PORT OF OAKLAND

Alameda County
AUG 04 2003
Environmental Health

July 30, 2003

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

RO10 RO187

RE: Second Quarter 2003, Quarterly Groundwater Monitoring and Product Recovery Report – 2277 Seventh Street and Semi-Annual 2003 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.

The next monitoring event will be performed during the third quarter of 2003, 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
Port Associate Environmental Scientist
Environmental Health and Safety Compliance

Enclosure: noted

Cc (w encl.): Michele Heffes

Cc (w/o encl.): Jeff Jones
Rogerio Leong (Innovative Technical Solutions, Inc.)
Rachel B. Hess (Innovative Technical Solutions, Inc.)
Jeffrey D. Hess (Innovative Technical Solutions, Inc.)

Innovative Technical Solutions, Inc.

July 28, 2003

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

Alameda County
AUG 04 2003
Environmental Health

Second Quarter of 2003 Quarterly Groundwater Monitoring and Product Monitoring Report
2277 Seventh Street
and Semi-Annual 2003 Groundwater Monitoring Report
2225 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 7th 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 7th 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 7th Street site during the second quarter of 2003. The product recovery system is currently installed in one well located at 2277 7th Street. Monitoring well MW-1 contains a passive product recovery skimmer. ITSI did not perform collection of groundwater samples from monitoring wells MW-1 and MW-3 due to the presence of separate-phase petroleum hydrocarbons.

This report also encompasses the semi-annual monitoring of groundwater monitoring wells at 2225 7th Street (Figure 2). These monitoring wells , however, were all appropriately destroyed and abandoned[1] in November 2002, and therefore no groundwater monitoring data exist.

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[1] 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.

[1] - Destruction and abandonment of all monitoring wells were performed in accordance with Alameda County Public Works Agency Guidelines.

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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 phase petroleum has been detected.

Site preparation activities were recently initiated for construction of a new Port Field Support Services 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.

On April 16, 2003, ITSI on behalf of the Port oversaw the removal of a 100-foot section of the product recovery conveyance system (refer to Figure 2). The Port contracted Dillard Environmental Services (Dillard) to perform the work. The section of product recovery system was removed to minimize interference with site development. 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 lines. These lines 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. 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 active product recovery system has been temporarily interrupted, ITSI has been performing free product removal in well MW-1 and free-phase petroleum product monitoring in wells MW-1 and MW-3 on a quarterly basis, in conjunction with the quarterly groundwater sampling event.

Monitoring wells were previously installed at the adjacent 2225 7th Street site to assess groundwater quality following the removal of USTs in 1989 and 1992. The 2225 7th Street site is also currently under modification for the construction of the future PFSSC. Buildings C-406 and C-407 were demolished and the entire surrounding asphalt pavement was removed in November 2002. The three former monitoring wells (MW-1, MW-2, and MW-3) located at the site were properly destroyed to facilitate the Port's construction plans.

GROUNDWATER MONITORING

ITSI personnel performed groundwater monitoring and sampling at the 2277 7th Street site on June 18, 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 accompanied by a laboratory provided trip blank and delivered under chain-of-custody protocol to Curtis & Tompkins in Berkeley, a California certified analytical laboratory.

The second quarter 2003 groundwater monitoring event at 2277 7th Street involved monitoring and sampling of monitoring wells MW-2, MW-4, MW-5, and MW-8A, and monitoring of the free-phase petroleum product recovery system installed in 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 7th 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 June 18, 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 June 2003 is consistent with the historic flow direction reported in the previous reports.

Results of the June 18, 2003 groundwater sampling at 2277 7th Street are summarized below:

- TPHg was detected in one monitoring well at a concentration of 360 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 150 µg/L in MW-4.

- 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 not detected above the reporting limit in any of the wells sampled this quarter.
- TPHd was detected in one monitoring well at a concentration of 74 µg/L in MW-8A. However, the laboratory reported that the chromatographic pattern of the analyte did not resemble the chromatographic pattern of a diesel standard.
- 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 7th Street on June 18, 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 7th St. MW-4 06/18/03	ANALYTE	X_1	X_2	RPD
	MTBE	<2.0	<2.0	--
	B	150	140	6.8%
	T	<0.5	<0.5	--
	E	<0.5	<0.5	--
	X	<0.5	<0.5	--
	TPHd	<50	<50	--
	TPHg	360	330	8.9%

- The relative percent difference between the analytical results from MW-4 and its duplicate sample MW-4D ranged from 6.8% to 8.9%. The low RPD values indicate high 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 7TH STREET

Until April 16, 2003 the product recovery system at 2277 7th Street consisted of an air-actuated (active) product skimmer in MW-3. The product in MW-3 discharged to a product recovery 1,000-gallon tank, which Foss emptied at various times throughout a quarter. A passive skimmer was installed in MW-1, although it was removed on May 22, 2000 because no measurable product appeared in the well. The

passive skimmer was subsequently replaced in the well during the following months after free product was measured in MW-1. 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 free product monitoring on MW-1 and MW-3 on June 18, 2003; the free-phase petroleum product thickness was measured at 1.24 feet in MW-1 and 1.22 feet in MW-3. The current recovery system consists of a passive skimmer in well MW-1, which recovered less than 0.2-gallon of free-phase petroleum product this quarter.

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
Project Manager

Jeffrey D. Hess, R.G.
Senior Geologist

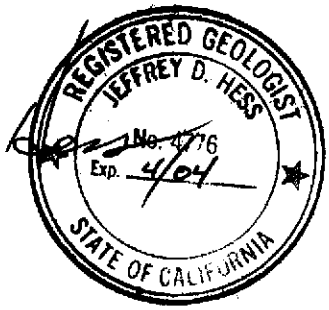


Table 1
Groundwater Elevations Data
Port of Oakland, 2277 7th Street, Oakland, California

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
		6/18/03	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
		6/18/03	8.44	5.92
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
		6/18/03	8.02	5.13

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	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
		2/26/03	7.72	8.62	0.90	<0.1	passive skimmer
		3/13/03	7.80	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
		6/18/03	8.20	9.44	1.24	<0.2	passive skimmer
MW-3	14.22	12/31/97	-	-	-	30	active skimmer
		1/29/98	-	-	-	10	active skimmer
		4/13/98	-	-	-	240	active skimmer
		5/11/98	-	-	-	1,545	active skimmer
		6/15/98	-	-	-	1,950	active skimmer
		11/6/98	8.84	9.94	1.1	500	active skimmer
		1/5/99	-	-	-	275[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

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	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
		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[6]	active skimmer
		12/6/02	8.56	9.3	0.74	150[6]	active skimmer
		12/18/02	7.35	8.43	1.08	25[6]	active skimmer
		12/30/02	6.50	7.15	0.65	25[6]	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
		2/18/02	7.09	7.15	0.06	--	active skimmer
		2/26/03	7.04	7.11	0.07	--	active skimmer
		3/13/03	7.22	8.11	0.89	--	active skimmer
		3/17/03	7.15	7.50	0.35	5[6]	active skimmer
		4/16/03	7.27	8.25	0.98	--	active skimmer
		6/18/03	7.78	9.00	1.22	--	active skimmer
MW-6	14.00	13/31/97	-	-	-	0.0014	passive skimmer
		1/29/98	-	-	-	0.0014	passive skimmer
		3/2/98	-	-	-	0.0014	passive skimmer
		11/6/98	NM	9.62	>0.01	0.0	passive skimmer
		3/19/99	NM	7.37	>0.01	0.0	passive skimmer
MW-8[1]	12.94	12/31/97	8.49	8.82	0.33	4.38	-
		11/6/98	9.25	10.3	1.1	3.48	-

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]

- 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.

[6] Product removed is based on volume measured in the 1,000-gallon holding poly-tank.

[7] The active skimmer was removed from MW-3 on 04/16/2003

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-4	02/21/01	450 [13]	<50	<300	120	<0.5	<0.5	<0.5	<0.5 [10]
(cont'd)	07/10/01	<250	110 [2,13]	<300	620	2.6	2.9	<2.5	<0.5 [8,10]
Dup.	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
	09/26/02	390 [2]	57	<500	150	2.1	<1.0	<1.0	<10
Dup.	09/26/02	500 [2]	<50 [16]	<500 [16]	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 [15]	<50	<300	320 [17]	<0.5	<0.5	<0.5	<0.5 [10]
Dup.	03/17/03	82 [15]	<50	<300	190	0.64 [17]	0.56	0.53	<0.5 [10]
	06/18/03	360 [11, 15]	<50	<300	150	<0.5	<0.5	<0.5	<2.0
Dup.	06/18/03	330 [11, 15]	<50	<300	140	<0.5	<0.5	<0.5	<2.0
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
	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 [10]
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
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]

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	12/19/00	130 [3,11]	620	<300	24	<0.5	1.6	<0.5	<2
(cont'd)	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
	09/26/02	230 [2]	1400 [2]	<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 [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
	09/26/02	83 [2]	84 [2]	<500	<0.5	<0.5	<0.5	<0.5	75 [10]
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 [14]
	12/18/02	Monitoring well was destroyed							
MW-8A	12/12/01	68	720 [11,15]	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/08/02	<50	760 [2]	<570	<0.5	<0.5	<0.5	<0.5	<5.0
Dup.	03/08/02	<50	350 [2]	<580	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	<50	570 [2]	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	<50	410 [2]	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	160 [15]	<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 [10]
	06/18/03	<50	74 [15]	<300	<0.5	<0.5	<0.5	<0.5	<2.0

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] Analyte found in the associated blank as well as in the sample.
[2] Hydrocarbons present do not match profile of laboratory standard.
[3] Low-boiling-point/lighter hydrocarbons are present in the sample.
[4] Chromatographic pattern matches known laboratory contaminant.
[5] Hydrocarbons are present in the requested fuel quantification range, but do not resemble pattern of available fuel standard.
[6] High-boiling-point/heavier hydrocarbons are present in sample.
[7] Sample did not pass laboratory QA/QC and may be biased low
[8] Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor or two.
[9] Trip blank contained MTBE at a concentration of 4.2 µg/l
[10] MTBE detections confirmed by EPA Test Method 8260. 8260 results displayed.
[11] Sample exhibits unknown single peak or peaks
[12] EPA Method 8260 confirmation analyzed past holding time.
[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
[16] 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 th Street, Oakland, CA,* dated October 24, 1997, by Uribe and Associate
[17] 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

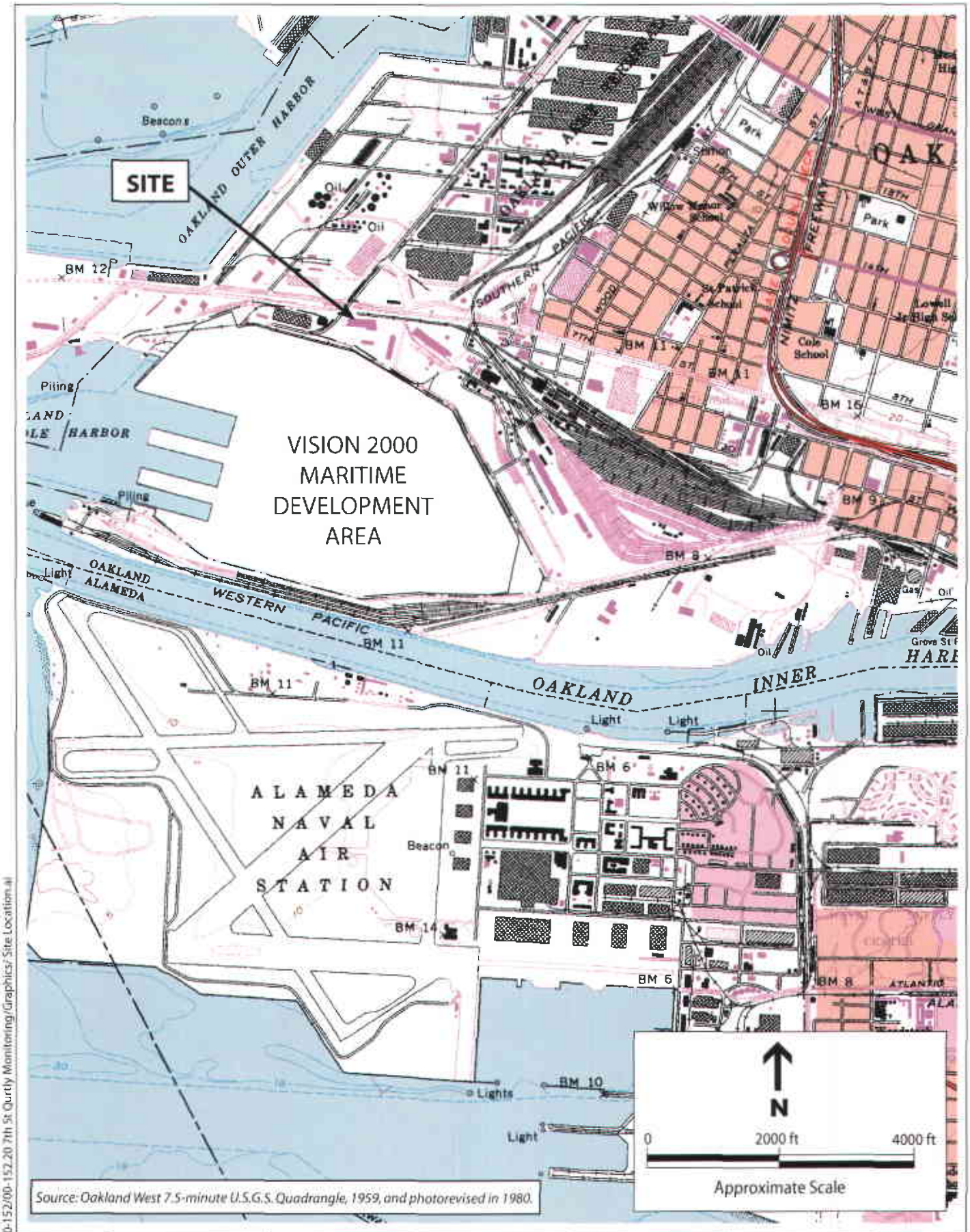
Date	System Status	Comments
7/5/02	Off	System is turned off and is in the process of being moved to new location.
7/19/02	Off	System is moved to new location but is not hooked up to electricity.
7/30/02	Off	System is moved to new location but is not hooked up to electricity.
8/14/02	Off	System is moved 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
6/18/03	Off	Product recovery line was removed on 04/16/2003

Attachments:

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

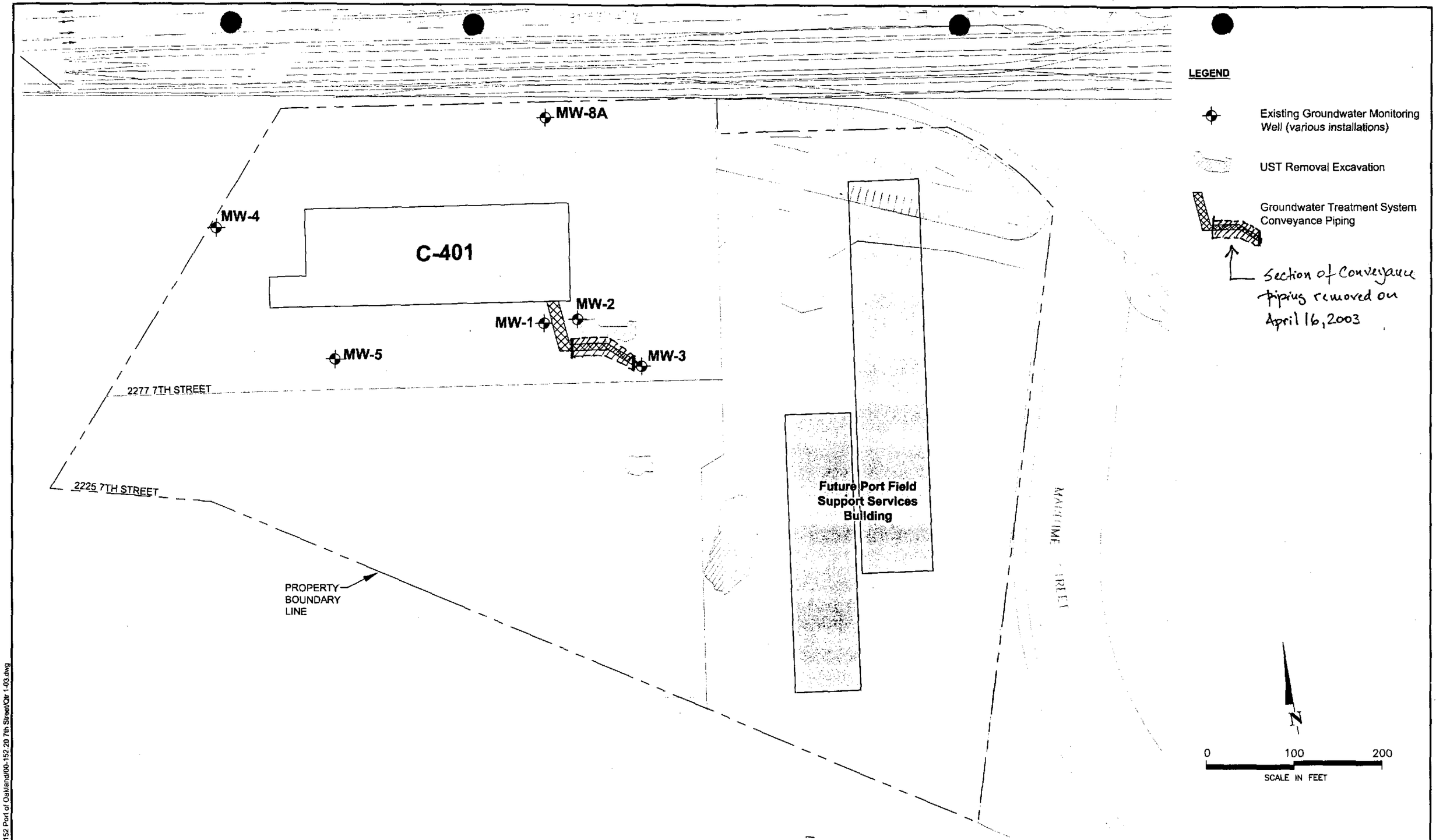
Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – Groundwater Elevations, 2277 7th Street, June 18, 2003
Figure 4 – Groundwater Sample Results, 2277 7th Street, June 18, 2003

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



Projects/2000/00-152/00-152-20 7th St Qurtly Monitoring/Graphics/ Site Location.ai

Innovative Technical Solutions, Inc.	**Port of Oakland** 2225 and 2277 Seventh Street Oakland, California	**Figure 1** Site Location Map

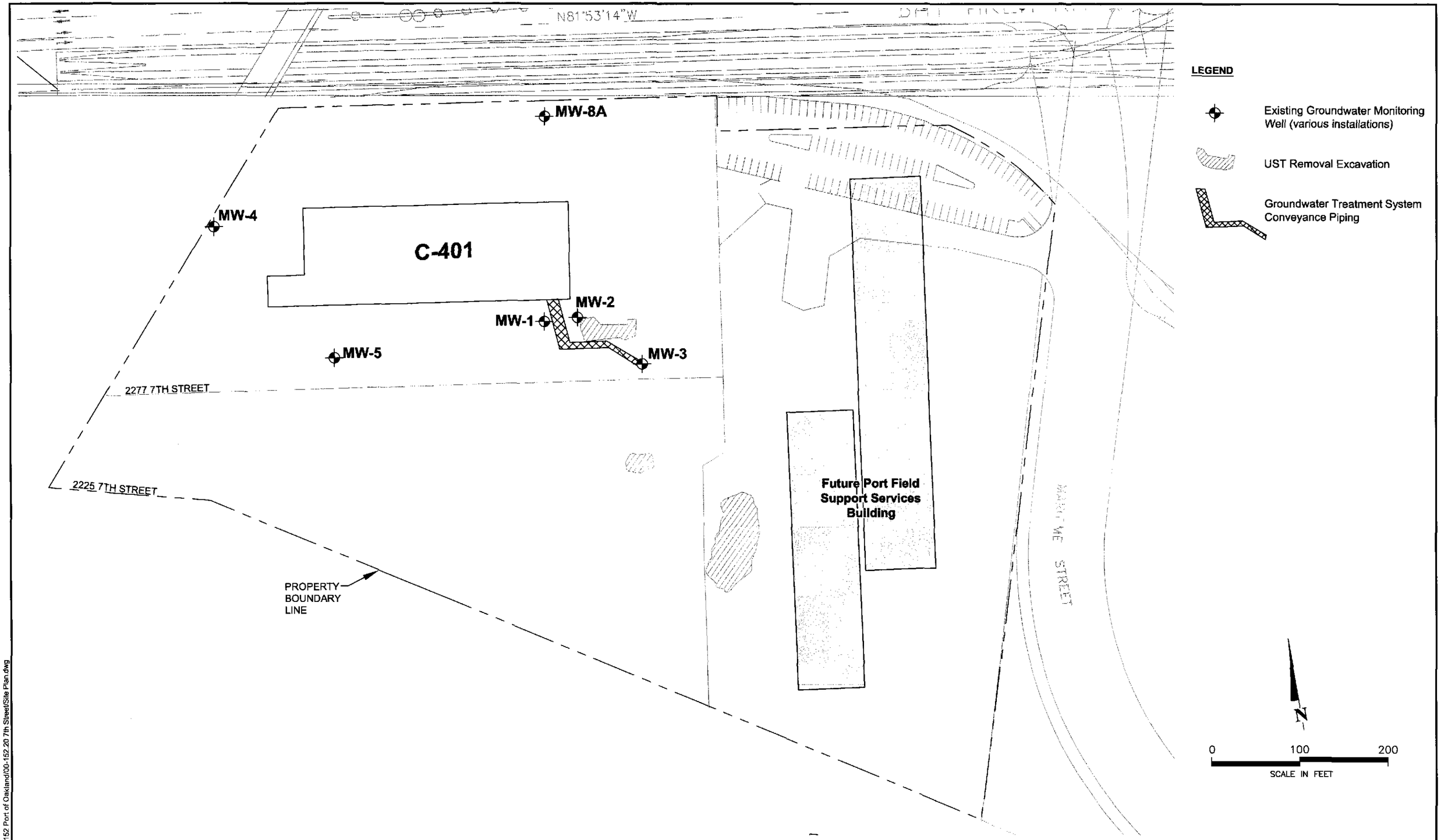


CAD GIS Station\00-152 Port of Oakland\00-152 20 7th Street\Qtr 1-03.dwg

Innovative Technical Solutions, Inc.

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

Figure 2
Site Plan

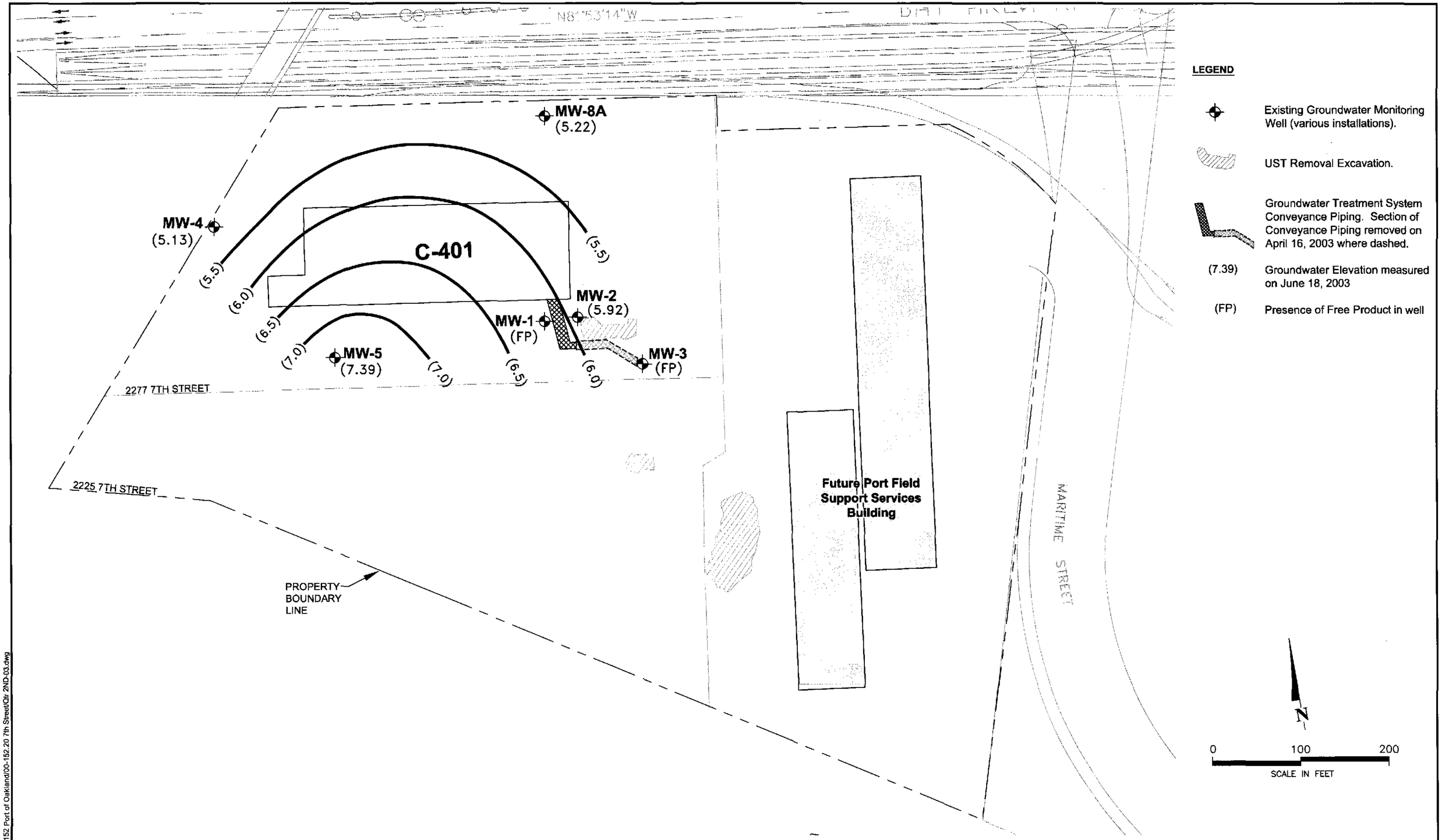


CAD GIS Station\00-152 Port of Oakland\00-152.20 7th Street\Site Plan.dwg

Innovative Technical Solutions, Inc.

~~First~~ Second Quarter 2003, Quarterly Groundwater Monitoring and Product Recovery
2277 Seventh Street
Oakland, California

Figure 2
Site Plan



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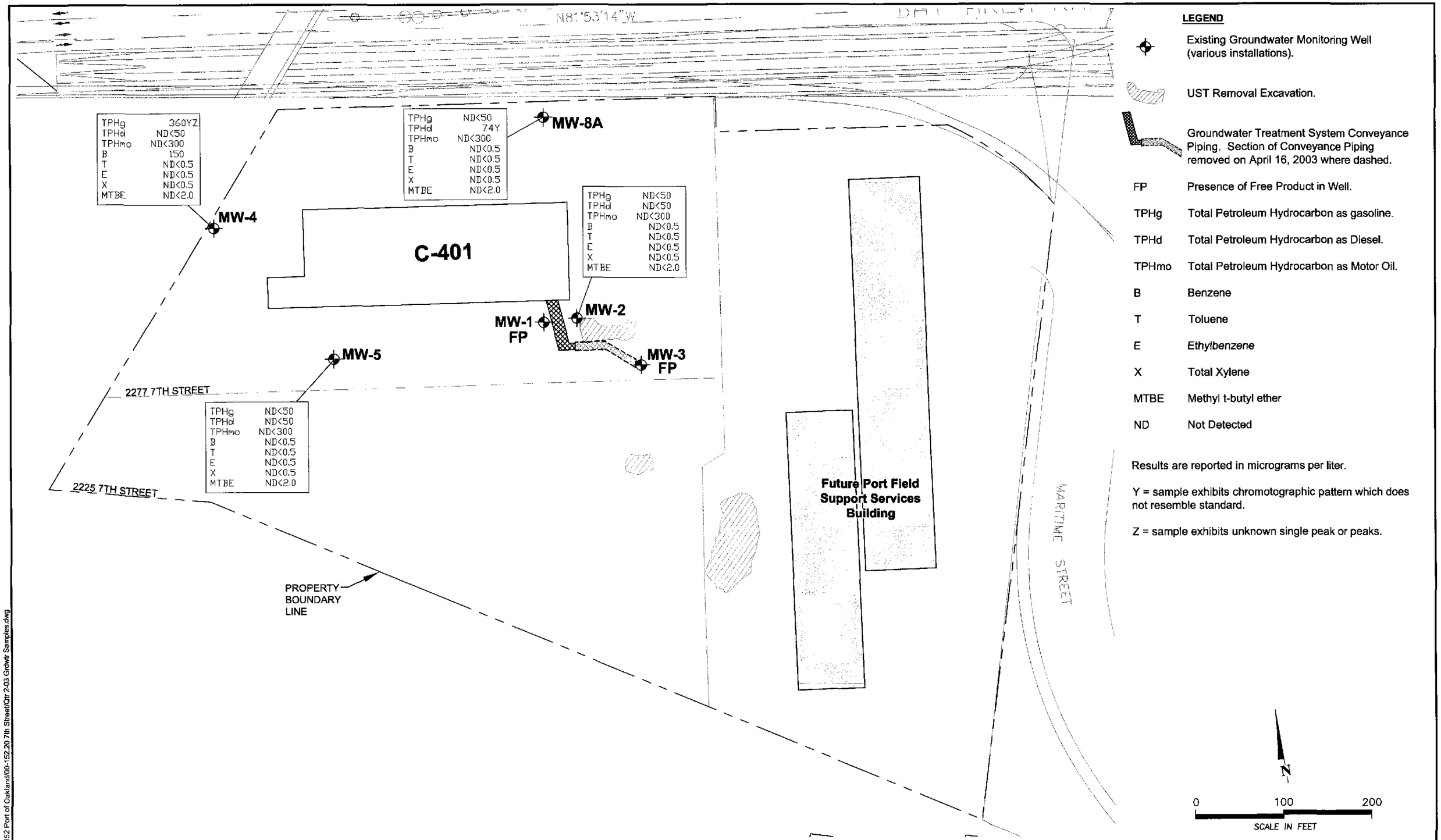
Innovative Technical Solutions, Inc.

Second Quarter 2003
Quarterly Groundwater Monitoring and Product Recovery
2277 Seventh Street
Oakland, California

Figure 3
Groundwater Elevations
June 18, 2003



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.

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

Z = sample exhibits unknown single peak or peaks.

CAD GIS Station\00-152 Port of Oakland\00-152.20 7th Street\Qtr 2-03 Grdwtr Samples.dwg

Innovative Technical Solutions, Inc.

Second Quarter 2003
Quarterly Groundwater Monitoring and Product Recovery
2277 Seventh Street
Oakland, California

Figure 4
Groundwater Sample Results
June 18, 2003

APPENDIX A

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

Innovative Technical Solutions, Inc.

MONITORING WELL WATER LEVEL MEASUREMENT FORM

PROJECT NAME: 2277 7th Street PROJECT NO.: 00-152.20

MEASURED BY: R. LEONG DATE: 06/18/2003

Monitoring Well ID	Depth to Water (feet)	Total Well Depth (feet)	Time
MW-2	8.44	15.30	12:00
MW-4	8.02	18.77	10:15
MW-5	6.10	16.80	11:22
MW-6	Well was destroyed on December 18, 2002		
MW-7	Well was destroyed on December 18, 2002		
MW-8A	7.72	20.55	9:15

Innovative Technical Solutions, Inc.

Sheet 1 of 1

MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland – 2277 7th Street PROJECT NO.: 00-152.20

WELL NO.: MW-2 TESTED BY: R LEONG DATE: 06/18/2003

WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 8.44

Total Well Depth (ft.): 15.30 Purge Method: Disposable Bailer

Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): 0.50

Time Start Purge: 12:05 Time End Purge: 12:11

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		
	15.30	-	8.44	=	6.86	x	0.16	0.64	1.44	=	1.09

Time	12:05	12:07	12:09	12:11			
Cumulative Volume Purged (gals)	0	1.10	2.20	3.30			
Cumulative Number of Casing Volumes	0	1	2	3			
Temperature (F°/C°)	19.7	19.2	19.1	18.9			
pH	7.41	7.29	7.34	7.38			
Specific Conductivity (mS/cm)	2.23	2.25	2.26	2.31			
Turbidity (NTU)	8	7	8	12			

WELL SAMPLING

Sampling Time: 12:20 Sampling Method: Disposable Bailer

Duplicate Sample & Time: NONE

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

Innovative Technical Solutions, Inc.

MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland – 2277 7th Street PROJECT NO.: 00-152.20

WELL NO.: MW-4 TESTED BY: R. LEONG DATE: 06/18/2003

WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 8.02

Total Well Depth (ft.): 18.77 Purge Method: Disposable Bailer

Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): ~0.50

Time Start Purge: 10:25 Time End Purge: 10:35

Comments: Double volume collected simultaneously for sample duplicate

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		
	18.77	-	8.02	=	10.50		0.16	0.64	1.44	=	1.68

Time	10:25	10:29	10:32	10:35			
Cumulative Volume Purged (gals)	0	1.7	3.4	5.1			
Cumulative Number of Casing Volumes	0	1	2	3			
Temperature (F°/C°)	20.5	20.4	20.4	20.7			
pH	7.15	7.23	7.32	7.32			
Specific Conductivity (mS/cm)	1.59	1.60	1.64	1.65			
Turbidity (NTU)	13	24	29	25			

WELL SAMPLING

Sampling Time: 10:45 Sampling Method: Disposable Bailer

Duplicate Sample & Time: MW-4D @ 10:55

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

Innovative Technical Solutions, Inc.

MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland – 2277 7th Street PROJECT NO.: 00-152.20

WELL NO.: MW-5 TESTED BY: R. LEONG DATE: 06/18/2003

WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 6.10

Total Well Depth (ft.): 16.80 Purge Method: Disposable Bailer

Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): 0.50

Time Start Purge: 11:25 Time End Purge: 11:35

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		
	6.10	-	16.80	=	10.70	x	0.16	0.64	1.44	=	1.71

Time	11:25	11:28	11:31	11:35			
Cumulative Volume Purged (gals)	0	1.7	3.4	5.1			
Cumulative Number of Casing Volumes	0	1	2	3			
Temperature (F°C°)	21.5	21.0	20.6	20.7			
pH	7.69	7.41	7.48	7.47			
Specific Conductivity (mS/cm)	0.773	1.79	1.85	1.90			
Turbidity (NTU)	16	42	53	69			

WELL SAMPLING

Sampling Time: 11:40 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

Innovative Technical Solutions, Inc.

MONITORING WELL PURGING AND SAMPLING FORM

PROJECT NAME: Port of Oakland – 2277 7th Street PROJECT NO.: 00-152.20

WELL NO.: MW-8A TESTED BY: R. LEONG DATE: 06/18/2003

WELL PURGING

Measuring Point Description: Top of Casing (TOC) Static Water Level (ft.): 7.72

Total Well Depth (ft.): 20.55 Purge Method: Disposable Bailer

Water Level Measurement Method: Solinst W. L. Purge Rate (gpm): 0.50

Time Start Purge: 9:25 Time End Purge: 9:38

Comments :

Well Volume Calculation (fill in before purging)	Total Depth (ft)		Depth to Water (ft)		Water Column (ft)		Multiplier for Casing Diameter (in)				Casing Volume (gal)
							2	4	6		
	20.55	-	7.72	=	12.83	x	0.16	0.64	1.44	=	2.05

Time	9:25	9:29	9:33	9:38			
Cumulative Volume Purged (gals)	0	2	4	6.5			
Cumulative Number of Casing Volumes	0	1	2	3			
Temperature (F°(C°))	19.7	19.0	19.2	19.2			
pH	7.70	7.77	7.48	7.55			
Specific Conductivity (mS/cm)	2.60	2.65	2.66	2.67			
Turbidity (NTU)	206	999	837	773			

WELL SAMPLING

Sampling Time: 9:50 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

APPENDIX B

LABORATORY REPORTS

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

JUL 10 2003

ANALYTICAL REPORT

Prepared for:

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

Date: 03-JUL-03
Lab Job Number: 165919
Project ID: 00-152.20
Location: 2277 7th St. POO

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 NELAC 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.

165919

ITSI Innovative Technical Solutions, Inc.
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: 06/18/2003
Page: 1 of 1

	Sample I.D.	Date	Time	Sample Depth	No. of Containers	Sample Matrix	TPHd by EPA 8015B	TPHmo by EPA 8015B	TPHg by EPA 8015B	BTEX + MTBE by 8021B	MTBE Confirmation by 8260B				Special Instructions/Comments
						Preservative:	–	–	Hcl	Hcl	Hcl				
						Container Type:	1L Amber	1L Amber	Voa	Voa	Voa				
1	Trip Blank	06/18/03	9:00	–	2	H2O			X						Silica Gel clean up for TPHd, TPHmo
2	MW-2	↓	12:20	~10		↓	X	X	X	X	X				
3	MW-4	↓	10:45	~10		↓	X	X	X	X	X				
4	MW-4D	↓	10:55	~10		↓	X	X	X	X	X				
5	MW-5	↓	11:40	~10		↓	X	X	X	X	X				
6	MW-8A	↓	9:50	~10		↓	X	X	X	X	X				

Sampled By: Rogerio Leong
Signature: [signature]
Special Instructions: Direct Bill Port of Oakland
Contact: Jeff Rubin @ (510) 627-1134
Send Results to: (w/fax #) Rachel Hess (ITSI) (925) 256-8998
Turnaround Time: Standard

Courier/Airbill No.: Received Cold + Intact. [initials] 6/18/03

Relinquished By/Affiliation:	Date:	Time:	Received By/Affiliation:	Date:	Time:
Rogerio Leong/ITSI [signature]	06/18/03	14:00	[signature]	6/18/03	1400

ITSI 5/02

Original – Laboratory Yellow – Field/Office

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	00-152.20		
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03
Diln Fac:	1.000	Analyzed:	06/18/03
Batch#:	82316		

Field ID: TRIP BLANK
Type: SAMPLE
Lab ID: 165919-001
Analysis: 8015B

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	89	57-150
Bromofluorobenzene (FID)	95	65-144

Field ID: MW-2
Type: SAMPLE
Lab ID: 165919-002

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)	95	57-150	8015B
Bromofluorobenzene (FID)	105	65-144	8015B
Trifluorotoluene (PID)	82	54-149	EPA 8021B
Bromofluorobenzene (PID)	91	58-143	EPA 8021B

Field ID: MW-4
Type: SAMPLE
Lab ID: 165919-003

Analyte	Result	RL	Analysis
Gasoline C7-C12	360 Y Z	50	8015B
MTBE	ND	2.0	EPA 8021B
Benzene	150	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)	105	57-150	8015B
Bromofluorobenzene (FID)	100	65-144	8015B
Trifluorotoluene (PID)	83	54-149	EPA 8021B
Bromofluorobenzene (PID)	88	58-143	EPA 8021B

Y= Sample exhibits chromatographic pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

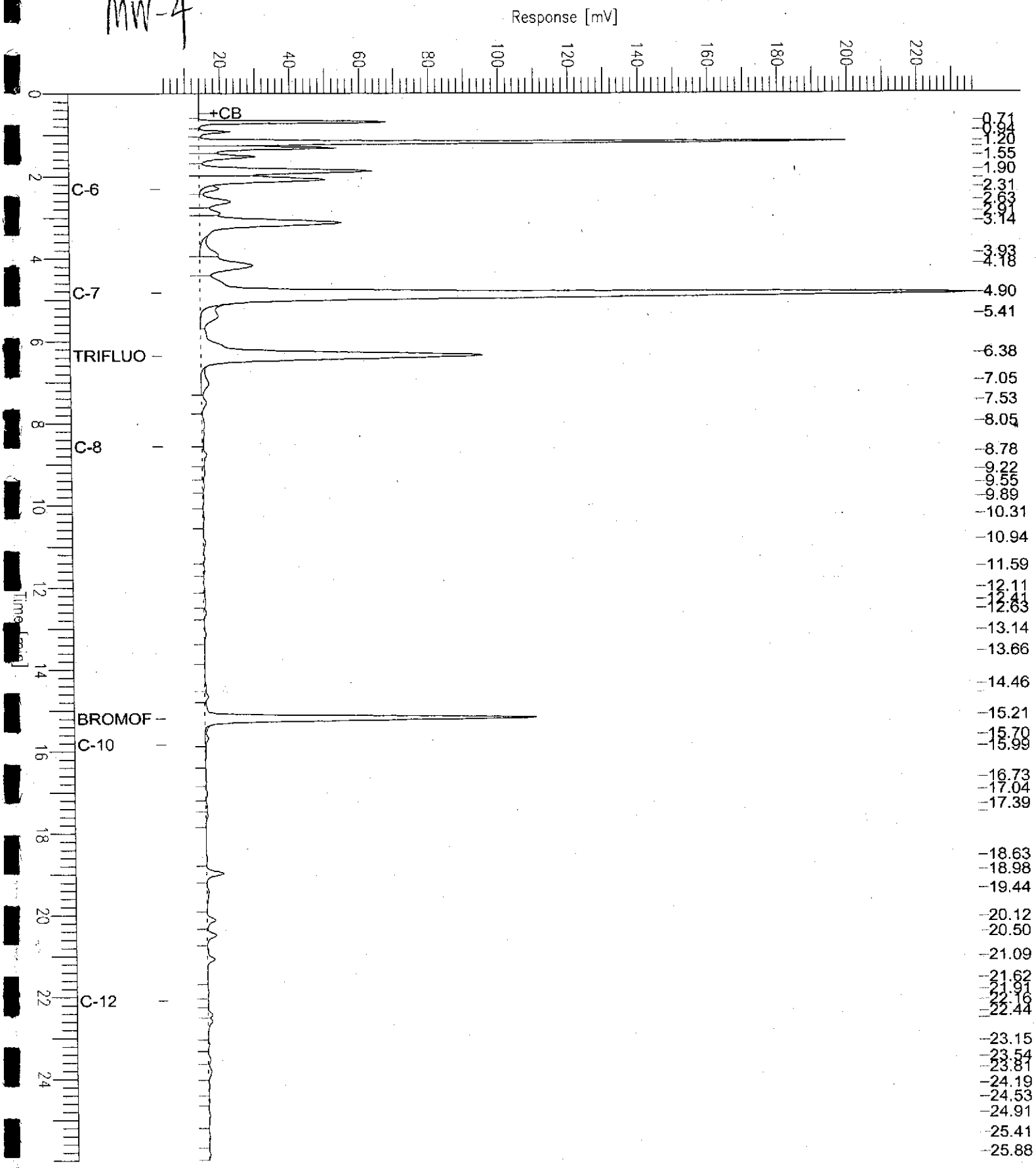
1.1

GC07 TVH 'A' Data File RTX 502

Sample Name : 165919-003,82316
leName : G:\GC07\DATA\169A007.raw
thod : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 3 mV

Sample #: a1 Page 1 of 1
Date : 6/18/03 07:44 PM
Time of Injection: 6/18/03 07:18 PM
Low Point : 2.87 mV High Point : 236.14 mV
Plot Scale: 233.3 mV

MW-4



Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	00-152.20		
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03
Diln Fac:	1.000	Analyzed:	06/18/03
Batch#:	82316		

Field ID: MW-4D
Type: SAMPLE
Lab ID: 165919-004

Analyte	Result	RL	Analysis
Gasoline C7-C12	330 Y Z	50	8015B
MTBE	ND	2.0	EPA 8021B
Benzene	140	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)	104	57-150	8015B
Bromofluorobenzene (FID)	101	65-144	8015B
Trifluorotoluene (PID)	84	54-149	EPA 8021B
Bromofluorobenzene (PID)	89	58-143	EPA 8021B

Field ID: MW-5
Type: SAMPLE
Lab ID: 165919-005

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)	93	57-150	8015B
Bromofluorobenzene (FID)	102	65-144	8015B
Trifluorotoluene (PID)	82	54-149	EPA 8021B
Bromofluorobenzene (PID)	89	58-143	EPA 8021B

Y= Sample exhibits chromatographic pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

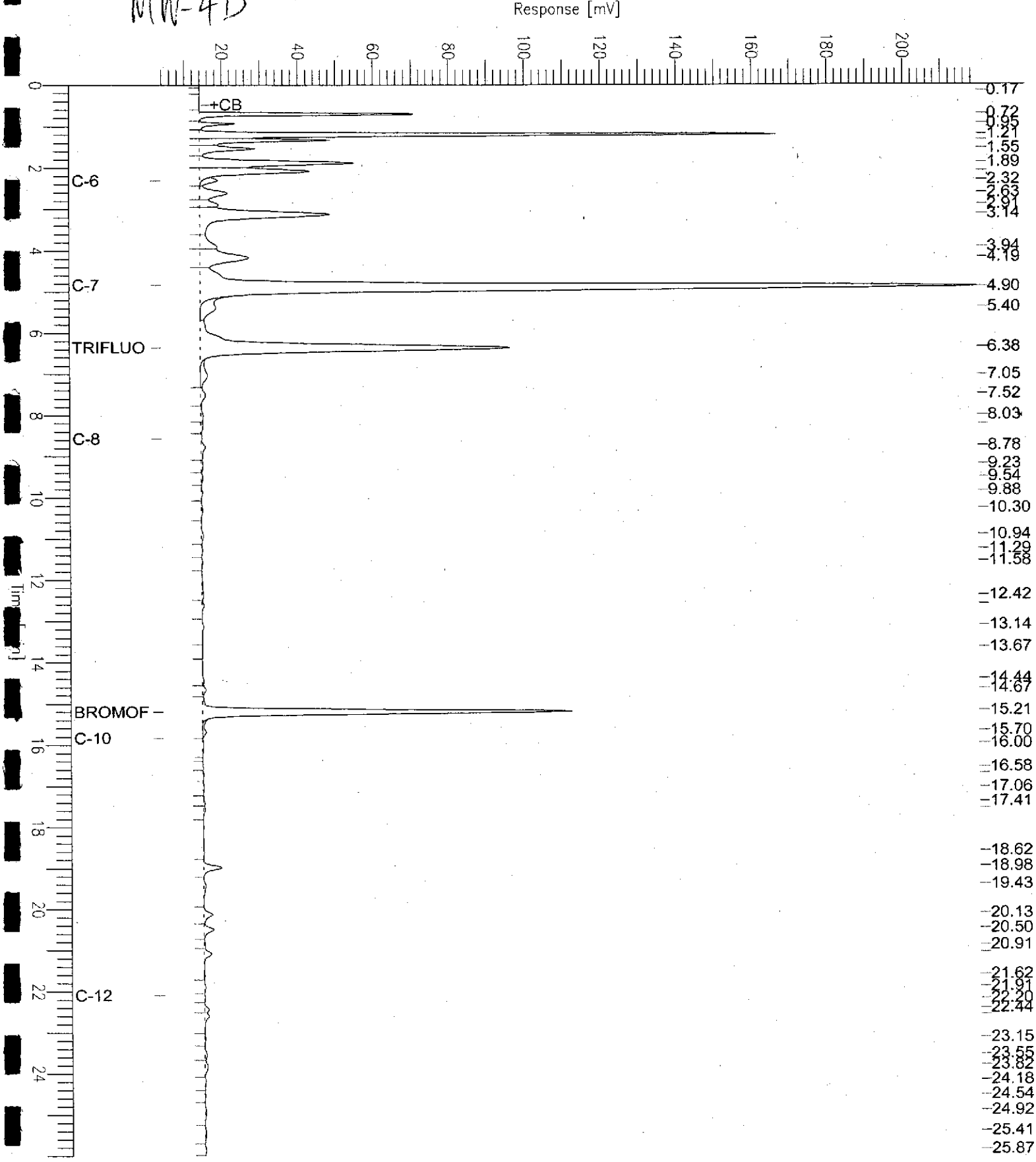
1.1

GC07 TVH 'A' Data File RTX 502

mple Name : 165919-004,82316
leName : G:\GC07\DATA\169A008.raw
ethod : TVHETXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 4 mV

Sample #: a1 Page 1 of 1
Date : 6/18/03 08:20 PM
Time of Injection: 6/18/03 07:53 PM
Low Point : 3.80 mV High Point : 219.58 mV
Plot Scale: 215.8 mV

MW-4D

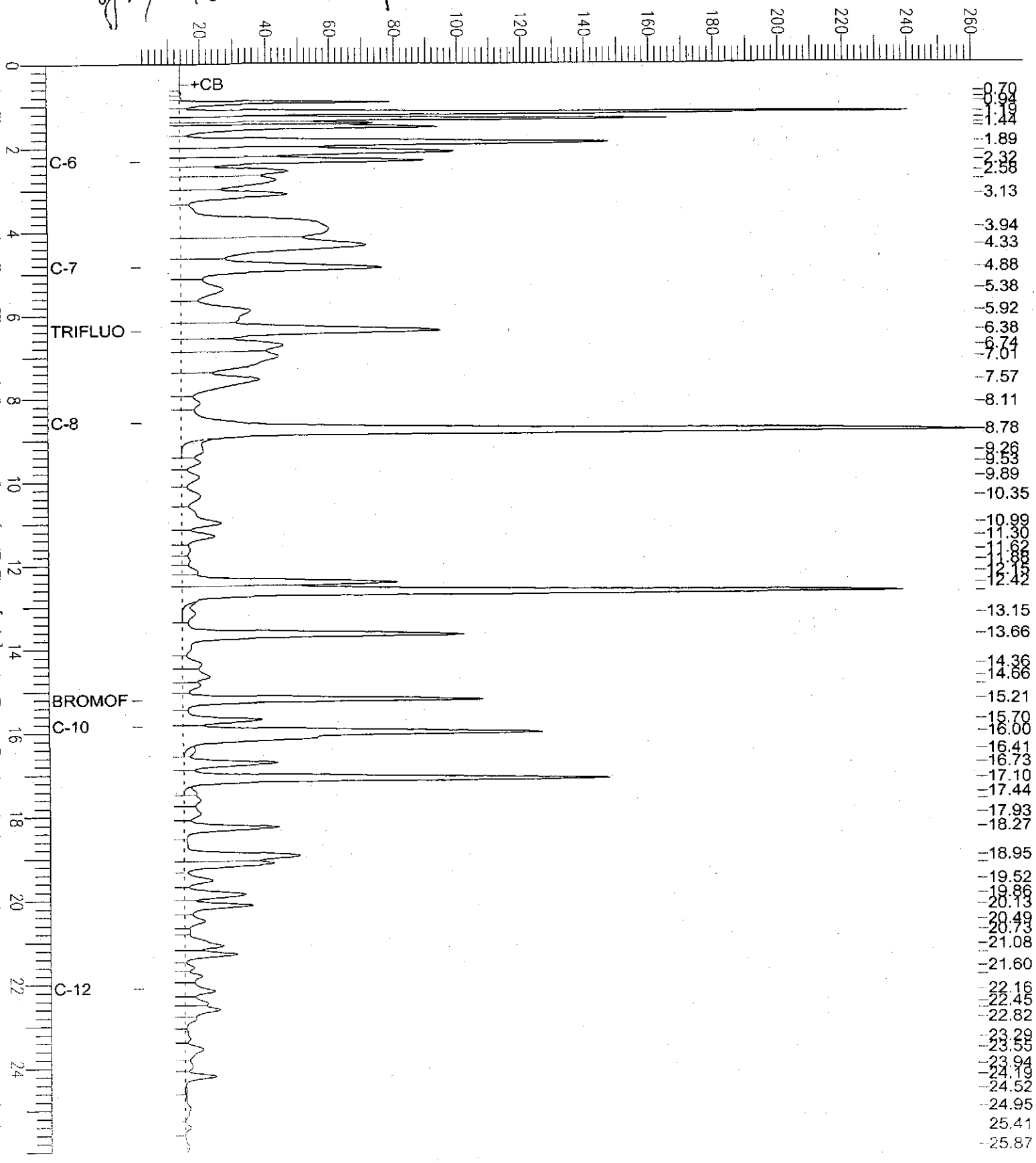


GC07 TVH 'A' Data File RTX 502

mple Name : ccv/lcs,qc217041,82316,03ws0989,5/5000
leName : G:\GC07\DATA\169A002.raw
ethod : TVHBTXE
Start Time : 0.00 min End Time : 26.00 min
Scale Factor: 1.0 Plot Offset: 1 mV

Sample #: Page 1 of 1
Date : 6/18/03 04:38 PM
Time of Injection: 6/18/03 04:12 PM
Low Point : 1.34 mV High Point : 260.83 mV
Plot Scale: 259.5 mV

QC/BTXE Standard



Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	00-152.20		
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03
Diln Fac:	1.000	Analyzed:	06/18/03
Batch#:	82316		

Field ID: MW-8A
Type: SAMPLE
Lab ID: 165919-006

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)	100	57-150	8015B
Bromofluorobenzene (FID)	112	65-144	8015B
Trifluorotoluene (PID)	86	54-149	EPA 8021B
Bromofluorobenzene (PID)	95	58-143	EPA 8021B

Type: BLANK
Lab ID: QC217039

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)	89	57-150	8015B
Bromofluorobenzene (FID)	98	65-144	8015B
Trifluorotoluene (PID)	77	54-149	EPA 8021B
Bromofluorobenzene (PID)	85	58-143	EPA 8021B

Y= Sample exhibits chromatographic pattern which does not resemble standard
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

1.1

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00-152.20	Analysis:	EPA 8021B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC217040	Batch#:	82316
Matrix:	Water	Analyzed:	06/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12		NA		
MTBE	20.00	19.01	95	63-133
Benzene	20.00	21.31	107	78-123
Toluene	20.00	20.66	103	79-120
Ethylbenzene	20.00	18.99	95	80-120
m,p-Xylenes	40.00	41.91	105	76-120
o-Xylene	20.00	20.35	102	80-121

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)	NA		
Bromofluorobenzene (FID)	NA		
Trifluorotoluene (PID)		79	54-149
Bromofluorobenzene (PID)		84	58-143

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 5030B
Project#:	00-152.20	Analysis:	8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC217041	Batch#:	82316
Matrix:	Water	Analyzed:	06/18/03
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	2,000	1,893	95	80-120
MTBE		NA		
Benzene		NA		
Toluene		NA		
Ethylbenzene		NA		
m,p-Xylenes		NA		
o-Xylene		NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		103	57-150
Bromofluorobenzene (FID)		99	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions, Inc.	Prep:	EPA 5030B
Project#:	00-152.20	Analysis:	8015B
Field ID:	MW-2	Diln Fac:	1.000
MSS Lab ID:	165919-002	Batch#:	82316
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03

Type: MS Analyzed: 06/18/03
Lab ID: QC217058

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	<18.00	2,000	1,906	95	76-120
MTBE			NA		
Benzene			NA		
Toluene			NA		
Ethylbenzene			NA		
m,p-Xylenes			NA		
o-Xylene			NA		

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		109	57-150
Bromofluorobenzene (FID)		104	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

Type: MSD Analyzed: 06/19/03
Lab ID: QC217059

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,891	95	76-120	1	20
MTBE		NA				
Benzene		NA				
Toluene		NA				
Ethylbenzene		NA				
m,p-Xylenes		NA				
o-Xylene		NA				

Surrogate	Result	%REC	Limits
Trifluorotoluene (FID)		109	57-150
Bromofluorobenzene (FID)		108	65-144
Trifluorotoluene (PID)	NA		
Bromofluorobenzene (PID)	NA		

NA= Not Analyzed
RPD= Relative Percent Difference

4.1

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	00-152.20	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03
Diln Fac:	1.000	Prepared:	06/22/03
Batch#:	82397		

Field ID:	MW-2	Analyzed:	06/24/03
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	165919-002		

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

Surrogate	%REC	Limits
Hexacosane	128	44-146

Field ID:	MW-4	Analyzed:	06/24/03
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	165919-003		

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

Surrogate	%REC	Limits
Hexacosane	132	44-146

Field ID:	MW-4D	Analyzed:	06/25/03
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	165919-004		

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

Surrogate	%REC	Limits
Hexacosane	90	44-146

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

5.0

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	00-152.20	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	06/18/03
Units:	ug/L	Received:	06/18/03
Diln Fac:	1.000	Prepared:	06/22/03
Batch#:	82397		

Field ID:	MW-5	Analyzed:	06/24/03
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	165919-005		

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

Surrogate	%REC	Limits
Hexacosane	65	44-146

Field ID:	MW-8A	Analyzed:	06/24/03
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	165919-006		

Analyte	Result	RL
Diesel C10-C24	74 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
Hexacosane	109	44-146

Type:	BLANK	Analyzed:	06/24/03
Lab ID:	QC217359	Cleanup Method:	EPA 3630C

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

Surrogate	%REC	Limits
Hexacosane	132	44-146

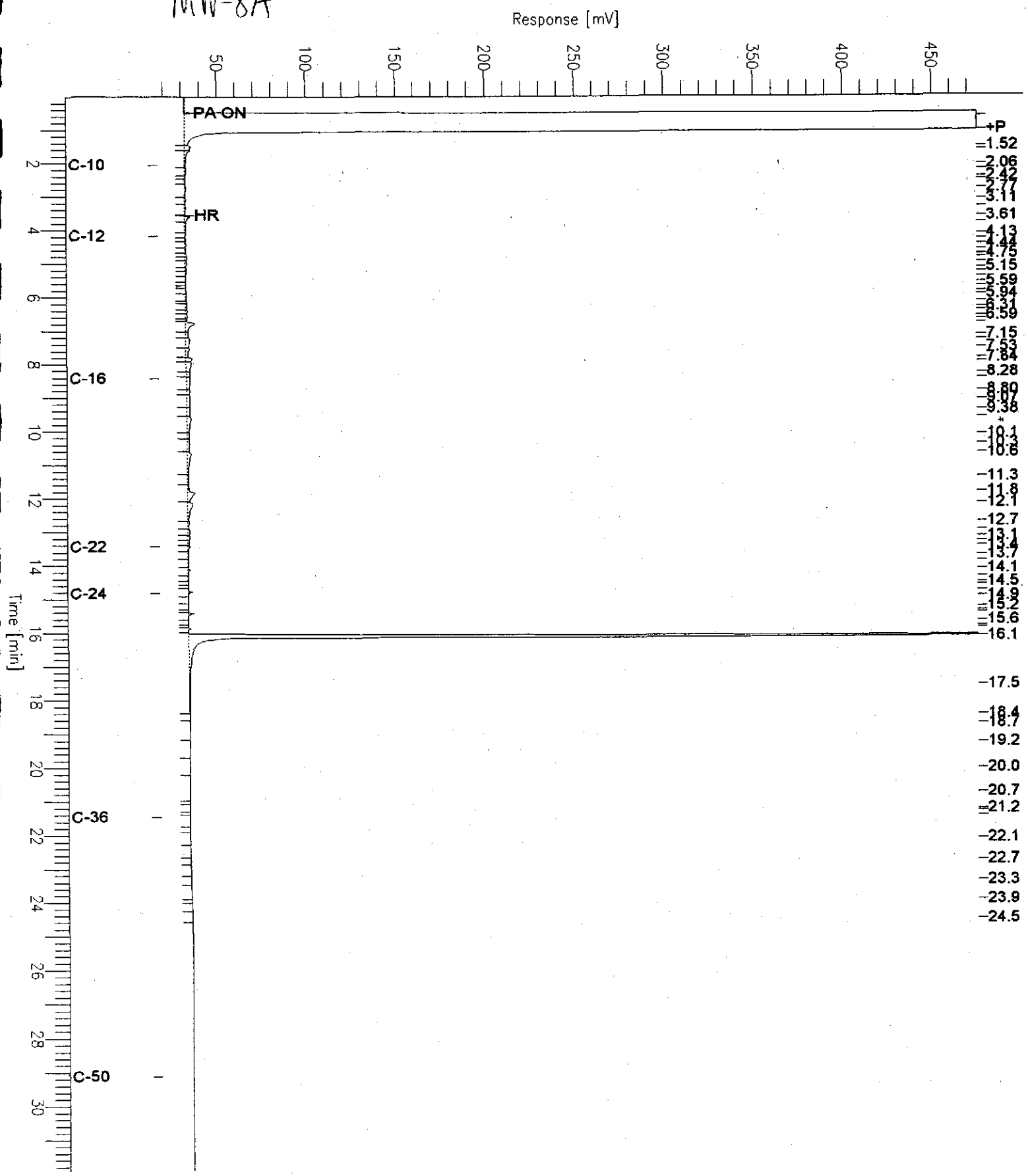
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Chromatogram

Sample Name : 165919-006sg,82397
FileName : G:\GC17\CHA\173A060.RAW
Method : ATEH171.MTH
Start Time : 0.01 min End Time : 31.91 min
Scale Factor: 0.0 Plot Offset: 17 mV

Sample #: 82397 Page 1 of 1
Date : 6/25/03 08:38 AM
Time of Injection: 6/24/03 09:32 PM
Low Point : 17.33 mV High Point : 475.60 mV
Plot Scale: 458.3 mV

MW-8A



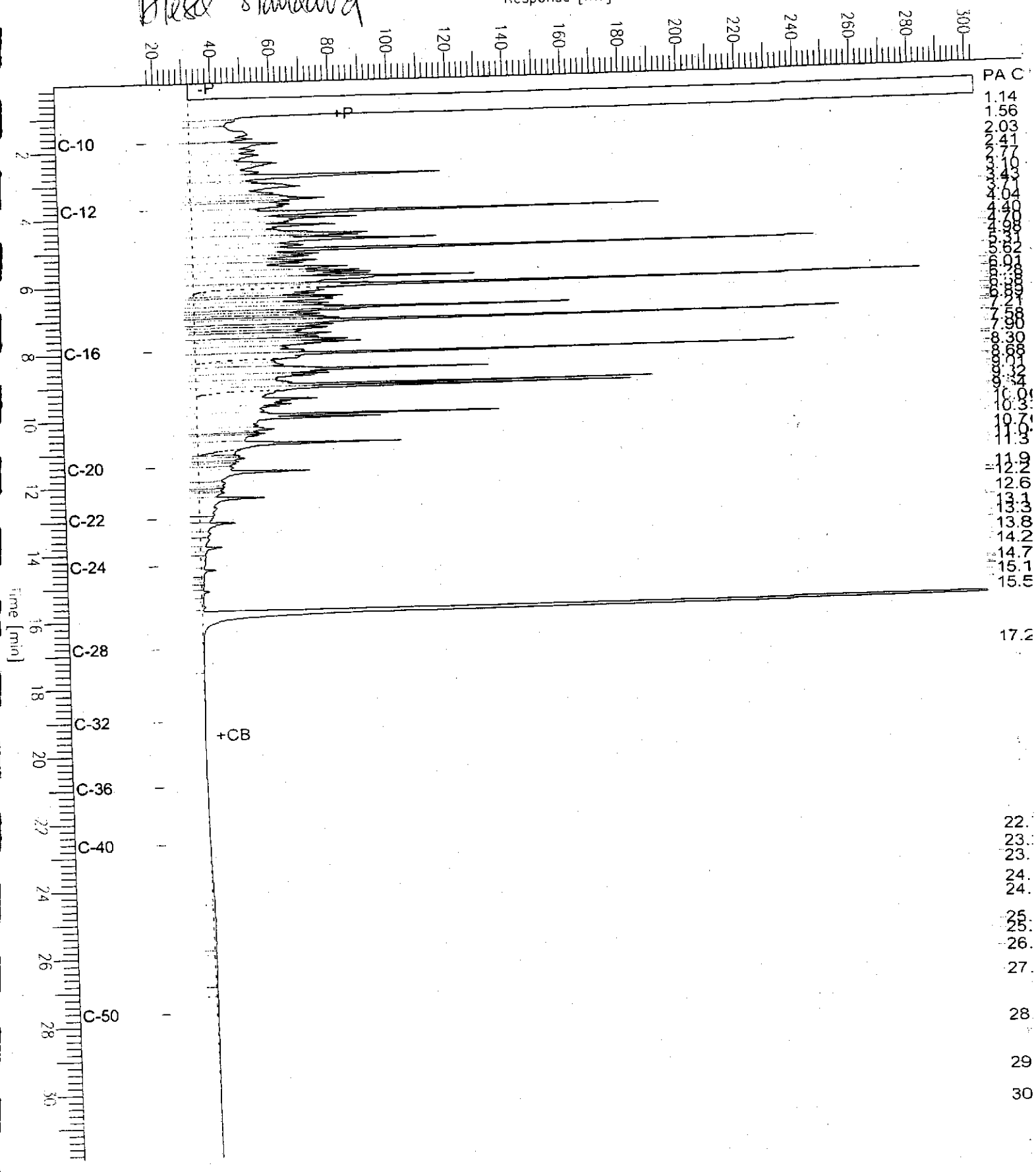
Chromatogram

mple Name : ccv,03ws0966,dsl
leName : G:\GC13\CHB\175B003.RAW
Method : BTEH171.MTH
Start Time : 0.01 min
ale Factor: 0.0

End Time : 31.91 min
Plot Offset: 17 mV

Sample #: 500mg/L
Date : 6/24/03 01:43 PM
Time of Injection: 6/24/03 01:06 PM
Low Point : 17.50 mV
High Point : 302.88 mV
Plot Scale: 285.4 mV

Diesel Standard



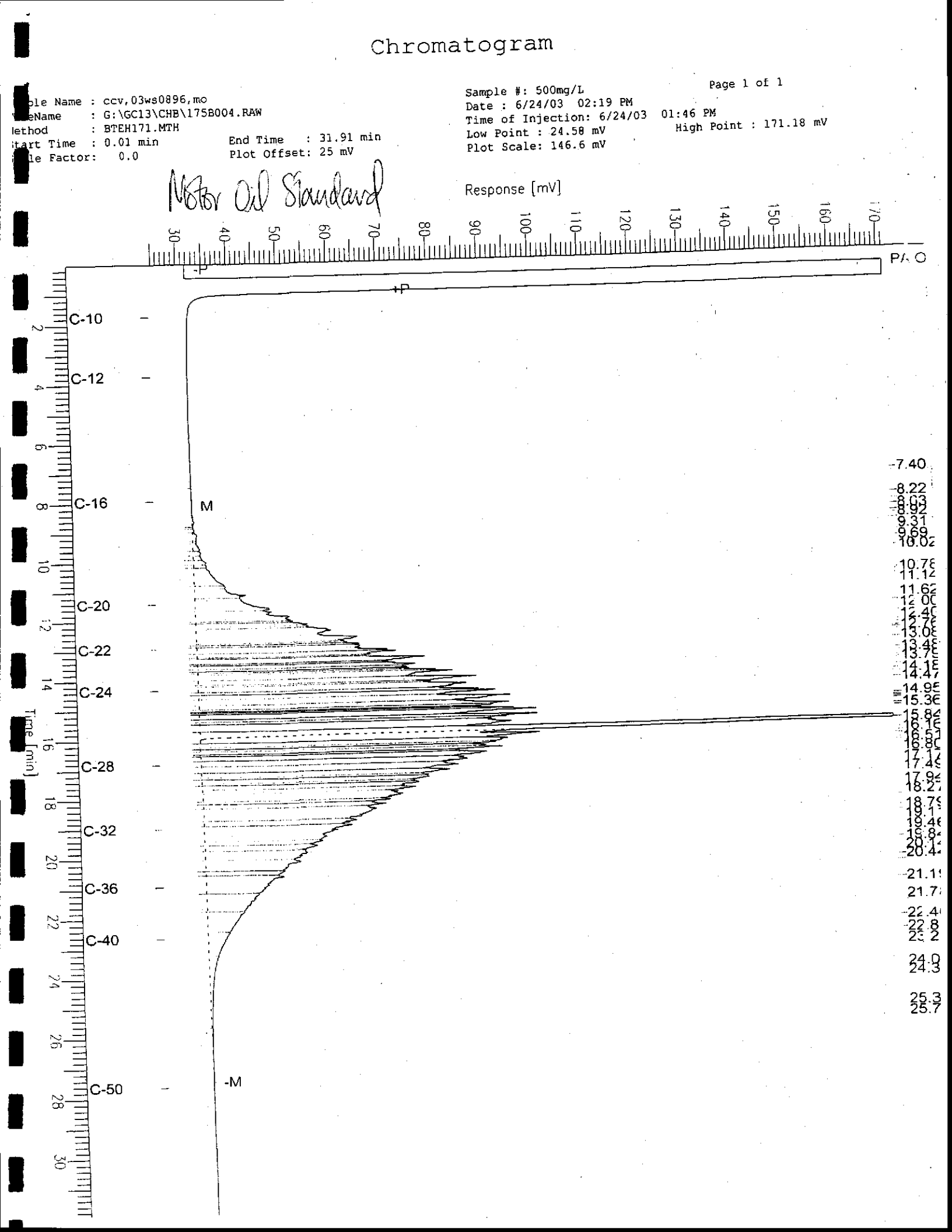
Chromatogram

ple Name : ccv,03ws0896,mo
eName : G:\GC13\CHB\175B004.RAW
lethod : BTEH171.MTH
tart Time : 0.01 min
le Factor: 0.0

End Time : 31.91 min
Plot Offset: 25 mV

Sample #: 500mg/L
Date : 6/24/03 02:19 PM
Time of Injection: 6/24/03 01:46 PM
Low Point : 24.58 mV
High Point : 171.18 mV
Plot Scale: 146.6 mV

Motor Oil Standard



Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	00-152.20	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC217360	Batch#:	82397
Matrix:	Water	Prepared:	06/22/03
Units:	ug/L	Analyzed:	06/24/03

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	3,183	127	38-137

Surrogate	%REC	Limits
Hexacosane	136	44-146

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	165919	Location:	2277 7th St. POO
Client:	Innovative Technical Solutions,Inc.	Prep:	EPA 3520C
Project#:	00-152.20	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	82397
MSS Lab ID:	165967-005	Sampled:	06/19/03
Matrix:	Water	Received:	06/20/03
Units:	ug/L	Prepared:	06/22/03
Diln Fac:	1.000	Analyzed:	06/25/03

Type: MS Lab ID: QC217361

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	<43.00	2,500	2,922	117	35-138

Surrogate	%REC	Limits
Hexacosane	119	44-146

Type: MSD Lab ID: QC217362

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	3,426	137	35-138	16	33

Surrogate	%REC	Limits
Hexacosane	131	44-146

RPD= Relative Percent Difference

APPENDIX C

DAILY FIELD ACTIVITY REPORT

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: 06/18/03
PROJECT NUMBER: 00.152-20
DAILY ACTIVITY REPORT
PAGE 1 OF 1
SITE LOCATION: 2277 7th street, Oakland

DESCRIPTION OF FIELD ACTIVITIES AND EVENTS

7:30 Pick up supplies (bottles + voas at lab) and purchase Ice for the sampling event.
8:30 Arrive at site and open fenced system's gate. Load up vehicle.
8:40 Perform a general observation at the site. Site conditions has not changed significantly from the first Quarter event. Construction development is restricted on the southern area of 2255 site with piles being driven for the future Port's new facility foundation.
8:55 Get set up at MW-8A for sampling.
9:50 Sample MW-8A
10:10 Set up at MW-4 for sampling
10:45 Sample MW-4
10:55 Sample MW-4D
11:10 Transfer purge water into 1,000-gal poly tank
11:20 Set up at MW-5
11:40 Sample MW-5
11:55 Set up at MW-2
12:20 Sample MW-2
12:35 Monitor free product in MW-3. Depth to water is 9.0 feet and depth to Product is 7.78 feet. Product thickness is 1.22 feet.
13:05 Monitor free product in MW-1. Depth to water is 9.44 feet and depth to product is 8.20 feet. Product thickness is 1.24 feet. Empty passive skimmer reservoir into holding tank and place skimmer back in well
13:20 Clean up system's fenced area. Lock gate.
13:30 Leave site to drop samples off at CST in Berkeley

PREPARED BY: Rogerio Leong
DATE: 06/18/2003
PREPARER'S SIGNATURE:

Dby/Act/Rpt w no Reviewed by