



May 8, 2003

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Oakland, California 94607

Alameda County  
MAY 14 2003  
Environmental Health

**First Quarter of 2003 Quarterly Groundwater Monitoring  
and Product Recovery Report  
2277 Seventh Street  
Oakland, California**

Dear Mr. Rubin:

Innovative Technical Solutions, Inc. (ITSI) is pleased to submit this report to the Port of Oakland (Port) for the groundwater monitoring and sampling program at 2277 7<sup>th</sup> Street in Oakland, California (Figure 1). This report summarizes the quarterly monitoring of four groundwater-monitoring wells (MW-2, MW-4, MW-5, and MW-8A) at 2277 7<sup>th</sup> Street. The locations of these wells are shown on Figure 2.

This report also summarizes the operation of the product recovery system at the 2277 7<sup>th</sup> Street site during the first quarter of 2003. The product recovery system is currently installed in two wells located at 2277 7<sup>th</sup> Street. Monitoring well MW-3 contains an active product skimmer that recovers separate-phase petroleum hydrocarbons from the groundwater surface, and monitoring well MW-1 contains a passive product recovery skimmer. ITSI did not perform collection of groundwater samples from these wells due to the presence of separate-phase petroleum hydrocarbons.

## BACKGROUND

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 (Harding) performed oversight of the abandonment of monitoring well MW-8, located at the northern edge of the property. This monitoring well was properly destroyed<sup>1</sup> to accommodate the construction of a railroad track associated with the Port of Oakland Vision 2000 improvements. All surface structures, including the well, needed to be removed.

Harding monitored MW-8 from 1998 until it was abandoned. During this time, no groundwater samples were collected because the well contained a thick, viscous, tar-like petroleum product. After the railroad construction was completed, the Port had a replacement well, MW-8A, installed in the same vicinity on October 2, 2001 by ITSI. MW-8A has been sampled since the Fourth quarter of 2001, and no separate

<sup>1</sup> - Destruction and abandonment of all monitoring wells were performed in accordance with Alameda County Public Works Agency Guidelines.

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phase petroleum has been detected.

Site preparation activities were recently initiated for construction of a new Port Field Support Complex (PFSSC) at the site. The eastern side of Building C-401 was demolished, and the asphalt pavement east of the building was removed in December 2002. A concrete ring was placed around each well for protection and prevention from damage by heavy equipment during site demolition. Two monitoring wells (MW-6 and MW-7) were properly destroyed to facilitate the construction plans at the site, and six monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-8A) still remain onsite. The surface grade was raised approximately 2 feet in the vicinity of wells MW-2 and MW-3 during the first quarter of 2003.

## GROUNDWATER MONITORING

ITSI personnel performed groundwater monitoring and sampling at the 2277 7<sup>th</sup> Street site on March 17, 2003. Prior to purging and sampling the monitoring wells, ITSI measured the depth to groundwater below the top of the well casing with a water level indicator. After measuring the depth to water, ITSI purged the wells using a disposable bailer. Conductivity, pH, and temperature were monitored periodically during purging. ITSI collected the groundwater samples after removing a minimum of three well-casing volumes of water and upon stabilization of three consecutive measurements of conductivity, pH, and temperature. The depths to groundwater and field parameter measurements were recorded on respective Monitoring Well Water Level Measurement and Monitoring Well Purging and Sampling forms included as Appendix A. The purge water was stored onsite in the treatment system's product recovery tank. Foss Environmental Services Company, Inc. (Foss) periodically removes and appropriately disposes of the purge water along with the product in the tank.

ITSI 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, and then placed in an insulated cooler with ice. The samples were delivered under chain-of-custody protocol to Curtis & Tompkins in Berkeley, a California certified analytical laboratory.

The first quarter 2003 groundwater monitoring event at 2277 7<sup>th</sup> Street involved monitoring and sampling of monitoring wells MW-2, MW-4, MW-5, and MW-8A, and periodic inspection and maintenance of the free-phase product recovery system installed in monitoring wells MW-1 and MW-3. Groundwater level measurements are summarized in Table 1 and product thickness measurements are summarized on Table 2. The groundwater gradient direction is presented on Figure 3. Copies of the respective Monitoring Well Water Level Measurement and Monitoring Well Purging and Sampling forms are included in Appendix A.

## LABORATORY ANALYSIS OF GROUNDWATER SAMPLES

Curtis and Tompkins of Berkeley, California performed the chemical analyses of the groundwater samples using the following analytical methods:

- Total petroleum hydrocarbons as gasoline (TPHg) in accordance with EPA Method 8015B.
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl t-butyl ether (MTBE) in accordance with EPA Method 8021B with confirmation of MTBE by EPA Method 8260B.

- TPH as diesel (TPHd) in accordance with EPA Method 8015B following a silica-gel cleanup procedure.
- TPH as motor oil (TPHmo) in accordance with EPA Method 8015B following a silica-gel cleanup procedure.

The laboratory results for 2277 7<sup>th</sup> Street are summarized in Table 3 and are shown on Figure 4. Copies of the laboratory results and chain-of-custody forms are provided in Appendix B.

## FINDINGS

Groundwater measurements were conducted on March 17, 2003. The water levels are presented in Table 1. The groundwater elevation contour map is presented on Figure 3. According to these contours, the groundwater appears to be flowing towards the north-northeast. The groundwater flow direction observed during March 2003 is consistent with the historic flow direction reported in the previous reports.

Results of the March 17, 2003 groundwater sampling at 2277 7<sup>th</sup> Street are summarized below:

- TPHg was detected in one monitoring well at a concentration of 130 µg/L in MW-4. However, the laboratory reported that the chromatographic pattern of the analyte did not resemble the chromatographic pattern of a gasoline standard.
- Benzene was detected in one monitoring well at a concentration of 320 µg/L in MW-4. Benzene was also detected in a duplicate sample collected from the same well at a concentration of 190 µg/L. The relative percent difference (RPD) between the two numbers is 51. The presence of benzene is therefore confirmed, however the concentration of benzene should be considered an estimated value.
- Toluene was not detected above the reporting limit in any of the wells sampled this quarter.
- Ethylbenzene was not detected above the reporting limit in any of the wells sampled this quarter.
- Total xylenes were not detected above the reporting limit in any of the wells sampled this quarter.
- MTBE was reported at a concentration of 27 µg/L in MW-4, 2.7 µg/L in MW-5, and 2.9 µg/L in MW-8A using EPA Method 8021B. MTBE was not detected above the laboratory reporting limit using EPA Method 8260B in all three wells. As a result of the non-detections of MTBE by EPA Method 8260B, it is concluded that the EPA Method 8021B results for MTBE in wells MW-4, MW-5, and MW-8A are false positives. These three wells did not contain detectable amounts of MTBE this quarter.
- TPHd was not detected above the reporting limit in any of the wells sampled this quarter.
- TPHmo was not detected above the reporting limit in any of the wells sampled this quarter.

## QUALITY ASSURANCE AND QUALITY CONTROL

A duplicate sample was collected simultaneously from monitoring well MW-4 and labeled as MW-4D at 2277 7<sup>th</sup> Street on March 17, 2003 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 ( $X_1$ ) and the duplicate sample result ( $X_2$ ), 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 <sup>th</sup> St.	ANALYTE	X <sub>1</sub>	X <sub>2</sub>	RPD
MW-4	MTBE	<0.5*	<0.5*	--
03/17/03	B	320	190	51%
	T	<0.5	0.64	--
	E	<0.5	0.56	--
	X	<0.5	0.53	--
	TPHd	<50	<50	--
	TPHg	130	82	45%

\*— Initial results of MTBE by EPA Method 8021B were identified as a false positive. Method 8260B results are presented in this table.

- The relative percent difference between the analytical results from MW-4 and its duplicate sample MW-4D ranged from 45% to 51%. The high RPD values indicate low precision on sample results between the primary and duplicate sample. The RPD values indicate that the results from the sample and the duplicate analysis are in agreement.

### PRODUCT RECOVERY SYSTEM AT 2277 7<sup>TH</sup> STREET

The product recovery system at 2277 7<sup>th</sup> 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 the passive skimmer was placed back in the well. Harding 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 1,000-gallon tank. Foss empties liquid and product from the product recovery tank at various times throughout a 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 4. Field notes of system's maintenance activities are noted in Daily Field Activity Reports included as Appendix C.

ITSI performed bi-weekly inspections of the treatment system during the first quarter 2003. The free-phase petroleum product thickness measured in MW-3 increased after a brief period of dry weather condition from late February to mid-March (measured at 0.89-foot). The recovery system was then reactivated for a period of three days from March 17 through 20, 2003 in an attempt to recover some free-phase petroleum product. Approximately 5 gallons of free-phase petroleum product were recovered during the period of reactivation of the recovery system. The recovery system was subsequently turned off on March 20, 2003 after the return of rainfall which caused groundwater to rise approximately 1-foot, and the corresponding free product thickness to decrease to a measured level of 0.06-foot.

On April 16, 2003, ITSI on behalf of the Port oversaw Dillard Environmental Services (Dillard) remove a 100-foot section of the conveyance system (refer to Figure 2). This section was removed to prevent interference with site development and because the system would be ineffective during the construction


activities. A new product removal system will be installed after development activities are completed. The conveyance system consisted of a PVC conduit pipe containing the pneumatic and product recovery line that connected the system control box and the recovery tank to the skimmer pump installed in well MW-3. Portions of the surface concrete pieces and asphalt from the trench line were appropriately excavated, removed and stockpiled onsite, and sections of the removed conduit pipes and product line were appropriately disposed of and transported offsite by Dillard as non-RCRA hazardous solid waste material under the Uniform Hazardous Waste Manifest.

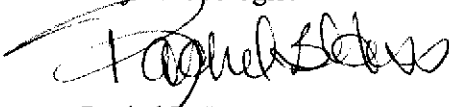
Since the product recovery system has been temporarily interrupted, ITSI will conduct free product monitoring in wells MW-1 and MW-3 at a quarterly basis, in conjunction with the groundwater sampling event for the second quarter of 2003.

We appreciate the opportunity to present this report and trust that this document meets with your approval. Please do not hesitate to contact us at (925) 946-3105 with any questions or comments.

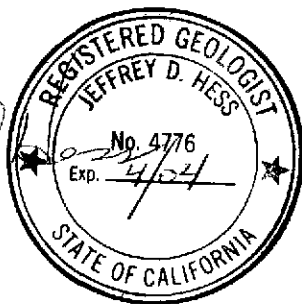
Sincerely yours,

**INNOVATIVE TECHNICAL SOLUTIONS, INC.**

  
Rogerio Leong  
Project Geologist

  
Rachel B. Hess  
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Senior Geologist



First Quarter 2003 Groundwater Monitoring and Sampling  
2277 Seventh Street  
Oakland, California

Attachments:

Table 1 – Groundwater Elevations Data, 2277 7<sup>th</sup> Street  
Table 2 – Summary of Product Removal and Product Thickness, 2277 7<sup>th</sup> Street  
Table 3 – Groundwater Sample Results, 2277 7<sup>th</sup> Street  
Table 4 – Summary of Operation and Maintenance Activities

Figure 1 – Site Location Map  
Figure 2 – Site Plan  
Figure 3 – Groundwater Elevations, 2277 7<sup>th</sup> Street, March 17, 2003  
Figure 4 – Groundwater Sample Results, 2277 7<sup>th</sup> Street, March 17, 2003

Appendix A – Monitoring Well Water Level Measurement Form and  
Monitoring Well Purging and Sampling Form  
Appendix B - Laboratory Reports  
Appendix C – Daily Field Activity Report

**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
		9/26/02	NA	NA
		12/12/02	NA	NA
		3/17/03	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
9/26/02	8.95	5.41		
12/12/02	9.17	5.19		
3/17/03	7.77	6.59		
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
9/26/02	8.21	4.94		
12/12/02	8.38	4.77		
3/17/03	7.72	5.43		

**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
		9/26/02	6.60	6.89
12/12/02	6.75	6.74		
3/17/03	5.73	7.76		
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
		9/26/02	7.95	6.05
12/12/02	7.71	6.29		
12/18/02		Monitoring well was destroyed		



**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
9/26/02	9.00	5.35		
12/12/02	9.28	5.07		
		12/18/02	Monitoring well was destroyed	
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
		9/26/02	7.91	5.03
		12/12/02	8.15	4.79
		3/17/03	7.28	5.66

- <sup>1</sup> 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 <sup>1</sup> (feet)	Date Of Monitoring	Depth to Free Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Estimated Product Removed (gallons)	Product Removal Method <sup>2</sup>
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 <sup>3</sup>	NM	8.51	0.00	0.0	passive skimmer
		9/6/2000 <sup>4</sup>	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
		7/5/02	8.5	9.4	0.90	0.2	passive skimmer
		7/19/02	8.6	9.6	1.00	0.2	passive skimmer
		7/30/02	8.5	9.3	0.80	0.2	passive skimmer
8/14/02	8.5	9.3	0.80	0.2	passive skimmer		
9/13/02	8.8	9.6	0.80	0.2	passive skimmer		
9/26/02	8.6	9.5	0.90	0.2	passive skimmer		
10/14/02	9.0	10.1	1.10	0.2	passive skimmer		
11/4/02	9.22	10.12	0.90	0.2	passive skimmer		
11/21/02	8.48	8.86	0.38	0.2	passive skimmer		
12/6/02	8.85	9.38	0.53	0.0	passive skimmer		
12/18/02	8.05	8.26	0.21	0.2	passive skimmer		
12/30/02	7.61	7.63	0.02	<0.1	passive skimmer		
1/2/03	7.36	7.36	sheen	<0.1	passive skimmer		
1/3/03	7.35	7.35	sheen	<0.1	passive skimmer		
1/14/03	7.35	7.36	sheen	<0.1	passive skimmer		
1/30/03	7.75	7.81	0.06	<0.1	passive skimmer		
2/18/03	7.81	8.35	0.54	<0.1	passive skimmer		
3/26/03	7.72	8.62	0.90	<0.1	passive skimmer		
3/13/03	7.89	8.11	0.89	0.2	passive skimmer		
3/17/03	7.61	8.88	1.27	0.2	passive skimmer		
4/16/03	7.42	8.71	1.29	<0.2	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 <sup>1</sup> (feet)	Date Of Monitoring	Depth to Free Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Estimated Product Removed (gallons)	Product Removal Method <sup>2</sup>
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 <sup>2</sup>	active skimmer
		1/14/99	-	-	-	400 <sup>2</sup>	active skimmer
		2/3/99	-	-	-	400 <sup>2</sup>	active skimmer
		2/26/99	-	-	-	570 <sup>2</sup>	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 <sup>2</sup>	active skimmer
		9/28/99	--	--	0.2	-	active skimmer
		10/29/99	--	--	--	125 <sup>2</sup>	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 <sup>5</sup>	active skimmer
		3/8/02	7.80	8	0.20	1,000 <sup>5</sup>	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 <sup>5</sup>	active skimmer
		7/5/02	8.10	8.95	0.85	--	active skimmer
7/19/02	8.10	8.9	0.80	--	active skimmer		
7/30/02	8.10	8.9	0.80	--	active skimmer		
8/14/02	8.10	8.9	0.80	--	active skimmer		
9/13/02	8.30	9.3	1.00	--	active skimmer		
9/26/02	8.30	9.0	0.70	--	active skimmer		
10/14/02	8.60	9.5	0.90	--	active skimmer		
11/4/02	8.75	9.99	1.24	--	active skimmer		
11/21/02	8.59	11.29	2.70	150 <sup>6</sup>	active skimmer		
12/6/02	8.56	9.3	0.74	150 <sup>6</sup>	active skimmer		
12/18/02	7.35	8.43	1.08	25 <sup>6</sup>	active skimmer		
12/30/02	6.50	7.15	0.65	25 <sup>6</sup>	active skimmer		
1/2/03	6.20	6.20	sheen	--	active skimmer		
1/3/03	6.21	6.21	sheen	--	active skimmer		
1/14/03	6.20	6.21	0.01	--	active skimmer		
1/30/03	6.81	6.85	0.04	--	active skimmer		
2/18/03	7.09	7.15	0.06	--	active skimmer		
2/26/03	7.04	7.11	0.07	--	active skimmer		
3/11/03	7.22	8.11	0.89	--	active skimmer		
3/17/03	7.15	7.50	0.35	5 <sup>6</sup>	active skimmer		
4/16/03	7.27	8.25	0.98	--	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 <sup>1</sup> (feet)	Date Of Monitoring	Depth to Free Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Estimated Product Removed (gallons)	Product Removal Method <sup>2</sup>
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 <sup>1</sup>	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.

<sup>1</sup> Free product in well is too viscous to allow product thickness or groundwater level measurements.

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

<sup>3</sup> The passive skimmer was removed from MW-1 on 5/22/00.

<sup>4</sup> The passive skimmer replaced MW-1 on 9/6/00.

<sup>5</sup> Removal total is the volume of both product and wastewater removed from the treatment system by Foss Environmental Services Company, Inc.

<sup>6</sup> Product removed is based on volume measured in the 1,000-gallon holding poly-tank.

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 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 <sup>8</sup>	2.9	2.05	3.2 <sup>8</sup>
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 <sup>1,2</sup>	<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 <sup>2,6</sup>	<300	<0.5	<0.5	<0.5	<0.5	6.3 <sup>8,9</sup>
	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 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
	12/19/00	200 <sup>3,11</sup>	<50	<300	39	1.8	<0.5	2.6	<0.5 <sup>10,12</sup>
	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 <sup>14</sup>
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	62 <sup>15</sup>	<57	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	69 <sup>2</sup>	<50	<500	1.8	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	<50	<300	0.98	<0.5	<0.5	<0.5	<2.0
03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0	
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 <sup>1,2</sup>	<250	350	3.3	1.3	1.3	NA
	03/28/97	440 <sup>2</sup>	<50	<250	190	1.2	0.64	<1.0	NA
	06/13/97	1,300	92 <sup>5</sup>	<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 <sup>1,2,3</sup>	<47	<280	110 <sup>1</sup>	1.0 <sup>1</sup>	<0.5	<1.0	NA
	04/13/98	150 <sup>2,3</sup>	<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 <sup>3,5</sup>	63 <sup>3,5</sup>	<300	280	1.5	<1	<1	<4
	11/12/99	330 <sup>3</sup>	840 <sup>2</sup>	<300	740	<2.5	<2.5	<2.5	42 <sup>9</sup>
	02/11/00	200 <sup>2</sup>	<50	<300	58	0.73	<0.5	<0.5	4.4 <sup>8</sup>
05/22/00	240	<50	<300	500	<2.5	<2.5	<2.5	17	

**Table 3  
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 <sup>2,3</sup>	<50	<300	190	0.93	0.6	0.57	<0.5 <sup>10</sup>
(cont'd)	12/19/00	960 <sup>3,11</sup>	70 <sup>5</sup>	<300	420	<2.5	<2.5	<2.5	<0.5 <sup>10,12</sup>
Dup.	12/19/00	1,200 <sup>3,11</sup>	<50	<300	440	<2.5	<2.5	<2.5	<0.5 <sup>10,12</sup>
	02/21/01	450 <sup>13</sup>	<50	<300	120	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
	07/10/01	<250	110 <sup>2,13</sup>	<300	620	2.6	2.9	<2.5	<0.5 <sup>8,10</sup>
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 <sup>14</sup>
	03/08/02	490 <sup>2</sup>	54 <sup>2</sup>	<500	180	<2.5	<2.5	<2.5	<2.5
	06/13/02	830 <sup>2</sup>	<50	<500	250	<5.0	<5.0	<5.0	<50
Dup.	06/13/02	820 <sup>2</sup>	<56	<560	240	<5.0	<5.0	<5.0	<50
	09/26/02	390 <sup>2</sup>	57	<500	150	2.1	<1.0	<1.0	<10
Dup.	09/26/02	500 <sup>2</sup>	<50 <sup>16</sup>	<500 <sup>16</sup>	200	1.5	<1.0	<1.0	<10
	12/12/02	580	<50	<300	240	1.4	0.56	<0.5	<2.0
Dup.	12/12/02	2,400	<50	<300	680	5.0	2.3	1.4	<2.0
	03/17/03	130 <sup>15</sup>	<50	<300	320 <sup>17</sup>	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
Dup.	03/17/03	82 <sup>15</sup>	<50	<300	190	0.64 <sup>17</sup>	0.56	0.53	<0.5 <sup>10</sup>
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 <sup>1,2</sup>	<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 <sup>2,6</sup>	<300	<0.5	<0.5	<0.5	<0.5	5.5 <sup>9</sup>
	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
	09/26/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
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 <sup>7</sup>	<300 <sup>7</sup>	18	<0.5	1.0	<0.5	54
	09/28/99	130 <sup>3,5</sup>	820	<300	20	0.51	2.2	<0.5	<2
	11/12/99	150	11,000 <sup>2,6</sup>	3,000 <sup>3,6</sup>	27	<0.5	2.2	<0.5	13 <sup>9</sup>
	02/11/00	270 <sup>2</sup>	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 <sup>10</sup>
	12/19/00	130 <sup>3,17</sup>	620	<300	24	<0.5	1.6	<0.5	<2

**Table 3  
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-6 (cont'd)	02/21/01	120 <sup>13</sup>	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 <sup>2</sup>	640 <sup>2</sup>	<500	30	<0.5	<0.5	<0.5	5.0 <sup>14</sup>	
	06/13/02	160 <sup>2</sup>	670 <sup>2</sup>	<500	34	<0.5	<0.5	<0.5	<5.0	
	09/26/02	230 <sup>1</sup>	1400 <sup>2</sup>	<500	40	0.64	0.8	<0.5	<5.0	
	12/12/02	53	110	<300	43	<0.5	<0.5	<0.5	<2.0	
	12/18/02	Monitoring well was destroyed								
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 <sup>1,2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA	
	03/28/97	65 <sup>6</sup>	94 <sup>2</sup>	<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 <sup>2,3</sup>	<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 <sup>2,6</sup>	420 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5	15 <sup>9</sup>	
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	51	
	05/22/00	110	53 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	75	
	09/06/00	50 <sup>6</sup>	<50	<300	<0.5	<0.5	<0.5	<0.5	40 <sup>10</sup>	
	12/19/00	54 <sup>11</sup>	51 <sup>5</sup>	<300	<0.5	<0.5	<0.5	<0.5	47 <sup>10,12</sup>	
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	66 <sup>10</sup>	
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	60 <sup>10</sup>	
	07/10/01	<50	51 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	76 <sup>10</sup>	
Dup.	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>	
	12/12/01	51	<50	<300	<0.5	<0.5	<0.5	<0.5	98 <sup>14</sup>	
Dup.	12/12/01	64	52 <sup>13,15</sup>	<300	<0.5	<0.5	<0.5	<0.5	96 <sup>14</sup>	
	03/08/02	52 <sup>2</sup>	<50	<500	<0.5	<0.5	<0.5	<0.5	24 <sup>14</sup>	
	06/13/02	87 <sup>2</sup>	54 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	51	
	09/26/02	83 <sup>2</sup>	84 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>	
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 <sup>14</sup>	
	12/18/02	Monitoring well was destroyed								
MW-8A	12/12/01	68	720 <sup>11,15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0	
	03/08/02	<50	760 <sup>2</sup>	<570	<0.5	<0.5	<0.5	<0.5	<5.0	
Dup.	03/08/02	<50	350 <sup>2</sup>	<580	<0.5	<0.5	<0.5	<0.5	<5.0	
	06/13/02	<50	570 <sup>2</sup>	<570	<0.5	<0.5	<0.5	<0.5	<5.0	
	09/26/02	<50	410 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	<5.0	
	12/12/02	<50	160 <sup>15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0	
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>	

**Table 3  
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)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									

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

Hydrocarbons present do not match profile of laboratory standard.

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

Chromatographic pattern matches known laboratory contaminant.

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

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

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

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

Trip blank contained MTBE at a concentration of 4.2 µg/l

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

Sample exhibits unknown single peak or peaks

EPA Method 8260 confirmation analyzed past holding time.

Lighter hydrocarbons contributed to the quantitation

MTBE results from EPA Test Method 8021B.

Sample exhibits fuel pattern which does not resemble standard

Sample extracted out of hold time

- 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 7<sup>th</sup> Street, Oakland, CA,* dated October 24, 1997, by Uribe and Associate

Presence confirmed, but Relative Percent Difference (RPD) between columns exceeds 40%

NA Not Analyzed.



**Table 4**  
**Summary of Operation and Maintenance Activities**  
**Port of Oakland, 2277 7th Street, Oakland, California**

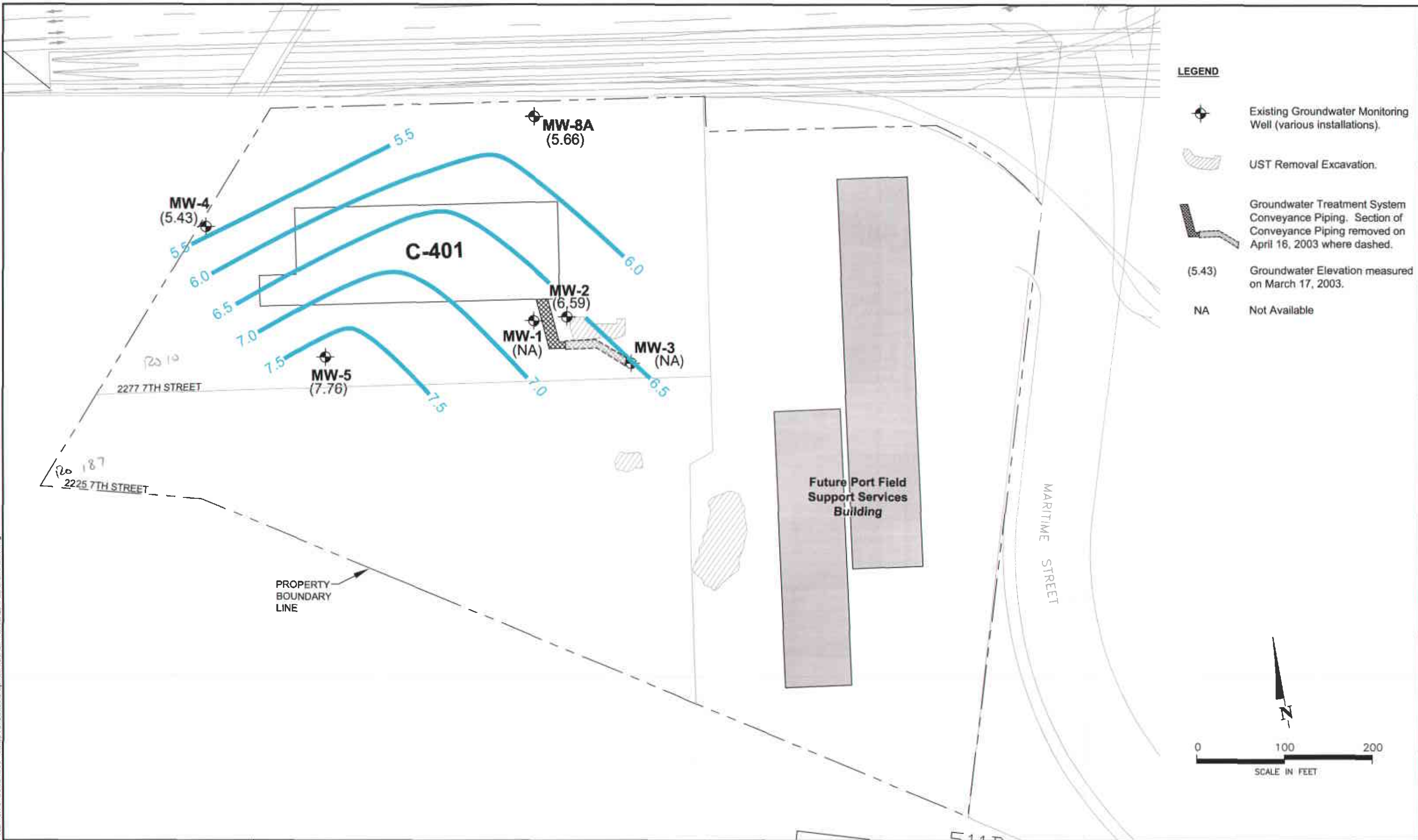
Date	System Status	Comments
7/5/02	Off	System is turned off and is in the process of being moved to new location.
7/19/02	Off	System is moved to new location but is not hooked up to electricity.
7/30/02	Off	System is moved to new location but is not hooked up to electricity.
8/14/02	Off	System is moved to new location but is not hooked up to electricity.
9/13/02	On	System is powered and operating.
9/26/02	On	System operating OK.
10/14/02	On	System operating OK.
11/4/02	On	System operating OK.
11/21/02	On	System operating OK.
12/6/02	On	System operating OK.
12/18/02	On	System operating OK.
12/23/02	On	System operating OK.
12/27/02	On	System operating OK.
12/30/02	On	System operating OK.
1/2/03	Off	System is turned off because no free product was detected in well MW-3
1/3/03	Off	System is turned off because no free product was detected in well MW-3
1/14/03	Off	System is turned off because only product sheen was detected in well MW-3
1/30/03	Off	System is turned off because only product sheen was detected in well MW-3
2/18/03	Off	System is turned off because only product sheen was detected in well MW-3
2/26/03	Off	System is turned off because only product sheen was detected in well MW-3
3/13/03	Off	System is kept off because of the expected rainfall during weekend
3/17/03	On	System is tested to verify that only product is being recovered from well MW-3
4/16/03	Off	Product recovery line was removed due to Port's construction upgrades at the site



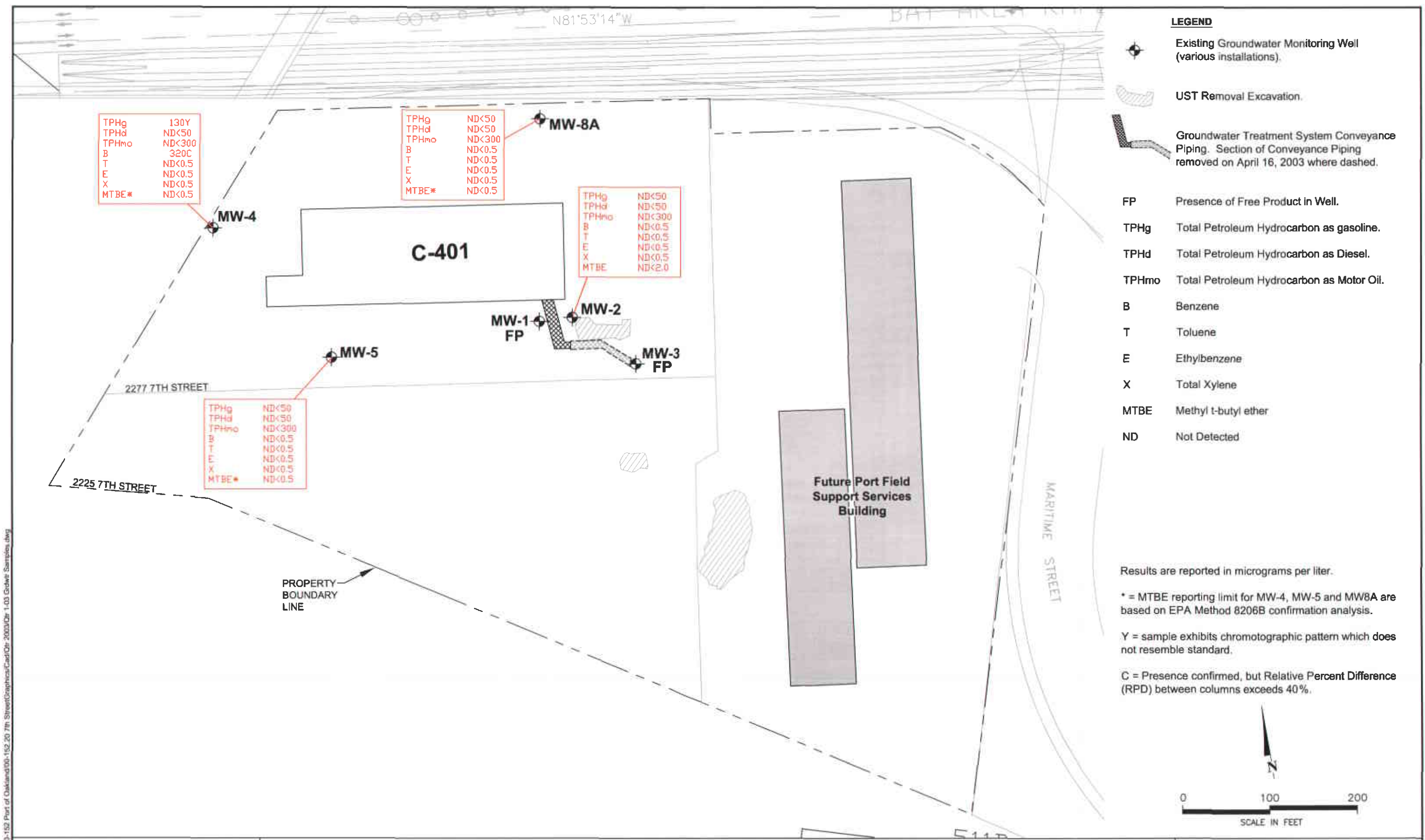




Engineering Project/00-152 Port of Oakland/00-152 20 7th St Qm/Graphical/00-1 2003Qtr 1-03.dwg



CAD: GIS Station\00-152 Port of Oakland\00-152\_20 7th Street\Graphics\Cadd\Qtr 1 2003\Qtr 1-03 Ordwr Elev.dwg



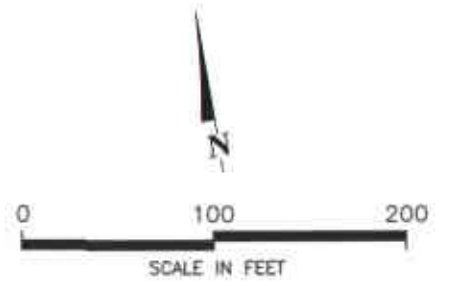
- LEGEND**
- Existing Groundwater Monitoring Well (various installations).
  - UST Removal Excavation.
  - Groundwater Treatment System Conveyance Piping. Section of Conveyance Piping removed on April 16, 2003 where dashed.
  - FP Presence of Free Product in Well.
  - TPHg Total Petroleum Hydrocarbon as gasoline.
  - TPHd Total Petroleum Hydrocarbon as Diesel.
  - TPHmo Total Petroleum Hydrocarbon as Motor Oil.
  - B Benzene
  - T Toluene
  - E Ethylbenzene
  - X Total Xylene
  - MTBE Methyl t-butyl ether
  - ND Not Detected

Results are reported in micrograms per liter.

\* = MTBE reporting limit for MW-4, MW-5 and MW8A are based on EPA Method 8206B confirmation analysis.

Y = sample exhibits chromatographic pattern which does not resemble standard.

C = Presence confirmed, but Relative Percent Difference (RPD) between columns exceeds 40%.



CAD GIS Station/00-152 Part of Oakland/00-152 20 7th Street/Graphic/Cad/00-152/Dir 1-03/Gdwit Samples.dwg

**APPENDIX A**

**MONITORING WELL WATER LEVEL MEASUREMENT FORM  
AND  
MONITORING WELL PURGING AND SAMPLING FORM**



**MONITORING WELL WATER LEVEL MEASUREMENT FORM**

PROJECT NAME: 2277 7<sup>th</sup> Street PROJECT NO.: 00-152.20  
 MEASURED BY: Rogelio Leoner DATE: 03/17/2003

Monitoring Well I.D.	Depth to Water (feet)	Total Well Depth (feet)	Time
MW-2	7.77	15.07	10:10
MW-4	7.72	18.60	11:55
MW-5	5.73	16.58	11:00
MW-6	Well was destroyed on December 18, 2002		
MW-7	Well was destroyed on December 18, 2002		
MW-8A	7.28	20.90	1245

### MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland - 2277 7<sup>th</sup> Street PROJECT NO.: 00-152.20  
 WELL NO.: MW-2 TESTED BY: R. LEONG DATE: 03/17/2003

#### WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 7.77  
 Total Well Depth (ft.): 15.07 Purge Method: Disposable Bailer  
 Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): ~0.20  
 Time Start Purge: 10:15 Time End Purge: 10:30  
 Comments : \_\_\_\_\_

Well Volume Calculation (fill in before purging)	Total Depth (ft) <u>15.07</u>	-	Depth to Water (ft) <u>7.77</u>	=	Water Column (ft) <u>7.30</u>	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal) <u>1.168</u>
							<u>2</u> 0.16	<u>4</u> 0.64	<u>6</u> 1.44		

Time	<u>10:17</u>	<u>10:20</u>	<u>10:22</u>	<u>10:25</u>	<u>10:27</u>	<u>10:30</u>	
Cumulative Volume Purged (gals)	<u>0.6</u>	<u>1.2</u>	<u>1.8</u>	<u>2.4</u>	<u>3.0</u>	<u>3.5</u>	
Cumulative Number of Casing Volumes	<u>0.5</u>	<u>1.0</u>	<u>1.5</u>	<u>2.0</u>	<u>2.5</u>	<u>3.0</u>	
Temperature (F°/C°)	<u>17.1</u>	<u>17.3</u>	<u>17.8</u>	<u>17.9</u>	<u>18.1</u>	<u>18.2</u>	
pH	<u>5.26</u>	<u>6.93</u>	<u>6.89</u>	<u>7.11</u>	<u>7.07</u>	<u>7.16</u>	
Specific Conductivity (mS/cm)	<u>2.34</u>	<u>2.32</u>	<u>2.34</u>	<u>2.33</u>	<u>2.35</u>	<u>2.34</u>	
Turbidity (NTU)	<u>0</u>	<u>1</u>	<u>2</u>	<u>7</u>	<u>4</u>	<u>8</u>	

#### WELL SAMPLING

Sampling Time: 10:40 Sampling Method: Disposable Bailer  
 Duplicate Sample & Time: NONE

Sample ID	Volume/ Container	Analysis Requested	Preservatives	Lab
<u>MW-2</u>	<u>2 (1 L Amber)</u>	<u>TPHd, TPHmo</u>	<u>none</u>	<u>C&amp;T</u>
<u>MW-2</u>	<u>5 voas</u>	<u>TPHg, MTBE, BTEX</u>	<u>HCL</u>	<u>C&amp;T</u>



## MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland - 2277 7<sup>th</sup> Street      PROJECT NO.: 00-152.20  
 WELL NO.: MW-4      TESTED BY: R. LEONG      DATE: 03/17/2003

### WELL PURGING

Measuring Point Description: Top of Casing (TOC)      Static Water Level (ft.): 7.72  
 Total Well Depth (ft.): 18.60      Purge Method: Disposable Bailer  
 Water Level Measurement Method: Solinst W. L.      Purge Rate (gpm): 0.30  
 Time Start Purge: 1200      Time End Purge: 1218  
 Comments : \_\_\_\_\_

Well Volume Calculation (fill in before purging)	Total Depth (ft)	Depth to Water (ft)	Water Column (ft)	x	Multiplier for Casing Diameter (in)			Casing Volume (gal)
					2	4	6	
	18.60	7.72	= 10.88	x	0.16	0.64	1.44	= ~1.80

Time	1203	1206	1209	1212	1215	1218	
Cumulative Volume Purged (gals)	0.9	1.8	2.7	3.6	4.5	5.4	
Cumulative Number of Casing Volumes	0.5	1.0	1.5	2.0	2.5	3.0	
Temperature (F°/C°)	18.1	18.3	18.1	18.0	17.9	18.0	
pH	7.22	7.15	6.92	7.02	7.05	7.05	
Specific Conductivity (mS/cm)	1.67	1.64	1.65	1.68	1.67	1.65	
Turbidity (NTU)	23	25	22	30	44	41	

### WELL SAMPLING

Sampling Time: 1220      Sampling Method: Disposable Bailer  
 Duplicate Sample & Time: MW-4D @ 1230

Sample ID	Volume/ Container	Analysis Requested	Preservatives	Lab
MW-4	2 (1 L Amber)	TPHd, TPHmo	none	C&T
MW-4	5 voas	TPHg, MTBE, BTEX	HCL	C&T
MW-4D	2 (1 L Amber)	TPHd, TPHmo	none	C&T
MW-4D	5 voas	TPHg, MTBE, BTEX	HCL	C&T

## MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland - 2277 7<sup>th</sup> Street PROJECT NO.: 00-152.20  
 WELL NO.: MW-5 TESTED BY: R. LEONG DATE: 03/17/2003

### WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 5.73  
 Total Well Depth (ft.): 16.58 Purge Method: Disposable Bailer  
 Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): 1.736 ~ 0.30  
 Time Start Purge: 1105 Time End Purge: 1122  
 Comments : \_\_\_\_\_

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal)
	16.58	-	5.73	=	10.85	x	2 0.16	4 0.64	6 1.44	=	1.80

Time	1107	1110	1113	1116	1119	1122	
Cumulative Volume Purged (gals)	0.9	1.80	2.70	3.60	4.50	5.40	
Cumulative Number of Casing Volumes	0.5	1.0	1.5	2.0	2.5	3.0	
Temperature (F° C°)	17.6	16.1	17.6	17.5	17.3	17.5	
pH	6.48	7.01	6.70	7.07	7.11	7.10	
Specific Conductivity (mS/cm)	0.862	1.84	1.82	1.69	1.58	1.66	
Turbidity (NTU)	95	48	38	18	24	21	

### WELL SAMPLING

Sampling Time: 1130 Sampling Method: Disposable Bailer  
 Duplicate Sample & Time: None

Sample ID	Volume/ Container	Analysis Requested	Preservatives	Lab
MW-5	2 (1 L Amber)	TPHd, TPHmo	none	C&T
MW-5	5 voas	TPHg, MTBE, BTEX	HCL	C&T

**MONITORING WELL PURGING AND SAMPLING FORM**

PROJECT NAME: Port of Oakland - 2277 7<sup>th</sup> Street PROJECT NO.: 00-152.20

WELL NO.: MW-8A TESTED BY: R. LEONH DATE: 03/17/2003

**WELL PURGING**

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 7.28

Total Well Depth (ft.): 20.50 Purge Method: Disposable Bailer

Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): ~0.30

Time Start Purge: 1252 Time End Purge: 1311

Comments : \_\_\_\_\_

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal)
							2	4	6		
	20.5		7.28		13.22		0.16	0.64	1.44		2.12

Time	1255	1258	1301	1304	1307	1311	
Cumulative Volume Purged (gals)	1.0	2.10	3.0	4.2	5.0	6.4	
Cumulative Number of Casing Volumes	0.5	1.0	1.5	2.0	2.5	3.0	
Temperature (F° C°)	17.9	18.1	18.5	17.9	18.2	18.2	
pH	6.80	7.09	7.31	7.34	7.35	7.37	
Specific Conductivity (mS/cm)	2.73	2.71	2.73	2.73	2.75	2.75	
Turbidity (NTU)	353	777	611	999	999	989	

**WELL SAMPLING**

Sampling Time: 1315 Sampling Method: Disposable Bailer

Duplicate Sample & Time: NONE

Sample ID	Volume/ Container	Analysis Requested	Preservatives	Lab
MW-8A	2 (1 L Amber)	TPHd, TPHmo	none	C&T
MW-8A	5 voas	TPHg, MTBE, BTEX	HCL	C&T



2730 Shadelands Drive, Suite 100  
Walnut Creek, California 94598  
(925) 946-3100 - (925) 256-8998 (fax)

Local Address: 2277 7th STREET  
(OAKLAND), CALIFORNIA

# Chain-Of-Custody

Project Name and Number: PORT OF OAKLAND - OO. 152-20  
Project Manager: RACHEL HESS  
Site Location: 2277 7th STREET, OAKLAND CA

Laboratory Name: CURTIS & TONKIN  
Address: 2323 5th STREET  
BERKELEY, CALIFORNIA  
Contact Name: JOHN GONETTE  
Phone: (510) 436-0900

Date: 05/17/02  
Page: 1 of 1

Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	Analysis:					Special Instructions/Comments
						TOX by EPA 8015B	TOX by EPA 8015B	TOX by EPA 8015B	TOX + METS by 8021A	MTC Confirmation by 8060B	
						None	None	ML	ML	ML	Preservative:
						TC	TC	VOL	VOL	VOL	Container Type:
MW-2	5/17/02	1040	M/L	7	M/L	X	X	X	X	X	Shes Gel clean up for TRM, no
MW-4		1220	M/L	7	M/L	X	X	X	X	X	
MW-5		1150	M/L	7	M/L	X	X	X	X	X	
MW-3A		1315	M/L	7	M/L	X	X	X	X	X	
MW-4A	5/17/02	1230	M/L	7	M/L	X	X	X	X	X	

Sampled By: [Signature]  
Signature: [Signature]  
Special Instructions: DRIVE RAIL PORT OF OAKLAND  
CONTACT: JEFF RUBIN @  
(510) 627-1134  
Send Results to: RACHEL HESS (ITSI)  
(925) 256-8998  
Turnaround Time: STANDARD

Courier/Airbill No.: N/A

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
<u>Rachel Hess / ITS</u>	<u>05/17/02</u>	<u>10:55</u>	<u>[Signature]</u>	<u>7/16/02</u>	<u>15:05</u>

**APPENDIX B**  
**LABORATORY REPORTS**



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

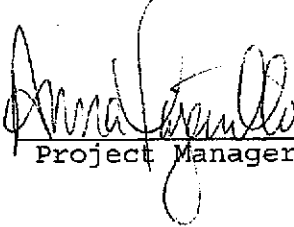
A N A L Y T I C A L   R E P O R T

Prepared for:

Innovative Technical Solutions, Inc.  
2730 Shadelands Drive  
Suite 100  
Walnut Creek, CA 94598-2540

Date: 31-MAR-03  
Lab Job Number: 164235  
Project ID: 00.15220  
Location: 2277 7th Port of Oakland

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis.

Reviewed by:   
Project Manager

Reviewed by: \_\_\_\_\_  
Operations Manager

This package may be reproduced only in its entirety.

164235



2730 Shadelands Drive, Suite 100  
Walnut Creek, California 94598  
(925) 946-3100 - (925) 256-8998 (fax)

Local Address: 2277 7th STREET  
OAKLAND, CALIFORNIA

# Chain-Of-Custody

Project Name and Number: PORT OF OAKLAND - 00.152-20  
Project Manager: RACHEL HESS  
Site Location: 2277 7th STREET, OAKLAND CA

Laboratory Name: CURTIS & TONKINS  
Address: 2323 5th STREET  
BERKELEY, CALIFORNIA  
Contact Name: JOHN GOYETTE  
Phone: (510) 486-0900

Date: 03/17/03  
Page: 1 of 1

-1  
-2  
-3  
-4  
-5

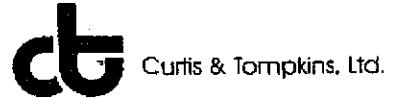
Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	Analysis:					Special Instructions/Comments	
						TPH by EPA 8015B	TPH by EPA 8015B	TPH by EPA 8015B	BTEX + MTC by 8021A	MHC by Confirmation by 8160B		None
						IC	IC	VOA	VOA	VOA	Preservative:	Container Type:
						ANDEE ANDER	ANDEE					
MW-2	03/17/03	1040	~12	7	H2O	X	X	X	X	X		
MW-4		1220	~15	7	H2O	X	X	X	X	X		
MW-5		1130	~10	7	H2O	X	X	X	X	X		
MW-8A		1315	~15	7	H2O	X	X	X	X	X		
MW-4D	3/17/03	1230	~13	7	H2O	X	X	X	X	X		

Sampled By: ROGERIO LONG  
Signature: [Signature]  
Special Instructions: DIRECT BILL PORT OF OAKLAND  
CONTACT: JEFF RUBIN @  
(510) 627-1134  
Send Results to: RACHEL HESS (ITSI)  
(w/fax #) (925) 256-8998  
Turnaround Time: STANDARD

Courier/Airbill No.: N/A

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
<u>Rogerio Long / ITSI</u>	<u>03/17/03</u>	<u>1505</u>	<u>[Signature] Curtis Tompkins</u>	<u>3/17/03</u>	<u>1505</u>

SOP Volume: Client Services  
Section: 1.1.2  
Page: 1 of 1  
Effective Date: 10-May-99  
Revision: 1 Number 3 of 3  
Filename: F:\QC\Forms\QC\Cooler.wpd



## COOLER RECEIPT CHECKLIST

Login#: 164 235 Date Received: 3-17-03 Number of Coolers: 1  
Client: FTSI Project: FTSI Port of Oakland - 00.152-20

- A. Preliminary Examination Phase  
Date Opened: 3-17-03 By (print): Troy Windsor (sign) [Signature]
1. Did cooler come with a shipping slip (airbill, etc.)?..... YES  NO
  2. Were custody seals on outside of cooler?..... YES  NO  
If YES, enter carrier name and airbill number: \_\_\_\_\_
  3. Were custody seals unbroken and intact at the date and time of arrival?..... YES NO N/A
  4. Were custody papers dry and intact when received?.....  YES NO
  5. Were custody papers filled out properly (ink, signed, etc.)?.....  YES NO
  6. Did you sign the custody papers in the appropriate place?.....  YES NO
  7. Was project identifiable from custody papers?.....  YES NO  
If YES, enter project name at the top of this form.
  8. If required, was sufficient ice used? Samples should be 2-6 degrees C. ....  YES NO  
Type of ice: wet Temperature: 3.0

- B. Login Phase  
Date Logged In: 3/18/03 By (print): GREG WILSON (sign) [Signature]
1. Describe type of packing in cooler: separated moderately by bags of ice
  2. Did all bottles arrive unbroken?.....  YES NO
  3. Were labels in good condition and complete (ID, date, time, signature, etc.)?... YES  NO
  4. Did bottle labels agree with custody papers?.....  YES NO
  5. Were appropriate containers used for the tests indicated?.....  YES NO
  6. Were correct preservatives added to samples?.....  YES NO
  7. Was sufficient amount of sample sent for tests indicated?.....  YES NO
  8. Were bubbles absent in VOA samples? If NO, list sample Ids below.....  YES NO
  9. Was the client contacted concerning this sample delivery?..... YES NO  
If YES, give details below.  
Who was called? \_\_\_\_\_ By whom? \_\_\_\_\_ Date: \_\_\_\_\_

Additional Comments:

LABELS WERE WET







**Curtis & Tompkins Laboratories Analytical Report**

Lab #: 164235	Location: 2277 7th Port of Oakland
Client: Innovative Technical Solutions, Inc.	Prep: EPA 5030B
Project#: 00.15220	
Matrix: Water	Batch#: 80029
Units: ug/L	Sampled: 03/17/03
Diln Fac: 1.000	Received: 03/17/03

Field ID: MW-4D                      Lab ID: 164235-005  
Type: SAMPLE                      Analyzed: 03/18/03

Analyte	Result	RL	Analysis
Gasoline C7-C12	82 Y	50	8015B
MTBE	10 C	2.0	EPA 8021B
Benzene	190	0.50	EPA 8021B
Toluene	0.64 C	0.50	EPA 8021B
Ethylbenzene	0.56	0.50	EPA 8021B
m,p-Xylenes	0.53	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	119	68-145	8015B
Bromofluorobenzene (FID)	102	66-143	8015B
Trifluorotoluene (PID)	103	53-143	EPA 8021B
Bromofluorobenzene (PID)	102	52-142	EPA 8021B

Type: BLANK                      Analyzed: 03/18/03  
Lab ID: QC208038

Analyte	Result	RL	Analysis
Gasoline C7-C12	ND	50	8015B
MTBE	ND	2.0	EPA 8021B
Benzene	ND	0.50	EPA 8021B
Toluene	ND	0.50	EPA 8021B
Ethylbenzene	ND	0.50	EPA 8021B
m,p-Xylenes	ND	0.50	EPA 8021B
o-Xylene	ND	0.50	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	97	68-145	8015B
Bromofluorobenzene (FID)	106	66-143	8015B
Trifluorotoluene (PID)	99	53-143	EPA 8021B
Bromofluorobenzene (PID)	108	52-142	EPA 8021B

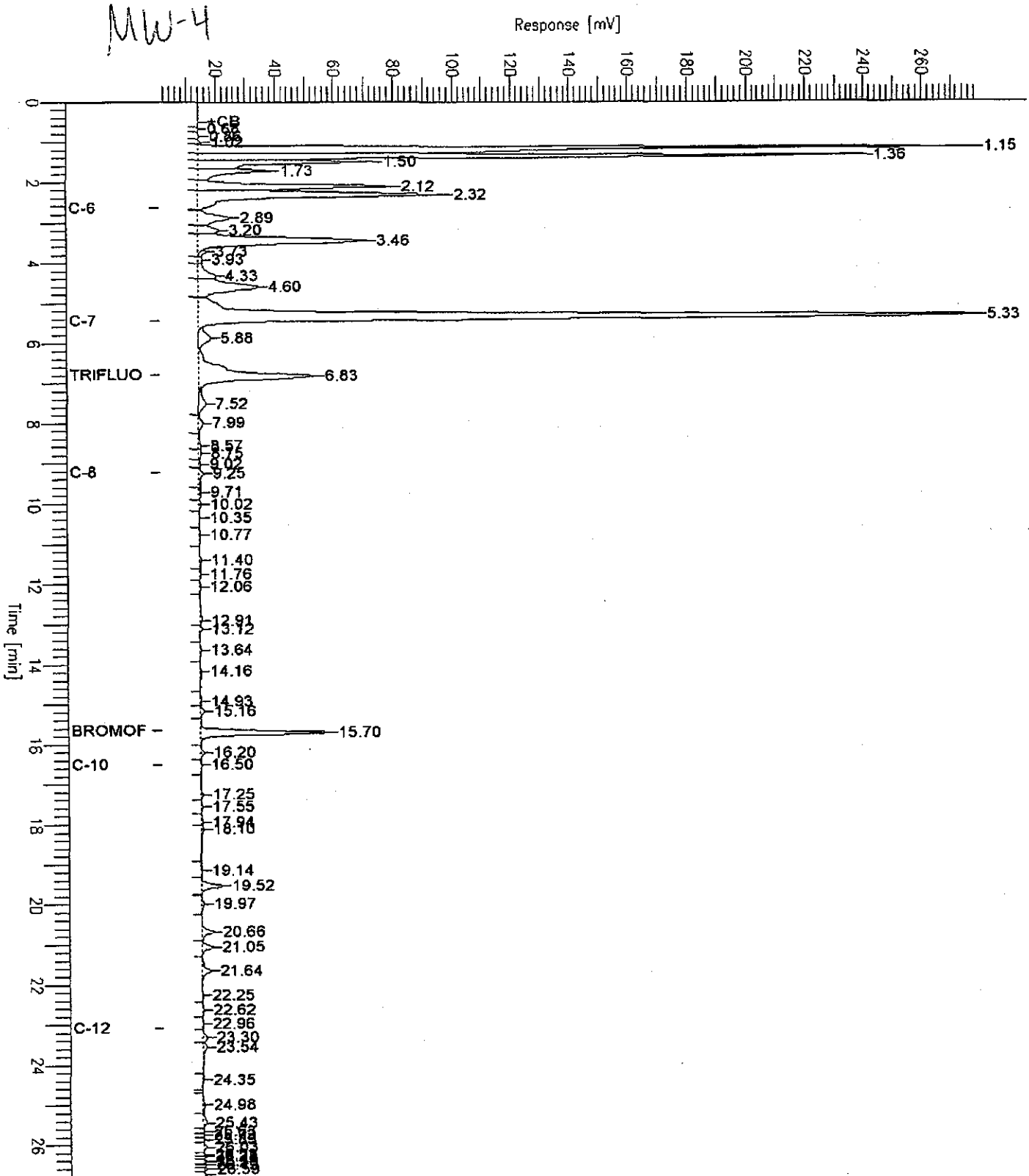
C= Presence confirmed, but RPD between columns exceeds 40%  
Y= Sample exhibits chromatographic pattern which does not resemble standard  
ND= Not Detected  
RL= Reporting Limit  
Page 3 of 3

# GC19 TVH 'X' Data File (FID)

Sample Name : 164235-002.80029  
 FileName : G:\GC19\DATA\077x007.raw  
 Method : TVHBTXE  
 Start Time : 0.00 min  
 Scale Factor: 1.0

Sample #: c1  
 Date : 3/18/03 03:07 PM  
 Time of Injection: 3/18/03 02:15 PM  
 Low Point : 0.61 mV  
 Plot Scale: 278.8 mV

Page 1 of 1

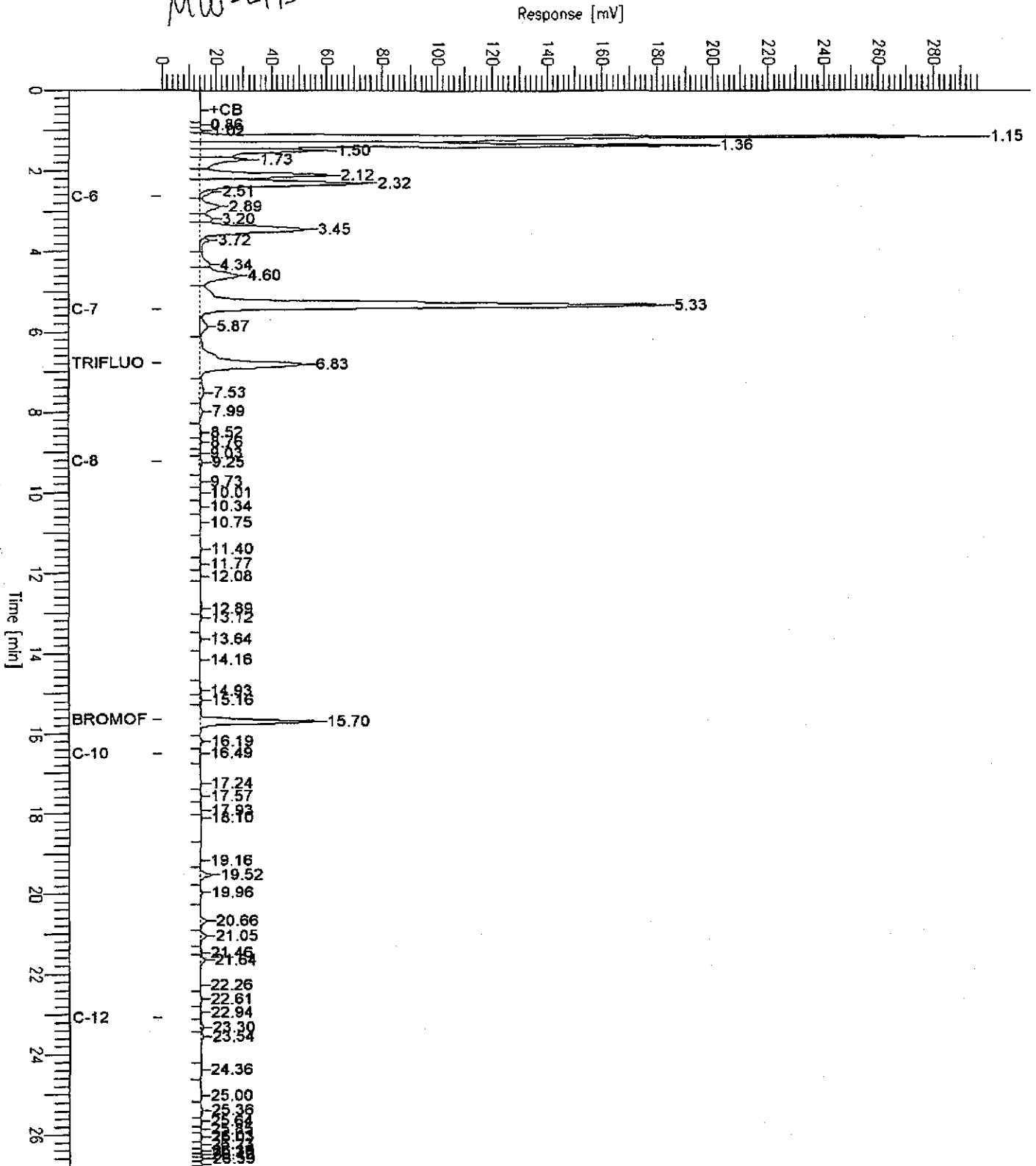


# GC19 TVH 'X' Data File (FID)

Sample Name : 164235-005,80029  
 FileName : G:\GC19\DATA\077X010.raw  
 Method : TVHBTXE  
 Start Time : 0.00 min  
 Scale Factor : 1.0

Sample #: c1  
 Date : 3/18/03 04:24 PM  
 Time of Injection: 3/19/03 03:57 PM  
 Low Point : -0.21 mV  
 Plot Scale: 297.7 mV  
 High Point : 297.52 mV

MW-4D

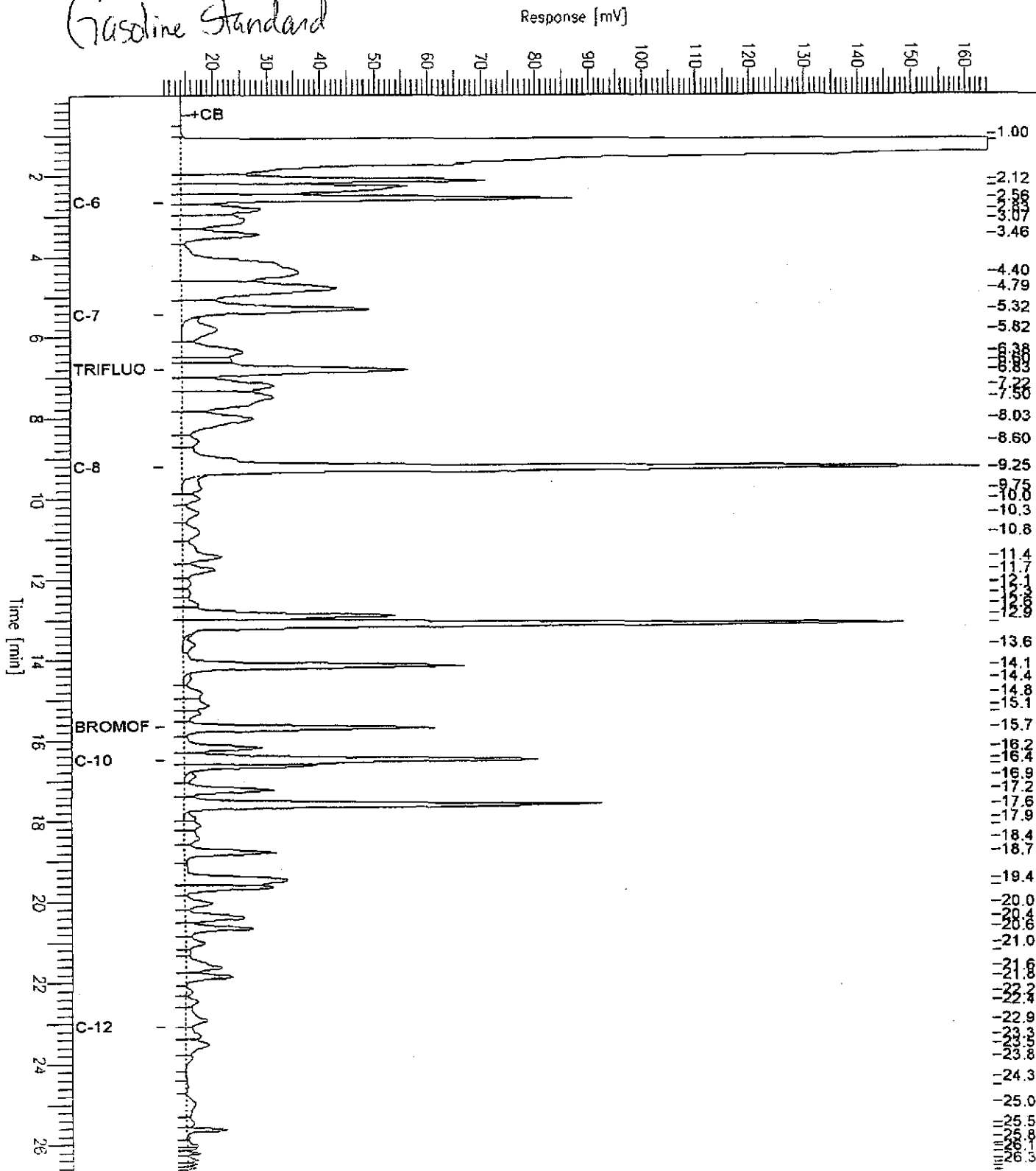


# GC19 TVH 'X' Data File (FID)

Sample Name : ccv/lcs\_gc208040,80029,03ws0291,5/5000  
 FileName : G:\GC19\DATA\077X002.RAW  
 Method :  
 Start Time : 0.02 min      End Time : 26.75 min  
 Scale Factor : 0.0      Plot Offset : 11 mV

Sample #:      Page 1 of 1  
 Date : 3/19/03 10:48 AM  
 Time of Injection: 3/18/03 11:17 AM  
 Low Point : 10.69 mV      High Point : 164.15 mV  
 Plot Scale: 153.5 mV

*Gasoline Standard*



**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220		
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC208039	Batch#:	80029
Matrix:	Water	Analyzed:	03/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits	Analysis
Gasoline C7-C12		NA			
MTBE	20.00	22.84	114	59-135	EPA 8021B
Benzene	20.00	21.81	109	65-122	EPA 8021B
Toluene	20.00	20.39	102	67-121	EPA 8021B
Ethylbenzene	20.00	21.17	106	70-121	EPA 8021B
m,p-Xylenes	40.00	40.97	102	72-125	EPA 8021B
o-Xylene	20.00	21.31	107	73-122	EPA 8021B

Surrogate	%REC	Limits	Analysis
Trifluorotoluene (FID)	95	68-145	8015B
Bromofluorobenzene (FID)	104	66-143	8015B
Trifluorotoluene (PID)	97	53-143	EPA 8021B
Bromofluorobenzene (PID)	107	52-142	EPA 8021B

**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220	Analysis:	8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC208040	Batch#:	80029
Matrix:	Water	Analyzed:	03/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,973	99	79-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		118	68-145
Bromofluorobenzene (FID)		112	66-143
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		



**Curtis & Tompkins Laboratories Analytical Report**

Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220	Analysis:	8015B
Field ID:	ZZZZZZZZZZ	Batch#:	80029
MSS Lab ID:	164221-005	Sampled:	03/14/03
Matrix:	Water	Received:	03/14/03
Units:	ug/L	Analyzed:	03/18/03
Diln Fac:	1.000		

Type: MS Lab ID: QC208085

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<12.00	2,000	1,961	98	67-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		105	68-145
Bromofluorobenzene (FID)		99	66-143
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Lab ID: QC208086

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,942	97	67-120	1	20
MTBE			NA			
Benzene			NA			
Toluene			NA			
Ethylbenzene			NA			
m,p-Xylenes			NA			
o-Xylene			NA			

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		108	68-145
Bromofluorobenzene (FID)		103	66-143
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed  
RPD= Relative Percent Difference  
Page 1 of 1

Purgeable Aromatics by GC/MS			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	80106
Lab ID:	164235-002	Sampled:	03/17/03
Matrix:	Water	Received:	03/17/03
Units:	ug/L	Analyzed:	03/20/03
Diln Fac:	1.000		

Analyte	Result	RL
MTEE	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	113	77-130
Toluene-d8	96	80-120
Bromofluorobenzene	99	80-120

**Purgeable Aromatics by GC/MS**

Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	80106
Lab ID:	164235-003	Sampled:	03/17/03
Matrix:	Water	Received:	03/17/03
Units:	ug/L	Analyzed:	03/20/03
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	77-130
Toluene-d8	91	80-120
Bromofluorobenzene	108	80-120

Purgeable Aromatics by GC/MS			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00.15220	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	80106
Lab ID:	164235-004	Sampled:	03/17/03
Matrix:	Water	Received:	03/17/03
Units:	ug/L	Analyzed:	03/20/03
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	77-130
Toluene-d8	91	80-120
Bromofluorobenzene	103	80-120

Total Extractable Hydrocarbons			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 3520C
Project#:	00.15220	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/03
Units:	ug/L	Received:	03/17/03
Diln Fac:	1.000	Prepared:	03/19/03
Batch#:	80088		

Field ID: MW-2 Analyzed: 03/22/03  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 164235-001

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	118	39-137

Field ID: MW-4 Analyzed: 03/22/03  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 164235-002

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	74	39-137

Field ID: MW-5 Analyzed: 03/22/03  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 164235-003

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	111	39-137

Total Extractable Hydrocarbons			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 3520C
Project#:	00.15220	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/17/03
Units:	ug/L	Received:	03/17/03
Diln Fac:	1.000	Prepared:	03/19/03
Batch#:	80088		

Field ID: MW-8A Analyzed: 03/22/03  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 164235-004

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	93	39-137

Field ID: MW-4D Analyzed: 03/22/03  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 164235-005

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	65	39-137

Type: BLANK Analyzed: 03/24/03  
 Lab ID: QC208271

Analyte	Result	RL
Diesel C10-C24	ND	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	97	39-137

Total Extractable Hydrocarbons			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 3520C
Project#:	00.15220	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC208272	Batch#:	80088
Matrix:	Water	Prepared:	03/19/03
Units:	ug/L	Analyzed:	03/27/03

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,194	88	37-120

Surrogate	%REC	Limits
Hexacosane	95	39-137

Total Extractable Hydrocarbons			
Lab #:	164235	Location:	2277 7th Port of Oakland
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 3520C
Project#:	00.15220	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	80088
MSS Lab ID:	164221-005	Sampled:	03/14/03
Matrix:	Water	Received:	03/14/03
Units:	ug/L	Prepared:	03/19/03
Diln Fac:	1.000	Analyzed:	03/21/03

Type: MS Cleanup Method: EPA 3630C  
Lab ID: QC208273

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<29.00	2,500	1,964	79	44-131

Surrogate	%REC	Limits
Hexacosane	88	39-137

Type: MSD Cleanup Method: EPA 3630C  
Lab ID: QC208274

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,053	82	44-131	4	26

Surrogate	%REC	Limits
Hexacosane	91	39-137



**APPENDIX C**

**DAILY FIELD ACTIVITY REPORT**



PROJECT NAME: Port of Oakland

DATE: 01/14/03

PROJECT NUMBER: 00.152-20

## DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2277 Seventh Street, Oakland, Ca

### DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

15:00 Leave site

15:40 Arrive on site to perform bi-weekly inspection on recovery system.

15:45 System is turned off.

15:55 Check for product in MW-3 with IP meter:

$$DTP = 6.20 - DTW = 6.21 = 0.01 \text{ thickness.}$$

16:10 Check for product in MW-1:

$$DTP = 7.35 - DTW = 7.36 = 0.01 \text{ thickness.}$$

16:15 Groundwater level is still high. There is product shown in both wells. System will remain turned off

16:20 Lock gate and leave site.

*[Signature]*  
01/14/2003

PREPARED BY:

*Rogrio Leong*

DATE: 01/14/2003

PREPARER'S SIGNATURE:

*[Signature]*



PROJECT NAME: Port of Oakland

DATE: 01/30/03

PROJECT NUMBER: 00.152-20

# DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2225 & 2277 Seventh street

## DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

14:00 Arrive at site

14:15 Pull passive skimmer; empty reservoir into bucket and check product in well with interface probe:

MW-1 } Depth to Product = 7.75 feet

} Depth to Water = 7.81 feet

product thickness

0.06 feet was measured in MW-1

14:45 Pull active skimmer in MW-3 and measure product thickness in well:

Depth to Product = ~~6.81~~ feet

Depth to water = ~~6.85~~ feet

0.04 feet of product was measured in MW-3

15:30 Clean and decontaminate interface probe

15:45 Leave site.

Not used

01/30/03

PREPARED BY: Roberto Lopez

DATE: 01-30-03

PREPARER'S SIGNATURE: [Signature]



PROJECT NAME: PORT OF OAKLAND

DATE: 18 FEB 2003

PROJECT NUMBER: CO-152.20

# DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2225 & 2277 7<sup>TH</sup> STREET

## DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

01330 - DEPART OFFICE FOR ITSII STORAGE TO PICK UP DISPOSABLE BAILERS.

1340 - NO DISPOSABLE BAILERS AT STORAGE LOCKER - ON TO EQUIP CO.

1355 - AT EQUIP CO - PURCHASE BAILERS - ON TO SITE.

1445 - AT SITE - BEGIN NOTES.

1455 - AT MW-1, REMOVE PASSIVE BAILER. MEASURE TOP OF PRODUCT @ 7.81', TOP OF WATER @ 8.35' = 0.54' OF PRODUCT.

1510 - AT MW-2, MEASURE TOP OF WATER @ 7.58', NO PRODUCT PRESENT.

1520 - AT MW-3, PULL ACTIVE BAILER. MEASURE TOP OF PRODUCT AT 7.09', TOP OF WATER AT 7.15', PRODUCT THICKNESS = 0.06'

1530 - AT MW-5. MEASURE TOP OF WATER AT 5.58'. DISPOSABLE BAILER REVEALS NO VISIBLE PRODUCT.

1545 - AT MW-4. MEASURE TOP OF WATER AT 7.56'. DISPOSABLE BAILER REVEALS NO VISIBLE PRODUCT.

1600 - AT MW-8A. MEASURE TOP OF WATER AT 7.15'. DISPOSABLE BAILER REVEALS NO VISIBLE PRODUCT.

REFERENCE SKETCH

1615 - PUT EQUIPMENT AWAY. SECURE SITE.

1625 - DEPART FOR OFFICE.

1715 - AT OFFICE - TURN IN PAPERWORK.

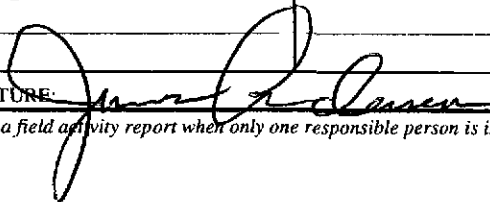
PREPARED BY: JAMES ANDERSON

DISTRIBUTION:

DATE: 18 FEB 2003

CHECKED BY\*:

DATE:

PREPARERS SIGNATURE: 

REVIEWERS SIGNATURE:

\* Not appropriate for a field activity report when only one responsible person is in the field.



PROJECT NAME: Port of Oakland

DATE: 02/26/03

PROJECT NUMBER: 00-152.00

# DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2225 & 2277 seventh street

## DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

12:30 Arrive at site and open system's gate

12:50 Assess site for changes. 2225 site was graded and surface level was brought up approximately 2-3 feet, ~~above~~

13:00 Pull passive skimmer in MW-1; empties liquid in skimmer reservoir and measure product level in well with interface probe:

Depth to Product = 7.72 feet

Depth to water = 8.62 feet

Product thickness = 0.90 feet

Use a bailer to confirm thickness at ~0.5 feet.

13:30 Pull active skimmer in MW-3 and measure product level in well with interface probe:

Depth to Product = 7.04 feet

Depth to water = 7.11 feet

Product thickness = 0.07 feet

14:00 Clean and decontaminate water level probe

14:15 Lock gate and leave site

Not used  
*[Signature]*  
02/26/2003

PREPARED BY:

ROGERIO LEONEN

DATE: 02/26/2003

PREPARED BY'S SIGNATURE:

*[Signature]*



PROJECT NAME: Port of Oakland

DATE: 03/13/03

PROJECT NUMBER: 00-152.20

# DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2277 Seventh Street, Oakland, Ca

## DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

Arrive

7:00 Arrive at site

7:15 Measure Pull active skimmer in well MW-3 and measure groundwater and product with interface probe:

Depth to product = 7.22'

Depth to water = 8.11'

Product thickness in MW-3 = 0.89'

7:40 Pull passive skimmer in well MW-1 and monitor for free product with interface probe:

Depth to product = 7.80'

Depth to water = 9.00'

Product thickness in MW-1 = 1.20'

8:00 Clean out interface probe

8:15 Lock gate and leave site to office

[Signature] 03/13/03

PREPARED BY:

Rogelio Long  
[Signature]

DATE:

03/13/03

PREPARER'S SIGNATURE



PROJECT NAME: Port of Oakland

DATE: 03/17/03

PROJECT NUMBER: 00.152.20

## DAILY ACTIVITY REPORT

PAGE 1 OF 3

SITE LOCATION: 2277 Seventh Street, Oakland, Ca

### DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

8:30 Purchase Ice and pick up bottles at C&T for sampling

9:30 Arrive at site

9:45 Calibrate Cond./pH/Temp. meter

10:00 At MW-2

10:40 Sample MW-2 for TPH(diesel), BTEX and MTBE, TPHmo, TPHgasoline

1:00 At MW-5

11:30 Sample MW-5 for TPH(diesel), BTEX and MTBE, TPHmo, TPHgasoline

11:45 At MW-4

12:20 Sample MW-4 for TPH(diesel), BTEX and MTBE, TPHmo, TPHgasoline

12:30 collects duplicate of MW-4 as MW-4D

12:40 At MW-8A

13:15 Sample MW-8A for TPH(diesel), BTEX and MTBE, TPHmo, TPHgasoline.

13:40 Pull passive skimmer from well MW-1 and monitor for free product:

Depth to product = 7.61'

Depth to water = 8.88'

Product thickness = 1.27'

Empty ~~reservoir~~<sup>reservoir</sup> water in reservoir skimmer

14:00 Pull active skimmer from well MW-3 and monitor for free product:

Depth to product = 7.15'

Depth to water = 7.50'

Product thickness = 0.35'

14:30 Turn system back on for testing and observe free product (blackish oily product) being discharged in poly tank.

15:00 Monitor for 1/2 hour and active skimmer keeps pumping product only. Decide to leave system on overnight until ~~next~~<sup>tomorrow</sup> morning check.

15:15 Take samples to C&T at Berkeley

PREPARED BY:

Rogelio Leon

DATE: 03/17/03

PREPARER'S SIGNATURE:

*[Signature]*



**Innovative  
Technical  
Solutions, Inc.**

2730 Shadelands Drive, Suite 100  
Walnut Creek, California 94598  
(925) 946-3100 (Tel), (925) 256-8998 (Fax)

PROJECT NAME: Port of Oakland

DATE: 03/20/03

PROJECT NUMBER: 00.152-20

# DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2277 Seventh Street, Oakland, CA

## DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

7:45 Returned to site to perform a quick check on system which was left on since 03/17/03.

8:00 Measure groundwater and product level at MW-3  
DTP = 7.12 ft.  
DTW = 7.18 ft  
product thickness = 0.06 ft

8:15 Groundwater level has risen again in the last couple days and free product has decreased as consequence. <sup>of rain</sup> I decided to shut system off until drier conditions or until sufficient product thickness is detected in well.

*[Large handwritten signature]*  
03/20/03

PREPARED BY:

Rogério Leong

DATE: 03/20/03

PREPARED BY'S SIGNATURE:

*[Handwritten signature]*





PROJECT NAME: Port of Oakland

DATE: 04/16/03

PROJECT NUMBER: 00-152.20

## DAILY ACTIVITY REPORT

PAGE 1 OF 1

SITE LOCATION: 2277 Seventh Street, Oakland, Ca

### DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

6:50 Arrive at site

7:00 Meet Melissa with Dillard and other subcontractors onsite.

7:30 Excavator exposes conduit at both ends of the section of line removal (asphalt end and MW-3). Conduit at the asphalt end was found buried at approximately 1-foot from the surface grade and less than 1-foot at the well MW-3 side.

8:30 Cut 3"  $\phi$  conduit and pneumatic + product line at asphalt end side. Disconnect lines in pneumatic + product line from skimmer pump and pull both lines out of the conduit. No product was observed leaking out of lines during cutting and removal. Both ends of conduit were capped.

9:00 Excavator breaks off remaining pieces of asphalt + concrete for removal and disposal. Pneumatic line was rolled up and stored in a bag and placed inside fenced system. Product line + conduit PVC pipe was disposed of in a drum and transported offsite by Dillard.

10:30 Pull active skimmer in MW-3, place in a plastic bag and store in the fenced system.

10:45 Monitor for free phase product in MW-3 to measure:

DEPTH TO PRODUCT = 7.27 feet

DEPTH TO WATER = 8.25 feet

PRODUCT THICKNESS = 0.98 feet

11:00 Pull passive skimmer in well MW-1, empty out liquid in skimmer reservoir into a bucket which was transferred to 1,000 gallon tank. Monitor for free phase product in MW-1 to measure:

DEPTH TO WATER = 8.71 feet

DEPTH TO PRODUCT = 7.42 feet

PRODUCT THICKNESS = 1.29 feet

11:20 Place passive skimmer back in well MW-1

11:30 Measure liquid inside 1,000 gallon tank. It contains approximately 25 gallons of liquid of which approximately 5 gallons are free phase petroleum product

12:00 Leave site

PREPARED BY:

Rogerio Leony

DATE: 04/16/03

PREPARER'S SIGNATURE: