected 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.
- TPHmo was not detected above the reporting limit in any of the wells sampled this quarter or last.

2225 7th Street

Results of the June 13, 2002 groundwater sampling at 2225 7th Street are summarized below:

- MTBE was not detected above the reporting limit in MW-1, MW-2, or MW-3 this semi-annual sampling event or last.
- TPHg and BTEX were not detected above the reporting limits in MW-1, MW-2, or MW-3 this semi-annual sampling event or last.
- TPHd and TPHmo were not detected above the reporting limits in MW-1, MW-2, or MW-3 this semi-annual sampling event or last.

QUALITY ASSURANCE AND QUALITY CONTROL

A duplicate sample was collected from monitoring well MW-4 at 2277 7th Street and at well MW-1 at 2225 7th Street on June 13, 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:

$$RPD = \frac{X_1 - X_2}{(X_1 + X_2)/2} \times 100$$

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 7 th St. MW-4 6/13/02	ANALYTE	X ₁	X ₂	RPD
	MTBE	<5.0	<5.0	--
	B	250	240	4.1%
	T	<0.5	<0.5	--
	E	<0.5	<0.5	--
	X	<0.5	<0.5	--
	TPHd	<50	<56	--
	TPHg	830	820	1.2%

- The relative percent difference between the analytical results from MW-4 and its duplicate sample ranged from 4.1% to 1.2%.

2225 7 th St. MW-1 6/13/02	ANALYTE	X ₁	X 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	<50	<50	--
	TPHg	<50	<50	--

- No analytes were detected in the original or duplicate samples from MW-1 at 2225 7th Street.

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.

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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

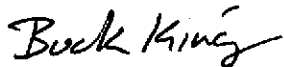
We trust that this provides the information required at this time. If you have any questions, please contact Trish Eliasson at (510) 628-3240.

Yours very truly,

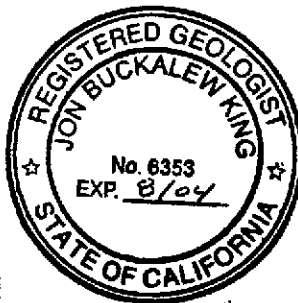
HARDING ESE, INC.



Trish Eliasson
Senior Staff Engineer



Buck King, RG, CHG
Senior Project Hydrogeologist



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- 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 Street
 - 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, June 13, 2002
 - Plate 4 – Groundwater Sample Results, 2277 7th Street, June 13, 2002
 - Plate 5 – Groundwater Sample Results, 2225 7th Street, June 13, 2002

 - Appendix A - Groundwater Sampling Forms
 - Appendix B - Laboratory Reports

**Table 1. Groundwater Elevations Data
Port of Oakland
2277 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
		6/13/02	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		
6/13/02	8.64	5.72		
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		
6/13/02	8.20	4.95		

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

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
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		
6/13/02	6.31	7.18		
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
6/13/02	7.45	6.55		

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

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
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		
6/13/02	8.90	5.45		
MW-8A	12.94	12/12/01	7.20	NA
		1/22/02	7.20	5.74
		3/8/02	7.70	5.24
		6/13/02	7.72	5.22

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. Summary of Product Removal and Product Thickness
Port of Oakland
2277 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		
4/3/02	8.3	9.2	0.90	--	passive skimmer		
4/23/02	8.5	9.6	1.10	--	passive skimmer		
5/10/02	8.7	9.6	0.90	--	passive skimmer		
5/24/02	8.8	10	1.20	--	passive skimmer		
6/13/02	8.7	10	1.30	--	passive skimmer		
6/21/02	8.8	10	1.20	--	passive skimmer		

**Table 2. Summary of Product Removal and Product Thickness
Port of Oakland
2277 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	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 ²	active skimmer
		1/14/99	-	-	-	400 ²	active skimmer
		2/3/99	-	-	-	400 ²	active skimmer
		2/26/99	-	-	-	570 ²	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 ²	active skimmer
		9/28/99	--	--	0.2	--	active skimmer
		10/29/99	--	--	--	125 ²	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
		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		
4/3/02	7.60	7.7	0.10	--	active skimmer		
4/23/02	7.90	8.4	0.50	--	active skimmer		
4/25/02	7.90	8.8	0.90	--	active skimmer		
5/10/02	8.10	8.2	0.10	--	active skimmer		
5/24/02	8.05	8.1	0.05	--	active skimmer		
6/13/02	8.10	8.7	0.60	1,000 ⁵	active skimmer		

**Table 2. Summary of Product Removal and Product Thickness
Port of Oakland
2277 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-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
Port of Oakland
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		
6/13/02	5.60	8.12		
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		
6/13/02	5.79	8.01		

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

Well ID	Elevation Top of Casing (feet)	Date Of Monitoring	Depth to Water (feet)	Groundwater Elevation (feet)
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		
6/13/02	7.00	8.06		

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 Results
Port of Oakland
2277 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	
06/13/02	62 ¹⁵	<57	<570	<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	

**Table 4. Groundwater Sample Results
Port of Oakland
2277 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-4	09/06/00	530 ^{2,3}	<50	<300	190	0.93	0.6	0.57	<0.5 ¹⁰
(cont'd)	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
	06/13/02	830 ²	<50	<500	250	<5.0	<5.0	<5.0	<50
Dup.	06/13/02	820 ²	<56	<560	240	<5.0	<5.0	<5.0	<50
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
	09/18/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	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
	06/13/02	<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
	06/13/02	160 ²	670 ²	<500	34	<0.5	<0.5	<0.5	<5.0

**Table 4. Groundwater Sample Results
Port of Oakland
2277 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-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
	06/13/02	87 ²	54 ²	<500	<0.5	<0.5	<0.5	<0.5	51
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
	06/13/02	<50	570 ²	<570	<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 of 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.
¹³ Lighter hydrocarbons contributed to the quantitation
¹⁴ MTBE results from EPA Test Method 8021B.
¹⁵ Sample exhibits fuel pattern which does not resemble 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 Unbe and Associate
NA Not Analyzed.

**Table 5. Groundwater Sample Results
Port of Oakland
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	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
Dup.	7/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	7/10/01	<50	<50	310	<0.5	<0.5	<0.5	<0.5	<2
Dup.	12/12/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	6/13/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
Dup.	6/13/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
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 ¹	<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	
6/13/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0	
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

**Table 5. Groundwater Sample Results
Port of Oakland
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-3	12/27/95	55 ¹	<50	<100	<0.3	<0.3	<0.3	<0.3	NA
(cont'd)	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 ³
	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
	6/13/02	<50	<56	<560	<0.5	<0.5	<0.5	<0.5	<5.0

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

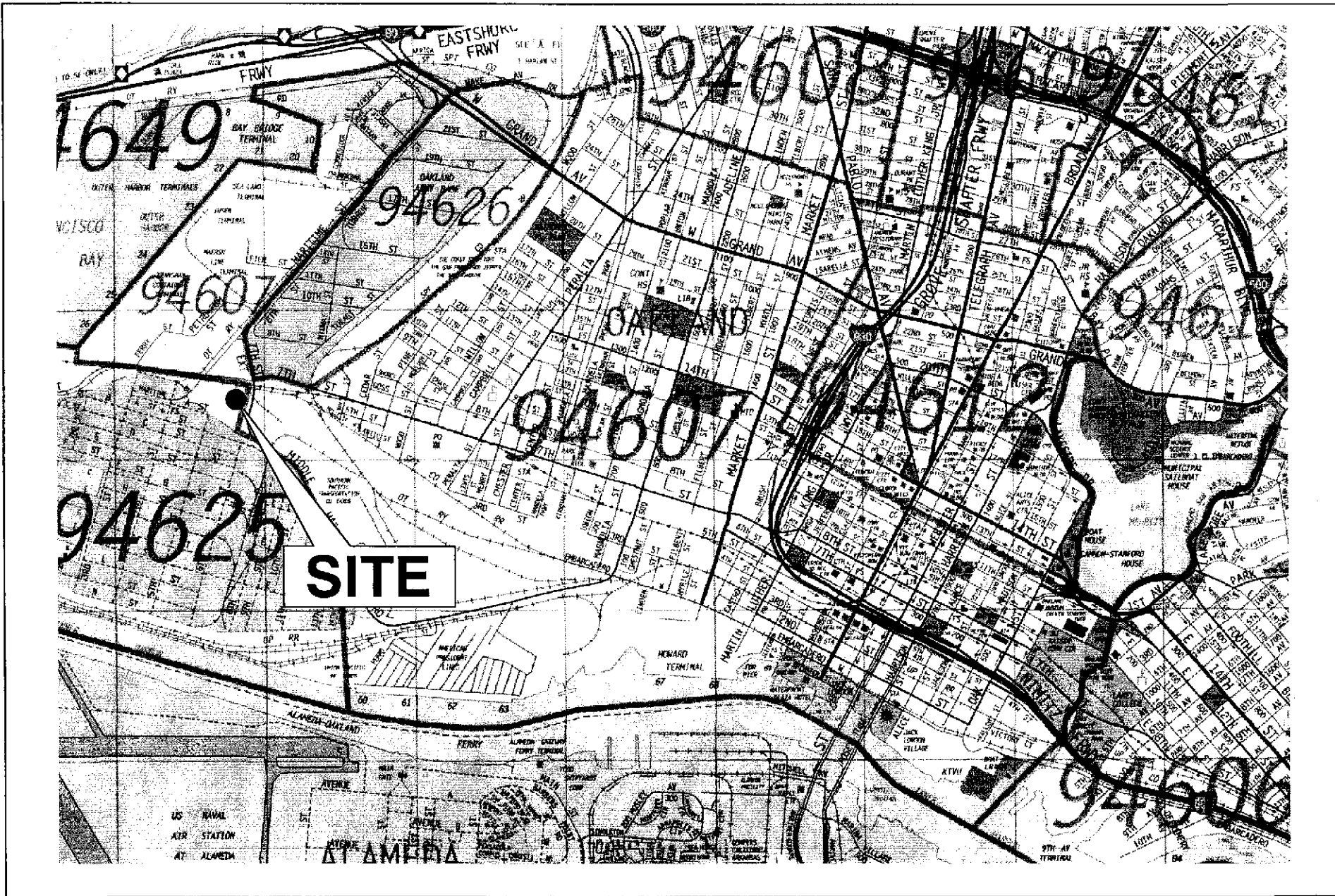
⁵ MTBE detected by EPA Test Method 8021B but reported as ND<0.5 by EPA Test Method 8260

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 7th Street, Oakland California**

Date	System Status	Comments
4/3/02	On	System operating OK. Passive skimmer well has blockage which prevents the skimmer from dropping into product zone.
4/23/02	On	Air compressor pressure is extremely low at the system.
4/25/02	Off	Ingersoll-Rand replaced air compressor pump. System returned on-line when the repairs were complete.
5/10/02	On	System operating OK
5/24/02	On	System operating OK
6/13/02	Off	Quarterly groundwater sampling event. Measured water levels at all wells. Purge water was emptied into the recovery tank. Tank is full and system is not running.
6/21/02	On	Emptied purge water from 801 Maritime into recovery tank. System running OK, recovery tank approximately 1/2 full. Cleared blockage in passive skimmer well MW-1. Skimmer screen set at product depth.



Harding ESE
A MACTEC COMPANY

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

PLATE

1

DRAWN
SS

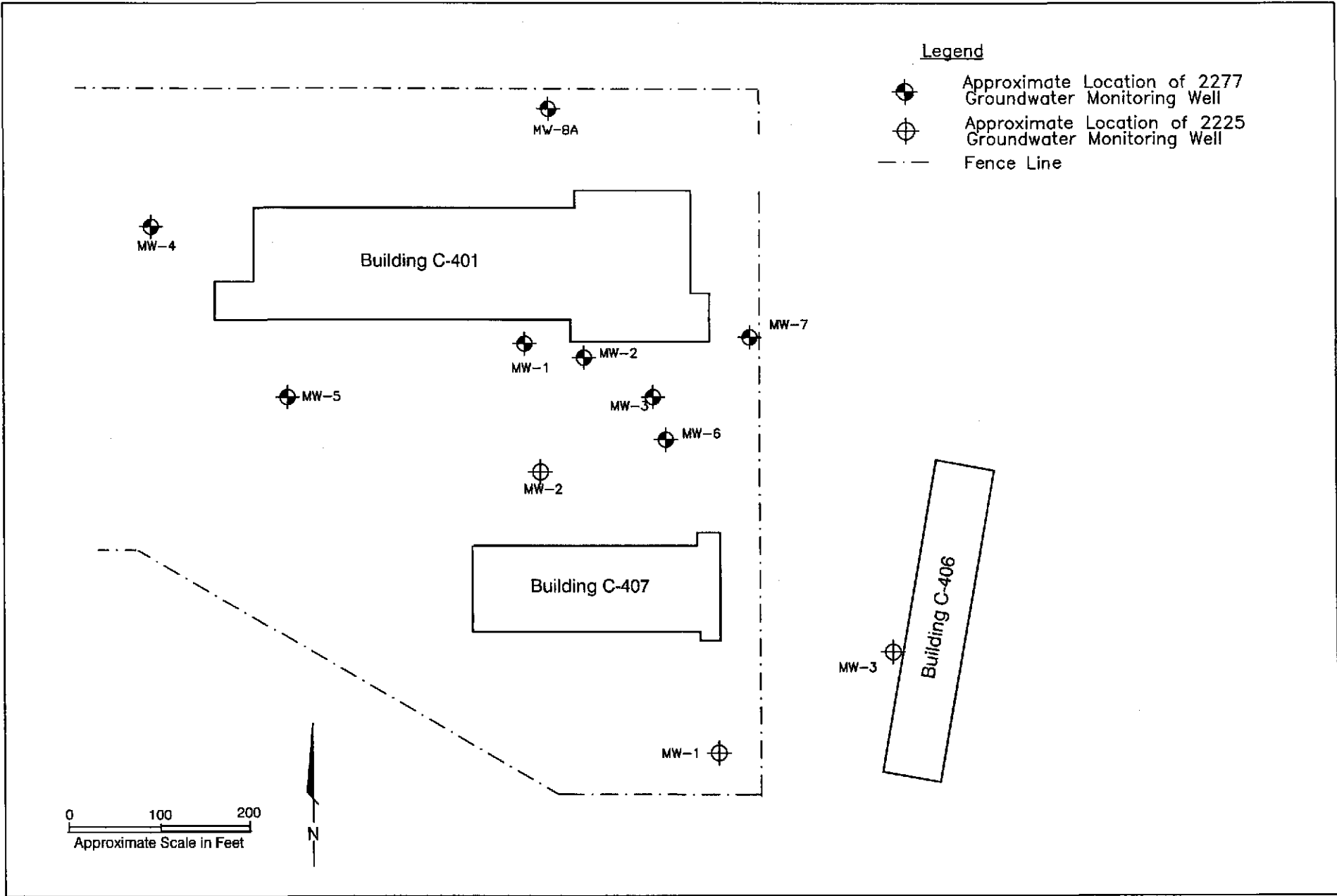
JOB NUMBER
54821.1

APPROVED




DATE
07/02

REVISED DATE

54821003.DWG 1.0
20020701.1124



Legend

-  Approximate Location of 2277 Groundwater Monitoring Well
-  Approximate Location of 2225 Groundwater Monitoring Well
-  Fence Line

0 100 200
Approximate Scale in Feet



Site Plan
 Quarterly Groundwater Monitoring Report
 2277 and 2225 Seventh Street
 Oakland, California 95607

PLATE

2



Harding ESE
 A MACTEC COMPANY

DRAWN
 SS

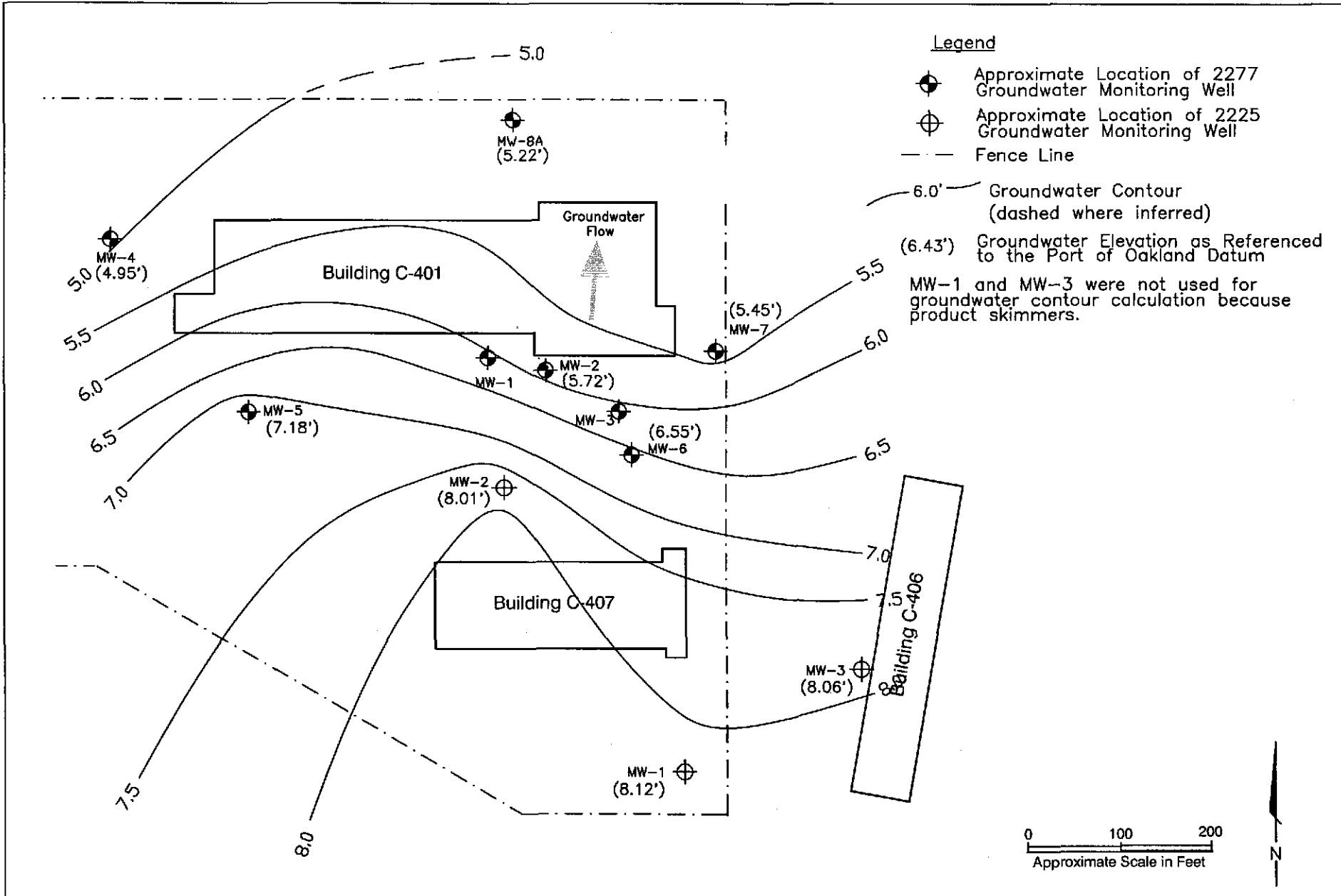
JOB NUMBER
 54821.1

APPROVED

DATE
 07/02

REVISED DATE

54821004.DWG 1.0
 20020701.1125



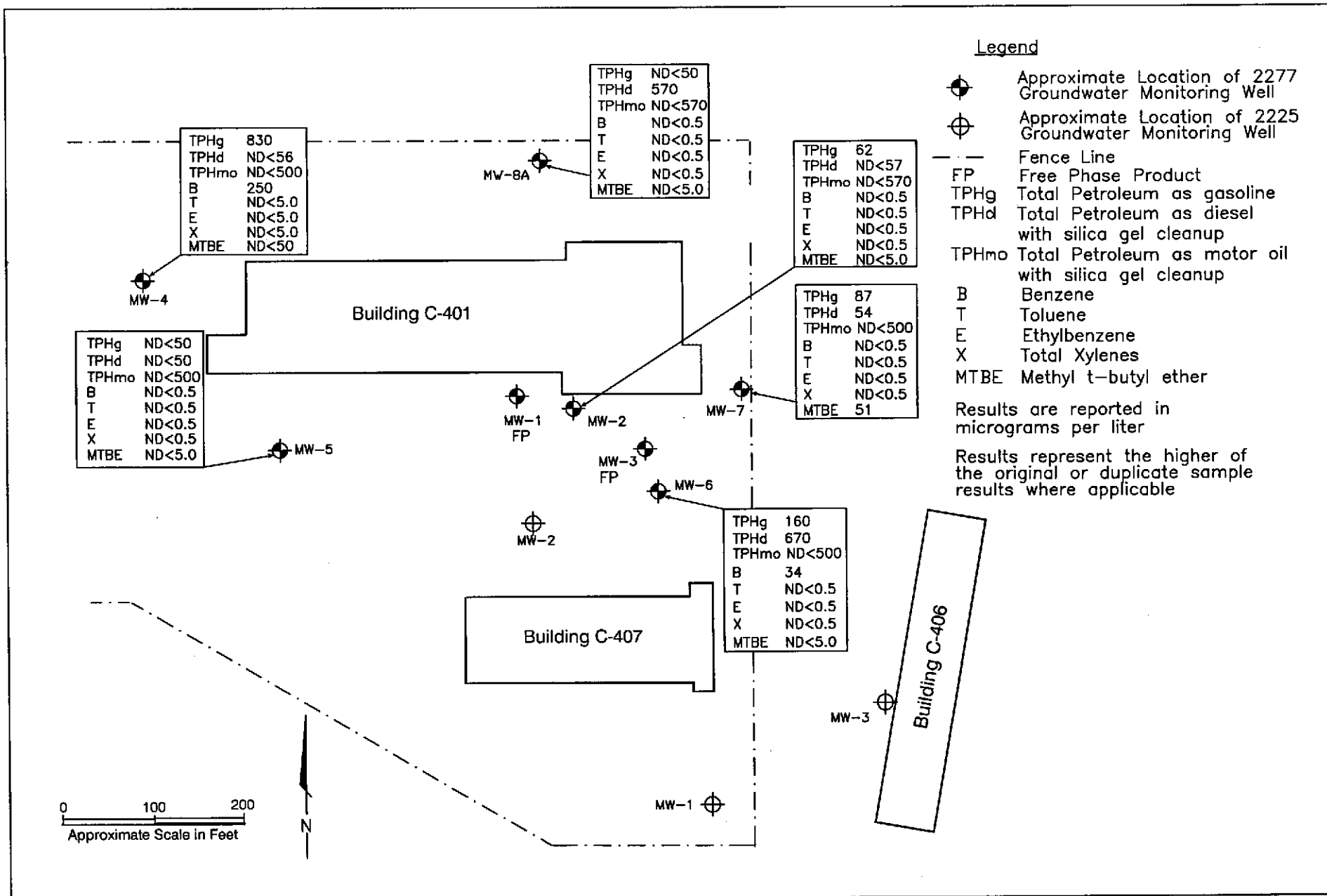
Groundwater Elevations, June 13, 2002
 Quarterly Groundwater Monitoring Report
 2277 and 2225 Seventh Street
 Oakland, California 95607

PLATE

3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
SS	54821.1		07/02	

54821011.DWG 1.0
20020701.1328



54821012.DWG 1.0
20020701.1615



Harding ESE
A MACTEC COMPANY




Groundwater Sample Results, June 13, 2002
Quarterly Groundwater Monitoring Report
2277 Seventh Street
Oakland, California 95607

PLATE

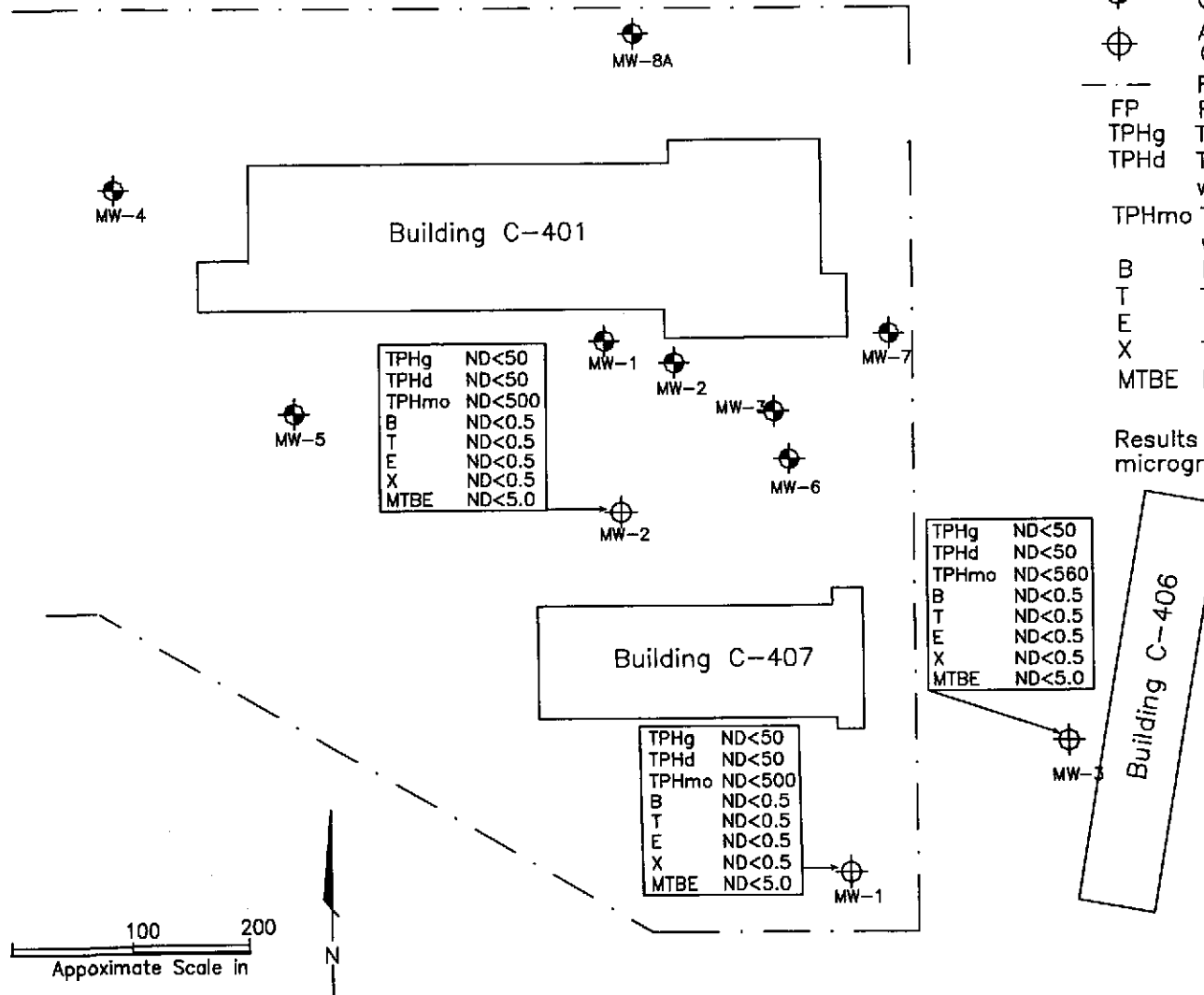
4

DRAWN SS	JOB NUMBER 54821.1	APPROVED	DATE 07/02	REVISED DATE
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Legend

-  Approximate Location of 2277 Groundwater Monitoring Well
-  Approximate Location of 2225 Groundwater Monitoring Well
-  Fence Line
- FP Free Phase Product
- TPHg Total Petroleum as gasoline
- TPHd Total Petroleum as diesel with silica gel cleanup
- TPHmo Total Petroleum as motor oil with silica gel cleanup
- B Benzene
- T Toluene
- E Ethylbenzene
- X Total Xylenes
- MTBE Methyl t-butyl ether

Results are reported in micrograms per liter



Harding ESE
A MACTEC COMPANY

Groundwater Sample Results, June 13, 2001
Semi-Annual Groundwater Monitoring Report
2225 Seventh Street
Oakland, California 94607

PLATE

5

DRAWN
SS

JOB NUMBER
54821.1

APPROVED

DATE
07/02

REVISED DATE

54821013.DWG
20020701.1614
1.0

APPENDIX A

GROUNDWATER SAMPLE FORMS

Job Name: 2277 7th St.
 Job Number: 54821.1.1
 Recorded By: T. Williams
 (Signature)

Well Number: MW-2
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 6/13/2002
 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): 8.64
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD
 Bailer - Type: disposable
 Submersible - Type: _____
 Other - Type: _____

PURGE VOLUME CALCULATION
15.27 - 8.64 x 2² x 3 x 0.0408 = 3.25 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 type="checkbox"/> °C <input checked="" type="checkbox"/> °F	Turbidity (NTU)
Initial	7.92	1652	62.2	
1 GAL	8.61	1606	62.6	
2 GAL	10.4085	1608	63.3	
3 GAL	8.54	1608	62.6	
FINAL	8.36	1603	61.6	
Meter S/N				

PURGE TIME **PURGE RATE**
 Purge Start: _____ GPM: _____
 Purge Stop: _____ GPM: _____
 Elapsed: _____

PURGE VOLUME
 Volume: 3.5 gallons
 Observations During Purging (Well Condition, Color, Odor):
clear, no odor
 Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 2277 System

WELL SAMPLING

Bailer - Type: Disposable Sample Time: 0830

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

QUALITY CONTROL SAMPLES

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

Job Name: 2277 7th St.
 Job Number: 54821.1.1
 Recorded By: *Wil Evans*
 (Signature)

Well Number: MW-4
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 6/13/2002
 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): 8.20
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD

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

$(18.84 - 8.20) \times 2^2 \times 3 \times 0.0408 = 5.2$ gals
 TD (feet) WL (feet) D (inches) # V Calculated Purge Volume

Field Parameter Measurement

Minutes	pH	Conductivity (µS)	Temp.	Turbidity (NTU)
			<input type="checkbox"/> °C <input checked="" type="checkbox"/> °F	
Initial	7.81	1015	62.0	
1 GAL	8.02	1013	62.7	
2	8.50	1043	63.7	
3	8.13	1064	63.7	
4	8.27	1065	63.5	
5	8.23	1104	63.4	
FINAL	8.13	1088	63.3	
Meter S/N				

PURGE TIME

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

PURGE RATE

PURGE VOLUME

Volume: 5.5 gallons
 Observations During Purging (Well Condition, Color, Odor):
lt. brown, no odor
 Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 2277 System

WELL SAMPLING

Bailer - Type: Disposable Sample Time: 0950

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-4	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.
MW-4	MW-4D
0950	0955

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

Job Name: 2277 7th St.
 Job Number: 54821.1.1
 Recorded By: *Tim Elam*
 (Signature)

Well Number: MW-5
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 6/3/2002
 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): 6.31
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD

Bailor - Type: disposable
 Submersible - Type: _____
 Other - Type: _____

PURGE VOLUME CALCULATION

$(17.68 - 6.31) \times 2^2 \times 3 \times 0.0408 = 5.6$ 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 type="checkbox"/> °C	<input checked="" type="checkbox"/> °F	
Initial	7.95	958	63.8		
1 GAL	7.84	1156	65.0		
2	7.97	1383	64.8		
3	8.10	1378	65.3		
4	8.05	1367	65.0		
5	7.95	1367	64.5		
FINAL	7.91	1362	65.3		
Meter S/N					

PURGE TIME

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

PURGE RATE

PURGE VOLUME

Volume: 5.75 gallons

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

no odor, slightly turbid, lt. grey

Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 2277 System

WELL SAMPLING

Bailor - Type: Disposable

Sample Time: 0905

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
MW-5	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.

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Job Name: 2225 7th St.
 Job Number: 54821.1.1
 Recorded By: *T. E. Howard*
 (Signature)

Well Number: MW-~~87~~1
 Well Type: Monitor Extraction Other
 PVC St. Steel Other
 Date: 6/13/2002
 Sampled By: TAE
 (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches): 4
 Total Depth of Casing (TD in ft BTOC): 14.9
 Water Level Depth (WL in ft BTOC): _____
 No. of Well Volumes to be purged (# V): 3

PURGE METHOD

Bailer - Type: PVC
 Submersible - Type: _____
 Other - Type: _____

PURGE VOLUME CALCULATION

14.9 - 5.6) x 4² x 3 x 0.0408 = 18 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 type="checkbox"/> °C	<input checked="" type="checkbox"/> °F	
Initial	8.41	719	79.4		
3	8.33	602	76.8		
6	8.31	655	75.8		
9	8.39	675	76.3		
12	8.47	672	75.6		
15	8.45	674	75.5		
10 FINAL	8.50	688	73.1		
Meter S/N					

PURGE TIME

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

PURGE RATE

PURGE VOLUME

Volume: 18 gallons

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

Discharge Water Disposal: Sanitary Sewer
 Storm Sewer Other 2277 System

WELL SAMPLING

Bailer - Type: Disposable Sample Time: 1430

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
2225-1 <u>2225-1</u>	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.
<u>2225-1</u>	<u>2225-1D</u>
<u>1430</u>	<u>1435</u>

Blank Samples	
Type	Sample No.

Other Samples	
Type	Sample No.

APPENDIX B
LABORATORY REPORTS

Submission #: 2002-06-0267

Date: June 23, 2002

SEVERN

TRENT

SERVICES

Harding ESE, Inc.

600 Grand Ave, Suite 300
Oakland, CA 94607

Attn: Trish Eliasson

Project: 54821.1.1
Port of Oakland

Site: 2277 7th Street

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#2496

Attached is our report for your samples received on Friday June 14, 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
July 29, 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
Project Manager

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.	☒ 600 Grand Ave, Suite 300 Oakland, CA 94607
Attn: Trish Eliasson	Phone: (510) 628-3240 Fax: (510) 451-3165
54821.1.1	Project: Port of Oakland
Site 2277 7th Street	

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#2496

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-2	Water	06/13/2002 08:05	1
MW-TB	Water	06/13/2002 08:10	2
MW-5	Water	06/13/2002 09:05	3
MW-4	Water	06/13/2002 09:50	4
MW-4D	Water	06/13/2002 09:55	5
MW-8A	Water	06/13/2002 10:35	6

Submission #: 2002-06-0267

SEVERN

TRENT

SERVICES

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Sample ID: MW-2	Lab Sample ID: 2002-06-0267-001
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 17:26
Sampled: 06/13/2002 08:05	QC-Batch: 2002/06/17-01.02
Matrix: Water	

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

CA DHS ELAP#2496

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	62	50	ug/L	1.00	06/17/2002 17:26	g
Benzene	ND	0.50	ug/L	1.00	06/17/2002 17:26	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 17:26	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 17:26	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 17:26	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 17:26	
Surrogate(s)						
Trifluorotoluene	107.1	58-124	%	1.00	06/17/2002 17:26	
4-Bromofluorobenzene-FID	96.9	50-150	%	1.00	06/17/2002 17:26	

Submission #: 2002-06-0267

**SEVERN
TRENT
SERVICES**

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Sample ID: MW-TB	Lab Sample ID: 2002-06-0267-002
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 18:00
Sampled: 06/13/2002 08:10	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Tel 925 484 1919
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Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/17/2002 18:00	
Benzene	ND	0.50	ug/L	1.00	06/17/2002 18:00	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 18:00	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 18:00	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 18:00	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 18:00	
Surrogate(s)						
Trifluorotoluene	104.4	58-124	%	1.00	06/17/2002 18:00	
4-Bromofluorobenzene-FID	90.5	50-150	%	1.00	06/17/2002 18:00	

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: MW-5	Lab Sample ID: 2002-06-0267-003
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 18:33
Sampled: 06/13/2002 09:05	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/17/2002 18:33	
Benzene	ND	0.50	ug/L	1.00	06/17/2002 18:33	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 18:33	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 18:33	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 18:33	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 18:33	
Surrogate(s)						
Trifluorotoluene	116.4	58-124	%	1.00	06/17/2002 18:33	
4-Bromofluorobenzene-FID	99.4	50-150	%	1.00	06/17/2002 18:33	

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: MW-4	Lab Sample ID: 2002-06-0267-004
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/18/2002 12:50
Sampled: 06/13/2002 09:50	QC-Batch: 2002/06/18-01.04
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	830	500	ug/L	10.00	06/18/2002 12:50	g
Benzene	250	5.0	ug/L	10.00	06/18/2002 12:50	
Toluene	ND	5.0	ug/L	10.00	06/18/2002 12:50	
Ethyl benzene	ND	5.0	ug/L	10.00	06/18/2002 12:50	
Xylene(s)	ND	5.0	ug/L	10.00	06/18/2002 12:50	
MTBE	ND	50	ug/L	10.00	06/18/2002 12:50	
Surrogate(s)						
Trifluorotoluene	104.6	58-124	%	10.00	06/18/2002 12:50	
4-Bromofluorobenzene-FID	91.8	50-150	%	10.00	06/18/2002 12:50	

Submission #: 2002-06-0267



Gas/BTEX Compounds by 8015M/8021

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Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: MW-4D	Lab Sample ID: 2002-06-0267-005
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/18/2002 13:17
Sampled: 06/13/2002 09:55	QC-Batch: 2002/06/18-01.04
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	820	500	ug/L	10.00	06/18/2002 13:17	g
Benzene	240	5.0	ug/L	10.00	06/18/2002 13:17	
Toluene	ND	5.0	ug/L	10.00	06/18/2002 13:17	
Ethyl benzene	ND	5.0	ug/L	10.00	06/18/2002 13:17	
Xylene(s)	ND	5.0	ug/L	10.00	06/18/2002 13:17	
MTBE	ND	50	ug/L	10.00	06/18/2002 13:17	
Surrogate(s)						
Trifluorotoluene	118.2	58-124	%	10.00	06/18/2002 13:17	
4-Bromofluorobenzene-FID	93.5	50-150	%	10.00	06/18/2002 13:17	

Submission #: 2002-06-0267



Gas/BTEX Compounds by 8015M/8021

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Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: MW-8A	Lab Sample ID: 2002-06-0267-006
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 20:12
Sampled: 06/13/2002 10:35	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/17/2002 20:12	
Benzene	ND	0.50	ug/L	1.00	06/17/2002 20:12	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 20:12	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 20:12	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 20:12	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 20:12	
Surrogate(s)						
Trifluorotoluene	113.6	58-124	%	1.00	06/17/2002 20:12	
4-Bromofluorobenzene-FID	101.2	50-150	%	1.00	06/17/2002 20:12	

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B

Prep Method: 5030

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Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-01.02
 LCS: 2002/06/17-01.02-004 Extracted: 06/17/2002 09:01 Analyzed: 06/17/2002 09:01
 LCSD: 2002/06/17-01.02-005 Extracted: 06/17/2002 09:34 Analyzed: 06/17/2002 09:34

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Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	107	104	100.0	100.0	107.0	104.0	2.8	77-123	20		
Toluene	108	104	100.0	100.0	108.0	104.0	3.8	78-122	20		
Ethyl benzene	106	102	100.0	100.0	106.0	102.0	3.8	70-130	20		
Xylene(s)	305	298	300	300	101.7	99.3	2.4	75-125	20		
Surrogate(s)											
Trifluorotoluene	554	525	500	500	110.8	105.0		58-124			

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M

Prep Method: 5030

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Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-01.02
LCS: 2002/06/17-01.02-006 Extracted: 06/17/2002 10:07 Analyzed: 06/17/2002 10:07
LCSD: 2002/06/17-01.02-007 Extracted: 06/17/2002 10:40 Analyzed: 06/17/2002 10:40

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Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	513	507	500	500	102.6	101.4	1.2	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	531	538	500	500	106.2	107.6		50-150			

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B

Prep Method: 5030

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Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/18-01.04
 LCS: 2002/06/18-01.04-005 Extracted: 06/18/2002 09:42 Analyzed: 06/18/2002 09:42
 LCSD: 2002/06/18-01.04-006 Extracted: 06/18/2002 10:09 Analyzed: 06/18/2002 10:09

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Compound	Conc. [ug/L]		Exp. Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	97.8	103	100.0	100.0	97.8	103.0	5.2	77-123	20		
Toluene	95.6	101	100.0	100.0	95.6	101.0	5.5	78-122	20		
Ethyl benzene	90.3	95.3	100.0	100.0	90.3	95.3	5.4	70-130	20		
Xylene(s)	276	291	300	300	92.0	97.0	5.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	484	520	500	500	96.8	104.0		58-124			

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M

Prep Method: 5030

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Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/18-01.04
 LCS: 2002/06/18-01.04-008 Extracted: 06/18/2002 11:02 Analyzed: 06/18/2002 11:02
 LCSD: 2002/06/18-01.04-009 Extracted: 06/18/2002 11:29 Analyzed: 06/18/2002 11:29

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	500	472	500	500	100.0	94.4	5.8	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	417	404	500	500	83.4	80.8		50-150			

Gas/BTEX Compounds by 8015M/8021

Batch QC Report

Test Method: 8021B

Prep Method: 5030

Matrix Spike (MS / MSD)	Water	QC Batch # 2002/06/17-01.02
Sample ID: 2225-1 >> MS		Lab ID: 2002-06-0267-010
MS: 2002/06/17-01.02-029	Extracted: 06/17/2002 22:58	Analyzed: 06/17/2002 22:58
		Dilution: 1
MSD: 2002/06/17-01.02-030	Extracted: 06/17/2002 23:31	Analyzed: 06/17/2002 23:31
		Dilution: 1

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Compound	Conc. [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Benzene	99.4	107	ND	100.0	100.0	99.4	107.0	7.4	65-135	20		
Toluene	99.4	107	ND	100.0	100.0	99.4	107.0	7.4	65-135	20		
Ethyl benzene	98.0	106	ND	100.0	100.0	98.0	106.0	7.8	65-135	20		
Xylene(s)	281	306	ND	300	300	93.7	102.0	8.5	65-135	20		
Surrogate(s)												
Trifluorotoluene	512	455		500	500	102.	91.0		58-124			

Gas/BTEX Compounds by 8015M/8021

Batch QC Report

Test Method: 8015M

Prep Method: 5030

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Matrix Spike (MS / MSD)	Water	QC Batch # 2002/06/17-01.02
Sample ID: 2225-1 >> MS		Lab ID: 2002-06-0267-010
MS: 2002/06/17-01.02-033	Extracted: 06/18/2002 01:10	Analyzed: 06/18/2002 01:10
		Dilution: 1
MSD: 2002/06/17-01.02-034	Extracted: 06/18/2002 01:43	Analyzed: 06/18/2002 01:43
		Dilution: 1

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Compound	Conc. [ug/L]			Exp.Conc. [ug/L] Recovery [%]				RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD		[%]	Recovery	RPD	MS
Gasoline	439	479	ND	500	500	87.8	95.8	8.7	65-135	20		
Surrogate(s)												
4-Bromofluoroben	467	498		500	500	93.4	99.6		50-150			

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

Legend & Notes

Test Method: 8021B
8015M

Prep Method: 5030

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Analyte Flags

g

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

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Attn: Trish Eliasson	Phone: (510) 628-3240 Fax: (510) 451-3165
54821.1.1	Project: Port of Oakland
Site 2277 7th Street	

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Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-7	Water	06/13/2002 11:15	7
MW-6	Water	06/13/2002 12:50	8
2225-2	Water	06/13/2002 13:35	9
2225-1	Water	06/13/2002 14:30	10
2225-1D	Water	06/13/2002 14:35	11
2225-3	Water	06/13/2002 15:20	12

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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Sample ID: MW-7	Lab Sample ID: 2002-06-0267-007
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 20:45
Sampled: 06/13/2002 11:15	QC-Batch: 2002/06/17-01.02
Matrix: Water	

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Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	87	50	ug/L	1.00	06/17/2002 20:45	g
Benzene	ND	0.50	ug/L	1.00	06/17/2002 20:45	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 20:45	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 20:45	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 20:45	
MTBE	51	5.0	ug/L	1.00	06/17/2002 20:45	
Surrogate(s)						
Trifluorotoluene	115.5	58-124	%	1.00	06/17/2002 20:45	
4-Bromofluorobenzene-FID	101.8	50-150	%	1.00	06/17/2002 20:45	

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

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Test Method: 8021B
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CA DHS ELAP#2496

Sample ID: MW-6	Lab Sample ID: 2002-06-0267-008
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 21:18
Sampled: 06/13/2002 12:50	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	160	50	ug/L	1.00	06/17/2002 21:18	g
Benzene	34	0.50	ug/L	1.00	06/17/2002 21:18	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 21:18	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 21:18	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 21:18	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 21:18	
Surrogate(s)						
Trifluorotoluene	100.1	58-124	%	1.00	06/17/2002 21:18	
4-Bromofluorobenzene-FID	95.8	50-150	%	1.00	06/17/2002 21:18	

Gas/BTEX Compounds by 8015M/8021

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Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: 2225-2	Lab Sample ID: 2002-06-0267-009
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 21:51
Sampled: 06/13/2002 13:35	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/17/2002 21:51	
Benzene	ND	0.50	ug/L	1.00	06/17/2002 21:51	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 21:51	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 21:51	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 21:51	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 21:51	
Surrogate(s)						
Trifluorotoluene	102.2	58-124	%	1.00	06/17/2002 21:51	
4-Bromofluorobenzene-FID	91.7	50-150	%	1.00	06/17/2002 21:51	

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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Sample ID: 2225-1	Lab Sample ID: 2002-06-0267-010
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 22:25
Sampled: 06/13/2002 14:30	QC-Batch: 2002/06/17-01.02
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/17/2002 22:25	
Benzene	ND	0.50	ug/L	1.00	06/17/2002 22:25	
Toluene	ND	0.50	ug/L	1.00	06/17/2002 22:25	
Ethyl benzene	ND	0.50	ug/L	1.00	06/17/2002 22:25	
Xylene(s)	ND	0.50	ug/L	1.00	06/17/2002 22:25	
MTBE	ND	5.0	ug/L	1.00	06/17/2002 22:25	
Surrogate(s)						
Trifluorotoluene	102.0	58-124	%	1.00	06/17/2002 22:25	
4-Bromofluorobenzene-FID	92.2	50-150	%	1.00	06/17/2002 22:25	

Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
8015M

Attn: Trish Eliasson

Prep Method: 5030

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CA DHS ELAP#2496

Sample ID: 2225-1D	Lab Sample ID: 2002-06-0267-011
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/18/2002 11:56
Sampled: 06/13/2002 14:35	QC-Batch: 2002/06/18-01.04
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/18/2002 11:56	
Benzene	ND	0.50	ug/L	1.00	06/18/2002 11:56	
Toluene	ND	0.50	ug/L	1.00	06/18/2002 11:56	
Ethyl benzene	ND	0.50	ug/L	1.00	06/18/2002 11:56	
Xylene(s)	ND	0.50	ug/L	1.00	06/18/2002 11:56	
MTBE	ND	5.0	ug/L	1.00	06/18/2002 11:56	
Surrogate(s)						
Trifluorotoluene	113.6	58-124	%	1.00	06/18/2002 11:56	
4-Bromofluorobenzene-FID	84.2	50-150	%	1.00	06/18/2002 11:56	

Submission #: 2002-06-0267

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Gas/BTEX Compounds by 8015M/8021

Harding ESE, Inc.

Test Method: 8021B
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Prep Method: 5030

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Sample ID: 2225-3	Lab Sample ID: 2002-06-0267-012
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/18/2002 12:23
Sampled: 06/13/2002 15:20	QC-Batch: 2002/06/18-01.04
Matrix: Water	

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CA DHS ELAP#2496

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	06/18/2002 12:23	
Benzene	ND	0.50	ug/L	1.00	06/18/2002 12:23	
Toluene	ND	0.50	ug/L	1.00	06/18/2002 12:23	
Ethyl benzene	ND	0.50	ug/L	1.00	06/18/2002 12:23	
Xylene(s)	ND	0.50	ug/L	1.00	06/18/2002 12:23	
MTBE	ND	5.0	ug/L	1.00	06/18/2002 12:23	
Surrogate(s)						
Trifluorotoluene	117.4	58-124	%	1.00	06/18/2002 12:23	
4-Bromofluorobenzene-FID	84.0	50-150	%	1.00	06/18/2002 12:23	

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B

Prep Method: 5030

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Pleasanton, CA 94566

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-01.02
 LCS: 2002/06/17-01.02-004 Extracted: 06/17/2002 09:01 Analyzed: 06/17/2002 09:01
 LCSD: 2002/06/17-01.02-005 Extracted: 06/17/2002 09:34 Analyzed: 06/17/2002 09:34

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	107	104	100.0	100.0	107.0	104.0	2.8	77-123	20		
Toluene	108	104	100.0	100.0	108.0	104.0	3.8	78-122	20		
Ethyl benzene	106	102	100.0	100.0	106.0	102.0	3.8	70-130	20		
Xylene(s)	305	298	300	300	101.7	99.3	2.4	75-125	20		
Surrogate(s)											
Trifluorotoluene	554	525	500	500	110.8	105.0		58-124			

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-01.02
 LCS: 2002/06/17-01.02-006 Extracted: 06/17/2002 10:07 Analyzed: 06/17/2002 10:07
 LCSD: 2002/06/17-01.02-007 Extracted: 06/17/2002 10:40 Analyzed: 06/17/2002 10:40

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline Surrogate(s)	513	507	500	500	102.6	101.4	1.2	75-125	20		
4-Bromofluorobenzene	531	538	500	500	106.2	107.6		50-150			

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B

Prep Method: 5030

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Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/18-01.04
 LCS: 2002/06/18-01.04-005 Extracted: 06/18/2002 09:42 Analyzed: 06/18/2002 09:42
 LCSD: 2002/06/18-01.04-006 Extracted: 06/18/2002 10:09 Analyzed: 06/18/2002 10:09

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	97.8	103	100.0	100.0	97.8	103.0	5.2	77-123	20		
Toluene	95.6	101	100.0	100.0	95.6	101.0	5.5	78-122	20		
Ethyl benzene	90.3	95.3	100.0	100.0	90.3	95.3	5.4	70-130	20		
Xylene(s)	276	291	300	300	92.0	97.0	5.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	484	520	500	500	96.8	104.0		58-124			

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M

Prep Method: 5030

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1220 Quarry Lane
Pleasanton, CA 94566

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/18-01.04
 LCS: 2002/06/18-01.04-008 Extracted: 06/18/2002 11:02 Analyzed: 06/18/2002 11:02
 LCSD: 2002/06/18-01.04-009 Extracted: 06/18/2002 11:29 Analyzed: 06/18/2002 11:29

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	500	472	500	500	100.0	94.4	5.8	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	417	404	500	500	83.4	80.8		50-150			

Submission #: 2002-06-0267



Gas/BTEX Compounds by 8015M/8021

Batch QC Report

Test Method: 8015M

Prep Method: 5030

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Matrix Spike (MS / MSD)	Water	QC Batch # 2002/06/17-01.02
Sample ID: 2225-1 >> MS		Lab ID: 2002-06-0267-010
MS: 2002/06/17-01.02-033	Extracted: 06/18/2002 01:10	Analyzed: 06/18/2002 01:10
		Dilution: 1
MSD: 2002/06/17-01.02-034	Extracted: 06/18/2002 01:43	Analyzed: 06/18/2002 01:43
		Dilution: 1

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Compound	Conc. [ug/L]			Exp.Conc. [ug/L]				Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	MS	MSD		Recovery	RPD	MS	MSD
Gasoline	439	479	ND	500	500	87.8	95.8	8.7		65-135	20			
Surrogate(s)														
4-Bromofluoroben	467	498		500	500	93.4	99.6			50-150				

Submission #: 2002-06-0267

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SERVICES

Gas/BTEX Compounds by 8015M/8021

Legend & Notes

Test Method: 8021B
8015M

Prep Method: 5030

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CA DHS ELAP#2496

Analyte Flags

g

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

TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.	☒ 600 Grand Ave, Suite 300 Oakland, CA 94607
Attn: Trish Eliasson	Phone: (510) 628-3240 Fax: (510) 451-3165
54821.1.1 Site 2277 7th Street	Project: Port of Oakland

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Pleasanton, CA 94566

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CA DHS ELAP#2496

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-2	Water	06/13/2002 08:05	1
MW-5	Water	06/13/2002 09:05	3
MW-4	Water	06/13/2002 09:50	4
MW-4D	Water	06/13/2002 09:55	5
MW-8A	Water	06/13/2002 10:35	6

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.
Attn: Trish Eliasson

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

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Sample ID: MW-2	Lab Sample ID: 2002-06-0267-001
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 08:05	QC-Batch: 2002/06/17-02.10
Matrix: Water	
Sample/Analysis Flag: rl (See Legend & Note section)	

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CA DHS ELAP#2496

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	57	ug/L	1.10	06/18/2002 19:54	
Motor Oil	ND	570	ug/L	1.10	06/18/2002 19:54	
<i>Surrogate(s)</i>						
o-Terphenyl	88.7	60-130	%	1.10	06/18/2002 19:54	

Submission #: 2002-06-0267

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TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.

Test Method: 8015M

Attn: Trish Eliasson

Prep Method: 3510/8015M

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CA DHS ELAP#2496

Sample ID: MW-5	Lab Sample ID: 2002-06-0267-003
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 09:05	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	06/18/2002 19:54	
Motor Oil	ND	500	ug/L	1.00	06/18/2002 19:54	
<i>Surrogate(s)</i>						
o-Terphenyl	90.5	60-130	%	1.00	06/18/2002 19:54	

Submission #: 2002-06-0267



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

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CA DHS ELAP#2496

Sample ID: MW-4	Lab Sample ID: 2002-06-0267-004
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 09:50	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	06/18/2002 21:14	
Motor Oil	ND	500	ug/L	1.00	06/18/2002 21:14	
<i>Surrogate(s)</i> o-Terphenyl	81.6	60-130	%	1.00	06/18/2002 21:14	

Submission #: 2002-06-0267

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

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CA DHS ELAP#2496

Sample ID: MW-4D	Lab Sample ID: 2002-06-0267-005
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 09:55	QC-Batch: 2002/06/17-02.10
Matrix: Water	
Sample/Analysis Flag: rl (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	56	ug/L	1.12	06/18/2002 18:35	
Motor Oil	ND	560	ug/L	1.12	06/18/2002 18:35	
Surrogate(s)						
o-Terphenyl	83.8	60-130	%	1.12	06/18/2002 18:35	

Submission #: 2002-06-0267



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

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CA DHS ELAP#2496

Sample ID: MW-8A	Lab Sample ID: 2002-06-0267-006
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 10:35	QC-Batch: 2002/06/17-02.10
Matrix: Water	
Sample/Analysis Flag: rl (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	570	57	ug/L	1.14	06/18/2002 16:12	ndp
Motor Oil	ND	570	ug/L	1.14	06/18/2002 16:12	
<i>Surrogate(s)</i> o-Terphenyl	66.4	60-130	%	1.14	06/18/2002 16:12	

TEPH w/ Silica Gel Clean-up

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015M

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Pleasanton, CA 94566

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-02.10
 LCS: 2002/06/17-02.10-002 Extracted: 06/17/2002 07:34 Analyzed: 06/17/2002 13:34
 LCSD: 2002/06/17-02.10-003 Extracted: 06/17/2002 07:34 Analyzed: 06/17/2002 14:11

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Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	1130	1060	1250	1250	90.4	84.8	6.4	60-130	25		
Surrogate(s)											
o-Terphenyl	21.5	20.6	20.0	20.0	107.5	103.0		60-130	0		

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

Legend & Notes

Test Method: 8015M

Prep Method: 3510/8015M

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CA DHS ELAP#2496

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

TEPH w/ Silica Gel Clean-up

Harding ESE, Inc.	✉ 600 Grand Ave, Suite 300 Oakland, CA 94607
Attn: Trish Eliasson	Phone: (510) 628-3240 Fax: (510) 451-3165
54821.1.1	Project: Port of Oakland
Site 2277 7th Street	

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CA DHS ELAP#2496

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
MW-7	Water	06/13/2002 11:15	7
MW-6	Water	06/13/2002 12:50	8
2225-2	Water	06/13/2002 13:35	9
2225-1	Water	06/13/2002 14:30	10
2225-1D	Water	06/13/2002 14:35	11
2225-3	Water	06/13/2002 15:20	12

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

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

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CA DHS ELAP#2496

Sample ID: MW-7	Lab Sample ID: 2002-06-0267-007
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 11:15	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	54	50	ug/L	1.00	06/18/2002 20:34	ndp
Motor Oil	ND	500	ug/L	1.00	06/18/2002 20:34	
<i>Surrogate(s)</i>						
o-Terphenyl	83.0	60-130	%	1.00	06/18/2002 20:34	

Submission #: 2002-06-0267

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TEPH w/ Silica Gel Clean-up

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Attn: Trish Eliasson

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

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CA DHS ELAP#2496

Sample ID: MW-6	Lab Sample ID: 2002-06-0267-008
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 12:50	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	670	50	ug/L	1.00	06/18/2002 20:34	ndp
Motor Oil	ND	500	ug/L	1.00	06/18/2002 20:34	
<i>Surrogate(s)</i>						
o-Terphenyl	97.0	60-130	%	1.00	06/18/2002 20:34	

Submission #: 2002-06-0267

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TEPH w/ Silica Gel Clean-up

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Attn: Trish Eliasson

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

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CA DHS ELAP#2496

Sample ID: 2225-2	Lab Sample ID: 2002-06-0267-009
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 13:35	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	06/18/2002 21:14	
Motor Oil	ND	500	ug/L	1.00	06/18/2002 21:14	
<i>Surrogate(s)</i>						
o-Terphenyl	103.1	60-130	%	1.00	06/18/2002 21:14	

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

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

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CA DHS ELAP#2496

Sample ID: 2225-1	Lab Sample ID: 2002-06-0267-010
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 14:30	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	06/18/2002 17:55	
Motor Oil	ND	500	ug/L	1.00	06/18/2002 17:55	
Surrogate(s)						
o-Terphenyl	79.2	60-130	%	1.00	06/18/2002 17:55	

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

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

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CA DHS ELAP#2496

Sample ID: 2225-1D	Lab Sample ID: 2002-06-0267-011
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 14:35	QC-Batch: 2002/06/17-02.10
Matrix: Water	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	06/18/2002 19:15	
Motor Oil	ND	500	ug/L	1.00	06/18/2002 19:15	
<i>Surrogate(s)</i> o-Terphenyl	81.0	60-130	%	1.00	06/18/2002 19:15	

Submission #: 2002-06-0267



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#2496

Sample ID: 2225-3	Lab Sample ID: 2002-06-0267-012
Project: 54821.1.1 Port of Oakland	Received: 06/14/2002 18:10
Site: 2277 7th Street	Extracted: 06/17/2002 07:34
Sampled: 06/13/2002 15:20	QC-Batch: 2002/06/17-02.10
Matrix: Water	
Sample/Analysis Flag: rl (See Legend & Note section)	

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	56	ug/L	1.12	06/18/2002 23:13	
Motor Oil	ND	560	ug/L	1.12	06/18/2002 23:13	
Surrogate(s)						
o-Terphenyl	90.3	60-130	%	1.12	06/18/2002 23:13	

TEPH w/ Silica Gel Clean-up

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015
M

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CA DHS ELAP#2496

Method Blank	Water	QC Batch # 2002/06/17-02.10
MB: 2002/06/17-02.10-001		Date Extracted: 06/17/2002 07:34

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	06/17/2002 17:55	
Motor Oil	ND	500	ug/L	06/17/2002 17:55	
Surrogate(s) o-Terphenyl	104.0	60-130	%	06/17/2002 17:55	

Submission #: 2002-06-0267



TEPH w/ Silica Gel Clean-up

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015M

Laboratory Control Spike (LCS/LCSD) Water QC Batch # 2002/06/17-02.10
 LCS: 2002/06/17-02.10-002 Extracted: 06/17/2002 07:34 Analyzed: 06/17/2002 13:34
 LCSD: 2002/06/17-02.10-003 Extracted: 06/17/2002 07:34 Analyzed: 06/17/2002 14:11

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CA DHS ELAP#2496

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel Surrogate(s)	1130	1060	1250	1250	90.4	84.8	6.4	60-130	25		
o-Terphenyl	21.5	20.6	20.0	20.0	107.5	103.0		60-130	0		

TEPH w/ Silica Gel Clean-up

Legend & Notes

Test Method: 8015M

Prep Method: 3510/8015M

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#2496

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

66903



Sample Receipt Checklist

STL San Francisco

Submission #: 2002- 06 - 0267

Checklist completed by: (initials) ASH Date: 06/17 /02

Courier name: STL San Francisco Client _____

Custody seals intact on shipping container/samples

Yes ___ No ___ Not Present

Chain of custody present?

Yes No ___

Chain of custody signed when relinquished and received?

Yes No ___

Chain of custody agrees with sample labels?

Yes No ___

Samples in proper container/bottle?

Yes No ___

Sample containers intact?

Yes No ___

Sufficient sample volume for indicated test?

Yes No ___

All samples received within holding time?

Yes No ___

Container/Temp Blank temperature in compliance (4° C ± 2)?

Temp: 4.0 °C Yes No ___

Water - VOA vials have zero headspace?

No VOA vials submitted ___ Yes No ___

(if bubble is present, refer to approximate bubble size and itemize in comments as S (small - O), M (medium - O) or L (large - O)

Water - pH acceptable upon receipt? Yes No

pH adjusted- Preservative used: HNO₃ HCl H₂SO₄ NaOH ZnOAc

For any item check-listed "No", provided detail of discrepancy in comment section below:

Comments: _____

Project Management [Routing for instruction of indicated discrepancy(ies)]

Project Manager: (initials) _____ Date: _____ / _____ /02

Client contacted: Yes No

Summary of discussion: _____

Corrective Action (per PM/Client): _____

