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OMAR R. BENJAMIN
Executive Director

January 25, 2010

Mr. Steven Plunkett
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

RE: RO#0000010_2009 Second Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 Maritime Street, Oakland, CA_2010-01-25

Dear Mr. Plunkett:

Please find enclosed the report entitled *2009 Second Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 Maritime Street, Oakland, CA* ("Report") dated January 2010, prepared by Malcolm Pirnie, Inc. ("Malcolm Pirnie") on behalf of the Port of Oakland ("Port")¹. This Report is being submitted in accordance with Alameda County Health Care Services Agency ("County") requirements, as specified in County letters dated March 23, 2006², January 19, 2007³, and September 30, 2008.⁴

The Port has retained Malcolm Pirnie to perform groundwater monitoring and maintenance of the remediation system. Results of the second 2009 semi-annual sampling event are contained in the enclosed report. The next monitoring event will be

¹ The Site has been referred to historically as the "Shippers" and "Ringsby" sites, based on the Port tenants that occupied the site at the time of release discoveries. Prior to site redevelopment in 2004, the site was also referred to as 2277 and 2225 Seventh Street. After redevelopment, the Site address became 651 and 555 Maritime Street, although referenced hereafter (including within this Report) as only **651 Maritime Street (Fuel Leak Case RO0000010)**.

² Letter from Mr. Barney Chan (County) to Mr. Jeff Rubin (Port), regarding *Fuel Leak Cases RO0000010 and RO0000185, 2277 and 2225 7th St., Oakland, CA 94607*, dated March 23, 2006.

³ Letter from Mr. Barney Chan (County) to Mr. Jeff Rubin (Port), regarding *Fuel Leak Cases RO0000010 and RO0000185, 2277 and 2225 7th St., Oakland, CA 94607*, dated January 19, 2007.

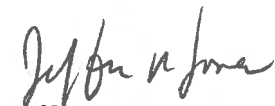
⁴ Letter from Mr. Steven Plunkett (County) to Mr. Jeffrey Rubin (Port) regarding *Fuel Leak Case RO0000187 (Global ID# T0600100892), Port of Oakland, 651 Maritime Street, Oakland, CA*, dated September 30, 2008.

January 25, 2010

performed during the June/July 2010 time frame. If you have any questions or comments regarding the results, please contact Jeff Rubin at (510) 627-1134.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached report prepared by Malcolm Pirnie are true and correct to the best of my knowledge. Please note that the report is stamped by a Registered Professional Geologist in the State of California.

Sincerely,



Jeffrey R. Jones
Supervisor
Environmental Programs and Planning



Jeffrey L. Rubin, CPSS, REA
Port Associate Environmental Scientist
Environmental Programs and Planning

Enclosure: noted

Cc (w encl.): Michele Heffes
James McCarty (Baseline Environmental)

Cc (w/o encl.): Todd Miller (Malcolm Pirnie)
Yane Nordhav (Baseline Environmental)



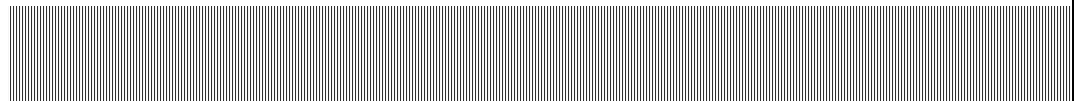
Port of Oakland

530 Water Street • Oakland, CA 94607

2009 Second Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report

***651 Maritime Street
Oakland, California***

January 2010



Report Prepared By:

Malcolm Pirnie, Inc.

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4656016

**MALCOLM
PIRNIÉ**

January 22, 2010

Mr. Jeffrey L. Rubin, CPSS REA
Associate Environmental Scientist
Port of Oakland
530 Water Street
Oakland, California 94607

Subject: December 2009 Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 Maritime Street, Oakland, California

Dear Mr. Rubin:

Enclosed please find the December 2009 Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report for 651 Maritime Street (formerly 2277 and 2225 Seventh Street), Alameda County Local Oversight Program case number RO0000010. This report has been prepared for submittal to Alameda County Health Care Services, Department of Environmental Health (ACHCS) on behalf of the Port of Oakland (the Port) as required in ACHCS' letter to the Port dated March 23, 2006. The ACHCS requires semi-annual groundwater monitoring and reporting at the Site.

Malcolm Pirnie assumed responsibility for implementing the groundwater monitoring program and operation of the free product recovery system on May 1, 2009. The enclosed report documents the groundwater sampling event conducted at the subject site in December 2009 by Malcolm Pirnie. This report also presents the free product recovery system operation and maintenance data collected by Malcolm Pirnie since June 2009.

If you have any questions or comments, please contact me at (510) 735-3014.

Sincerely,



Todd Miller, CHG
Project Manager

Enclosure



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Acronyms Used in the Report

ACHCS	Alameda County Health Care Services
amsl	Above mean sea level
BASELINE	BASELINE Environmental Consultants, Inc.
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
C&T	Curtis & Tompkins, Ltd.
DO	Dissolved oxygen
LOP	Local Oversight Program
mg/L	Milligrams per liter
MSD	Matrix spike duplicate
MSE	MSE Group
MTBE	Methyl tert-butyl ether
NESCO	National Environmental Service Company
NAVD	North American Vertical Datum
O&M	Operation and Maintenance
ORC	Oxygen Releasing Compound™
ORP	Oxidation/reduction potential
PAHs	Polynuclear aromatic hydrocarbons
QA/QC	Quality assurance/quality control
RAMCON	RAMCON Engineering and Environmental Contracting
RPD	Relative percent difference
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
Uribe	Uribe and Associates
USEPA	U.S. Environmental Protection Agency
UST	Underground storage tank
µg/L	Micrograms per liter

1. Introduction

This 2009 Second Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report for 651 Maritime Street, Oakland, California (Site)¹ has been prepared by Malcolm Pirnie on behalf of the Port of Oakland (Port). This is the second semi-annual report for 2009, and includes the period from July through December. The Alameda County Health Care Services (ACHCS) is providing regulatory oversight under the Local Oversight Program (LOP), case number RO0000010.

The Site encompasses an approximate 13-acre parcel, located between the former Oakland Naval Supply Center and former Oakland Army Base (Figure 1). Groundwater impacts beneath the Harbor Facilities Complex are related to two former underground storage tank (UST) sites: 2277 Seventh Street and 2225 Seventh Street. A brief history of the two sites is provided below.

Former 2277 Seventh Street Site

In 1993, Uribe and Associates (Uribe) removed four Port-owned USTs from 2277 Seventh Street. Uribe collected soil samples from beneath the tanks at the time of the removal and submitted them for laboratory analyses. The laboratory reported that soil contained total petroleum hydrocarbons as diesel fuel (TPHd) and as gasoline (TPHg), as well as benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds. Uribe also observed free-phase product on the groundwater within the excavation. In 1994, Uribe installed three groundwater monitoring wells (MW-1 through MW-3) and in 1995 Alisto Engineering Group installed five additional wells (MW-4 through MW-8) (Figure 3). Quarterly groundwater monitoring was initiated in 1996 in accordance with an ACHCS approved workplan dated April 18, 1995.

Former 2225 Seventh Street Site

Former Port tenant Ringsby Terminals (formerly Dongary Investments) and/or its tenant owned and operated nine USTs at 2225 Seventh Street. One of the tanks in the cluster failed a tank integrity test in 1989. National Environmental Service Company (NESCO) removed the UST in March 1990. During the UST removal, NESCO collected soil and groundwater samples from the excavation. Analytical results indicated the presence of TPHd and BTEX. RAMCON Engineering and Environmental Contracting (RAMCON)

¹ The Site has been referred to in the past as the “Shippers” and “Ringsby” sites, based on the Port tenants occupying the site at the time of release discoveries. In addition, prior to site redevelopment in 2004, the site was referred to as 2277 and 2225 Seventh Street; the Site addresses after redevelopment are 651 and 555 Maritime Street, although referenced in this report as only 651 Maritime Street.

removed seven of the USTs (six diesel and one bulk fuel oil) in 1992. RAMCON observed a hole in the bulk fuel tank and a thin layer of an unspecified petroleum product floating on the groundwater in the excavation. During a separate event in 1992, RAMCON removed the remaining UST (a waste oil tank). Soil samples collected from that excavation indicated the presence of TPHd, TPH as motor oil (TPHmo), benzene, xylenes, and polynuclear aromatic hydrocarbons (PAHs). A water sample collected from the excavation also contained TPHd. In 1993, RAMCON installed three groundwater monitoring wells (MW-1 through MW-3) at the site and in 1994 quarterly groundwater monitoring began, as required by ACHCS.²

651 Maritime Site

In 2004, the Port developed the eastern-most eight acres of the Site into the Harbor Facilities Complex with an address of 651 Maritime Street (Figure 2). In 2006, the remaining five acres of the Site were developed by the Port into the Maritime Support Center with an address of 555 Maritime Street. The Maritime Support Center is currently leased to Shippers Transport Express.

Historic site investigations indicate that groundwater beneath the Site is impacted by a co-mingled plume containing dissolved and free-phase petroleum hydrocarbons, primarily in the diesel fuel range. In addition, well MW-4 (Figure 3, the western-most well) has historically contained dissolved petroleum hydrocarbons in the gasoline range.

In 1996, the Port installed a remediation system to recover free-phase product from beneath the Site. The free product recovery system was operated until 2003 when it was removed, with approval from the ACHCS.³ The ACHCS approved the removal of the system, with the stipulation that a new free product recovery system will be installed. A new system was installed in 2004, and has been in operation continuously since.

In 1998, Harding Lawson Associates abandoned MW-8 to make possible the expansion of the railroad tracks to the north of the Site. Replacement well MW-8A was installed in 2001 (Figure 3). In 2002, several monitoring wells were abandoned to facilitate construction of the new Harbor Facilities Complex. Accordingly, MW-1, MW-2 and MW-3 at the former 2225 Seventh Street site, and MW-6 and MW-7 at the former 2277 Seventh Street site were abandoned.⁴

The Port has monitored groundwater quality at the Site since 1994. In 2006, the ACHCS approved a modification of the groundwater monitoring frequency from quarterly to

² Letter from ACHCS to Dongary Investments dated 26 July 1994.

³ Letter from ACHCS to Port of Oakland dated March 27, 2003.

⁴ February 2009, *Second Semi-Annual 2008 Groundwater Monitoring and Remediation System Operation and Maintenance Report*.

semi-annually. The first semi-annual monitoring event occurred on July 28, 2006. The ACHCS also approved the use of Oxygen Releasing Compound™ (ORC) in well MW-4 to increase the dissolved oxygen (DO) concentration in groundwater and stimulate aerobic bio-degradation of the petroleum hydrocarbons reported in the groundwater at that location.⁵

On September 30, 2008, ACHCS approved a plan to install four additional groundwater monitoring wells, MW-9 through MW-12 (Figure 3), to enhance the existing monitoring well network and to replace wells removed during Site redevelopment.⁶ The wells were installed by MSE Group (MSE) and sampled in December 2008, along with the remaining Site wells. Well installation activities and sample results were reported by MSE in February 2009.⁴

⁵ Letter from ACHCS to Port of Oakland dated March 23, 2006.

⁶ Letter from Mr. Steven Plunkett (ACHCS) to Mr. Jeffrey Rubin (Port of Oakland) dated September 30, 2008.

2. Groundwater Sampling Activities

Groundwater samples were collected from the Site by Malcolm Pirnie in December 2009 as part of the ACHCS-approved semi-annual groundwater monitoring program.

2.1. December 2009 Semi-annual Groundwater Monitoring Activities

Malcolm Pirnie conducted the 2009 second semi-annual groundwater monitoring event at the Site on December 8 and 9, 2009. The December 2009 groundwater monitoring event consisted of measuring the groundwater and free-phase product levels, when present, in the 10 groundwater monitoring wells on-site and collection of groundwater samples from the wells without free-phase product. The groundwater and free-phase product levels were measured to the nearest one-hundredth of a foot from top of well casing using a dual-phase interface probe. The dual-phase interface probe was decontaminated before each measurement by washing in a Liquinox solution followed by rinsing with water. Instrument readings indicated that there was a measurable amount of free-phase product in monitoring well MW-3 (Table 1); hence, this well were neither purged nor sampled. Field-measured groundwater quality information and water level measurements for the December 2009 monitoring events are provided on groundwater sampling forms included in Appendix A.

Malcolm Pirnie purged wells MW-1, MW-2, MW-4, MW-5, MW-8A, MW-9, MW-10, MW-11, and MW-12 using a peristaltic pump equipped with new disposable silicone and polyethylene tubing. During purging, Malcolm Pirnie monitored field water quality parameters (including temperature, pH, DO, oxidation/reduction potential (ORP), electrical conductivity, and turbidity) of the purge water using portable field instruments calibrated to manufacturer's specifications. Purging continued until water quality parameters had stabilized, extracting at least two well casing volumes per well when recharge rates permitted. Slow recharge at MW-2 allowed only one well casing volume to be purged. Field-measured groundwater quality information and water level measurements for the December 2009 monitoring event are provided on groundwater sampling forms included in Appendix A.

After purging, Malcolm Pirnie collected a groundwater sample directly into laboratory-supplied sample bottles using the peristaltic pump. Malcolm Pirnie collected a duplicate sample from monitoring well MW-4 (MW-4dup). Following sample collection, each sample bottle was labeled with a project name, date and time of collection, samplers' initials, and unique sample identification, and stored in a cooler containing ice. The groundwater samples were submitted to Curtis and Tompkins, Ltd. (C&T), a California-

certified analytical laboratory, under appropriate chain-of-custody procedures for the following analyses:

- TPHg in accordance with U.S. Environmental Protection Agency (USEPA) Method 8015B;
- TPHd and TPHmo in accordance with USEPA Method 8015B;
- BTEX and methyl tert-butyl ether (MTBE) in accordance with USEPA Method 8260B.

Prior to analyzing the water samples for TPHd and TPHmo, the samples was passed through a silica gel column, in accordance with USEPA Method 3630C, to remove non-petroleum-based organics that could potentially interfere with the analysis.

Under approval from ACHCS, well MW-4 has been outfitted with ORC socks to increase the DO concentration in groundwater and stimulate aerobic bio-degradation of the petroleum hydrocarbons reported in the groundwater at that location. The ORC socks installed during a previous monitoring event were removed on December 1, 2009, approximately one week prior to conducting the December sampling. At the time the ORC socks were removed, the DO level in the groundwater at MW-4 was measured at 0.69 mg/L, indicating the ORC socks had reached their useful lifespan.

Approximately 40 gallons of purge and decontamination water were generated during the December 2009 monitoring event. Malcolm Pirnie placed the water in properly labeled 55-gallon drums, which were stored in the free product recovery system enclosure located within Harbor Facilities Complex. The Port's environmental services contractor will dispose the water.

3. Results

The following section summarizes the field and laboratory results collected during the last six months of 2009.

3.1. Groundwater Flow Direction

Based on the depth-to-water measurements collected, groundwater beneath the Site dropped in elevation between June and December 2009. In June 2009, groundwater elevations ranged from 3.36 feet amsl to 5.88 feet amsl. In December 2009, groundwater elevation ranged from 2.85 feet amsl to 5.87 feet amsl. The groundwater flow direction at the time of the sampling event is calculated to be toward the north-northeast, except between MW-1 and MW-9, where it is north-northwest. Average gradients at the site range from 0.025 to 0.009 ft/ft. Shallow groundwater surface contour maps for the December 2009 event is illustrated on Figure 4. Current and historical depth-to-water measurements and calculated groundwater elevations are summarized in Table 1.

3.2. Product Thickness

Free-phase product was identified in monitoring well MW-3 during the groundwater monitoring event in December 2009. Product thickness in well MW-3 was 1.76 feet (Table 1), and has ranged in thickness from non-detectable to 2.70 feet since April 2000. Product was manually removed from MW-3 on a weekly basis between July 2009 and December 2009 using a peristaltic pump and placed in the 500-gallon concrete encased aboveground storage tank (Convault) located within the system enclosure.

3.3. Analytical Results

Analytical results for the groundwater samples collected in December 2009 are illustrated on Figure 5 and summarized in Table 1. The laboratory analytical reports are provided in Appendix B.

3.3.1. TPHg

The laboratory reported TPHg in the groundwater samples collected from MW-1, MW-9, MW-10, and MW-12, at concentrations ranging from 90 micrograms per liter ($\mu\text{g/L}$) to 1,400 $\mu\text{g/L}$. TPHg was not detected in the samples collected from wells MW-2, MW-4, MW-5, MW-8A, and MW-11. The laboratory report indicated that samples from MW-9, MW-10, and MW-11 exhibited a chromatographic pattern that does not match the gasoline standard. Chromatographs are included in the laboratory reports included in Appendix B.

3.3.2. BTEX and MTBE

The laboratory reported benzene in the groundwater samples collected from wells MW-1 (120 $\mu\text{g/L}$), MW-4 (3.3 $\mu\text{g/L}$), MW-9 (48 $\mu\text{g/L}$), and MW-10 (26 $\mu\text{g/L}$). Toluene was detected in the sample collected from well MW-1 at 2.9 $\mu\text{g/L}$. Ethylbenzene was detected in the samples collected from well MW-1 (1.8 $\mu\text{g/L}$) and MW-10 (0.8 $\mu\text{g/L}$). Xylenes were detected in the sample collected from well MW-1 at 3.0 $\mu\text{g/L}$. MTBE was detected in the sample collected from well MW-12 at 4.7 $\mu\text{g/L}$.

3.3.3. TPHd and TPHmo

The laboratory reported TPHd in the groundwater samples collected from wells MW-1, MW-9, MW-10, and MW-12, at concentrations ranging from 210 $\mu\text{g/L}$ to 1,200 $\mu\text{g/L}$. The laboratory reports indicate that the samples with TPHd detections exhibited a chromatographic pattern that does not match the diesel standard. The laboratory reported TPHmo concentrations to be below method reporting limits in the samples analyzed. TPHd chromatographs are included in the laboratory reports included as Appendix C.

3.4. ORC Use

On December 1, seven days before groundwater monitoring was performed at the Site, Malcolm Pirnie removed the ORC socks from well MW-4. The measurement of DO in the groundwater at well MW-4 at the time the ORC socks were removed indicated that they had reached their useful lifespan; thus, on December 8, 2009, following completion of the monitoring event, new ORC socks were placed in the well

3.5. Quality Assurance / Quality Control

Malcolm Pirnie collected a field duplicate from one monitoring well to assess representativeness of the sample collection procedures. Two samples from well MW-4 (MW-4 and MW-4Dup) were analyzed for TPHd, TPHg, BTEX and MTBE.

The analytical laboratory reported detectable concentrations of benzene in the sample and duplicate sample. The relative percent difference (RPD) between the original and the duplicate samples are calculated below:

$$\text{Benzene RPD } |3.3-3.5| / [(3.8+3.5)/2] = 5.5\%$$

The RPDs for these compounds are less than the analytical laboratory's allowable RPD for matrix spike duplicates and indicate that the field sampling procedures produce acceptable data.

C&T prepared a trip blank using deionized water as a water quality control sample. The trip blanks were stored in the coolers and accompanied groundwater samples from collection to transport to the laboratory. The laboratory reported that concentrations of the constituents of concern were below the method reporting limits for the analyses performed, indicating that the collection, preservation, storage, and analysis procedures did not compromise the sample integrity.

Malcolm Pirnie also reviewed the laboratory data for completeness and accuracy (see Quality Control Checklist in Appendix C). The project laboratory Quality Assurance / Quality Control (QA/QC) goals were met and qualification of the data is not necessary.

Based on the above QA/QC evaluation, Malcolm Pirnie considers the data collected during the 2009 second semi-annual monitoring event appropriate and reliable for its intended use.

4. Free Product Recovery System

The Port installed the free product recovery system at the Harbor Facilities Complex in 2004, as required by the ACHCS in a letter dated March 27, 2003. The free product recovery system includes nine recovery wells, RW-1 through RW-9 (Figure 3). Each recovery well is protected by a flush-mounted utility box. Utilities supplied to each recovery well include a pneumatic line for operation of a skimmer pump, a product discharge line, and a vacuum line. The Port operates six air-actuated skimmer pumps manufactured by Xitech Instruments, Inc. in the nine recovery wells. The placement of skimmer pumps depends on where free-phase product is detected. Historic field observations indicate that well RW-1 typically only contains a sheen, and free-phase product has not been observed historically in well RW-2. The remaining seven recovery wells do contain measureable amounts of free-phase product. Currently, wells RW-1, RW-2 and RW-5 are not outfitted with skimmer pumps. A programmable controller is used to set the frequency and duration that each skimmer pump operates. The skimmers discharge recovered product into the 500-gallon Convault located in the system enclosure. The Convault is equipped with primary and secondary containment, as well as a sensor that activates a warning light and shuts off air supply to the skimmers when the tank is full.

Malcolm Pirnie operated the system during the entire second semi-annual monitoring period in 2009. Typical Operation and Maintenance (O&M) tasks include weekly measurements of the product thickness in the recovery wells and confirming the position of the inlets of the recovery pumps in the wells. Pump inlet depths are adjusted as necessary to optimize recovery. In addition, pumps are checked for operation and filters are checked and changed as necessary. Weekly free-phase product thickness measurements and O&M activities are summarized in Table 3. The observed area of free-phase product is shown on Figure 5.

In June 2007, the free product recovery system was upgraded to include application of low vacuum on the wellheads to improve product recovery. Inducing a vacuum on the wellhead results in an air discharge containing petroleum vapors, which are treated by two vessels arranged in series each containing 1,000 pounds of vapor-phase granular activated carbon. Treatment and discharge conditions are provided in a Permit-to-Operate from the Bay Area Air Quality Management District.

Prior to enhancement of the free product recovery system with the installation of the low-vacuum blower, approximately 178 gallons of product were removed in 32 months (December 2004 through July 2007). After installation of the blower, 508 gallons of

product has been recovered in 29 months (August 2007 through December 2009). A total of 686 gallons of product have been recovered since operation of the new free product recovery system began.

5. Conclusions

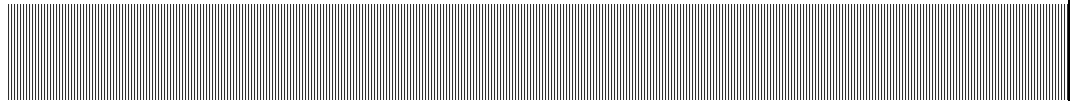
The results of the groundwater sampling and free product recovery system O&M tasks indicate that the free-phase product plume appears stable (Figure 5), and groundwater concentrations appear to be stable and/or decreasing (Table 2).

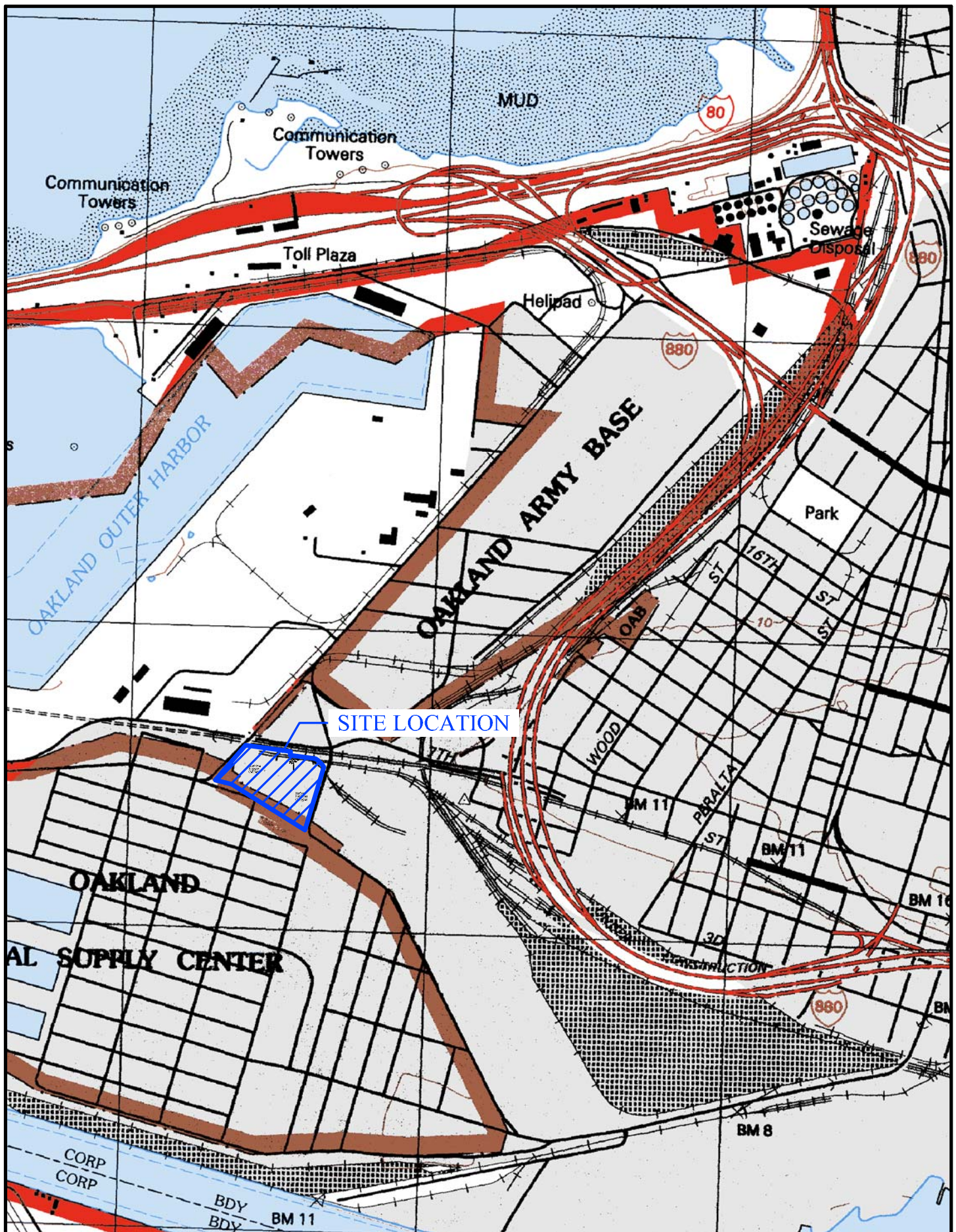


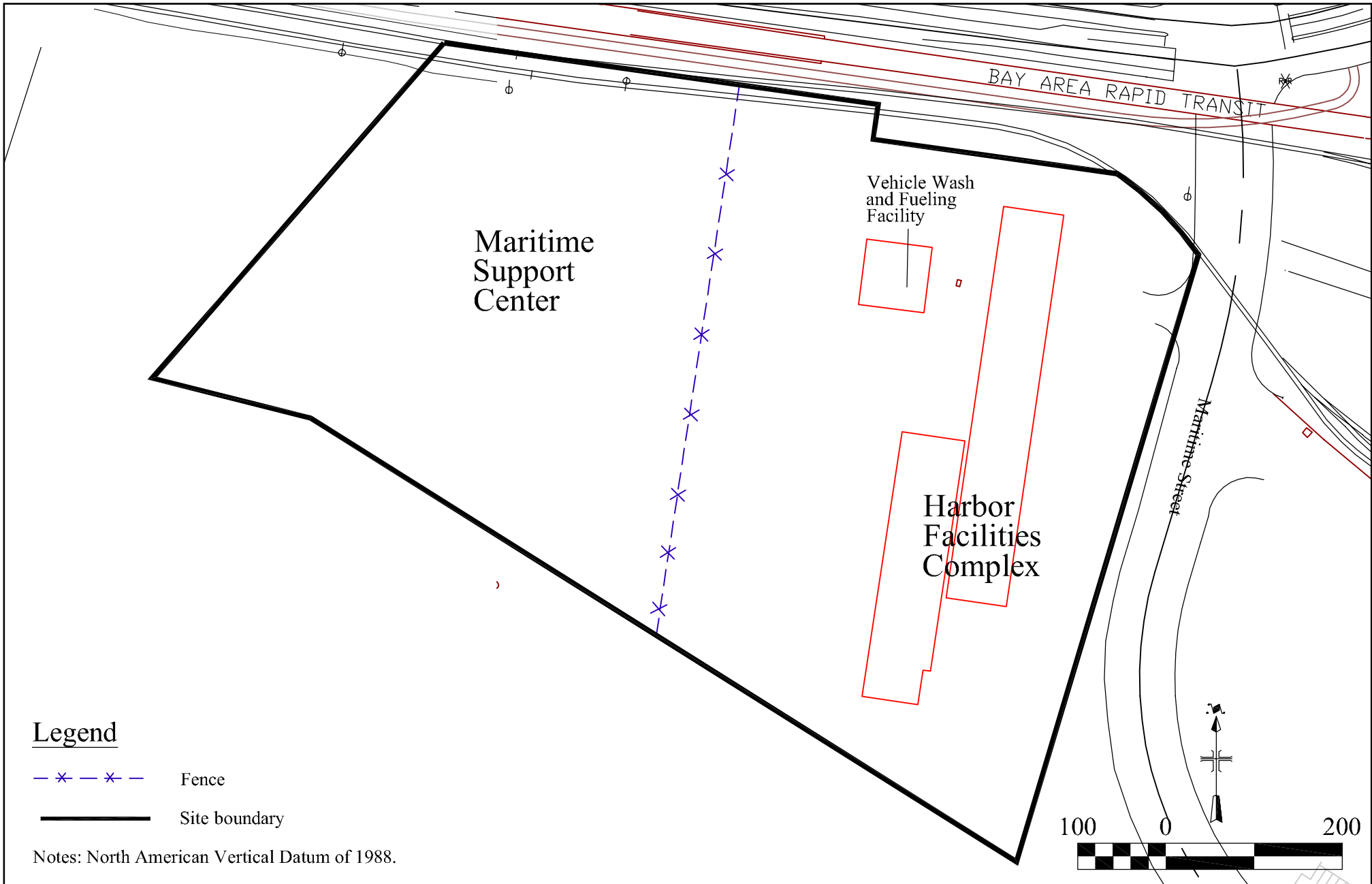
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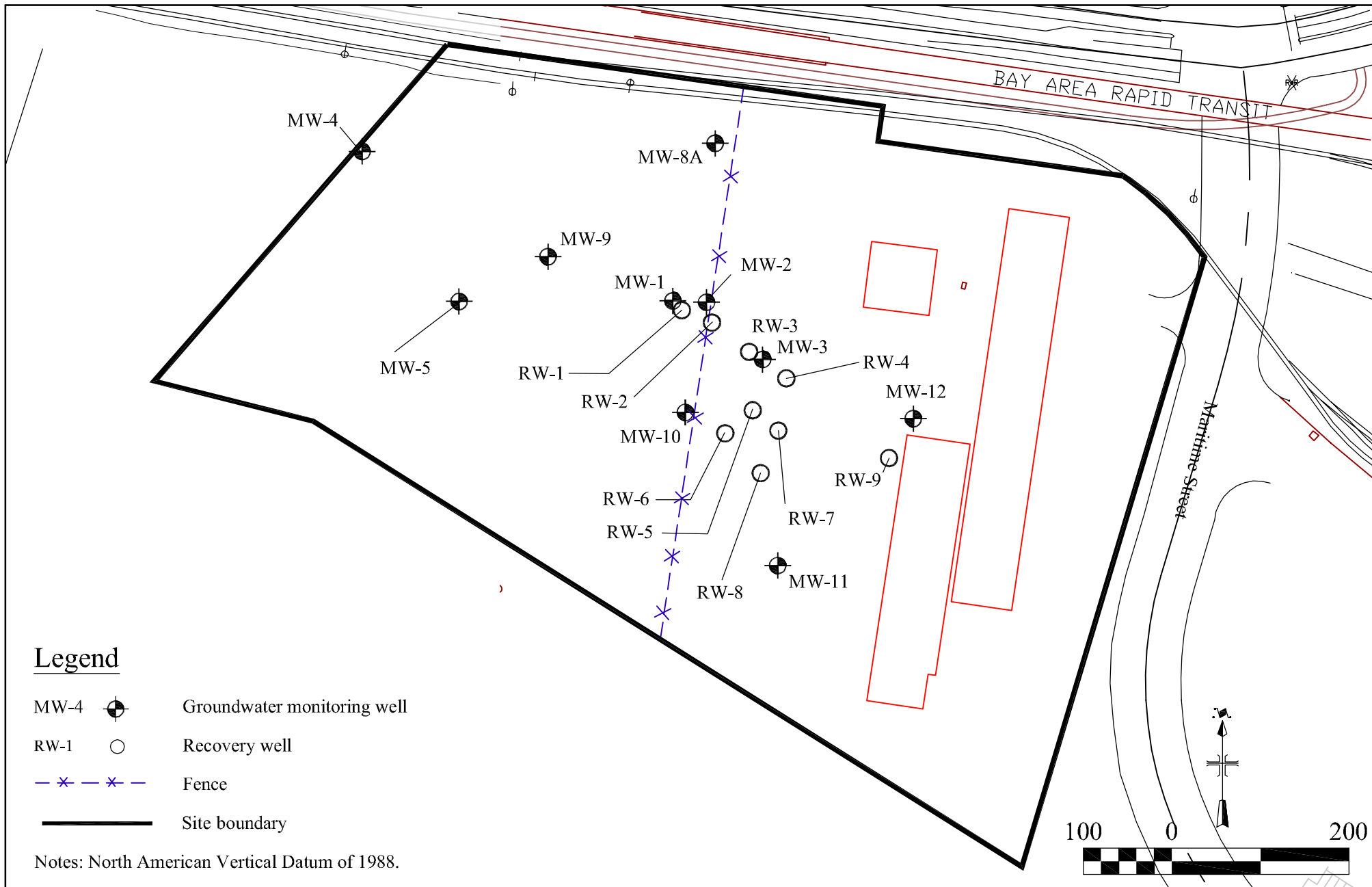
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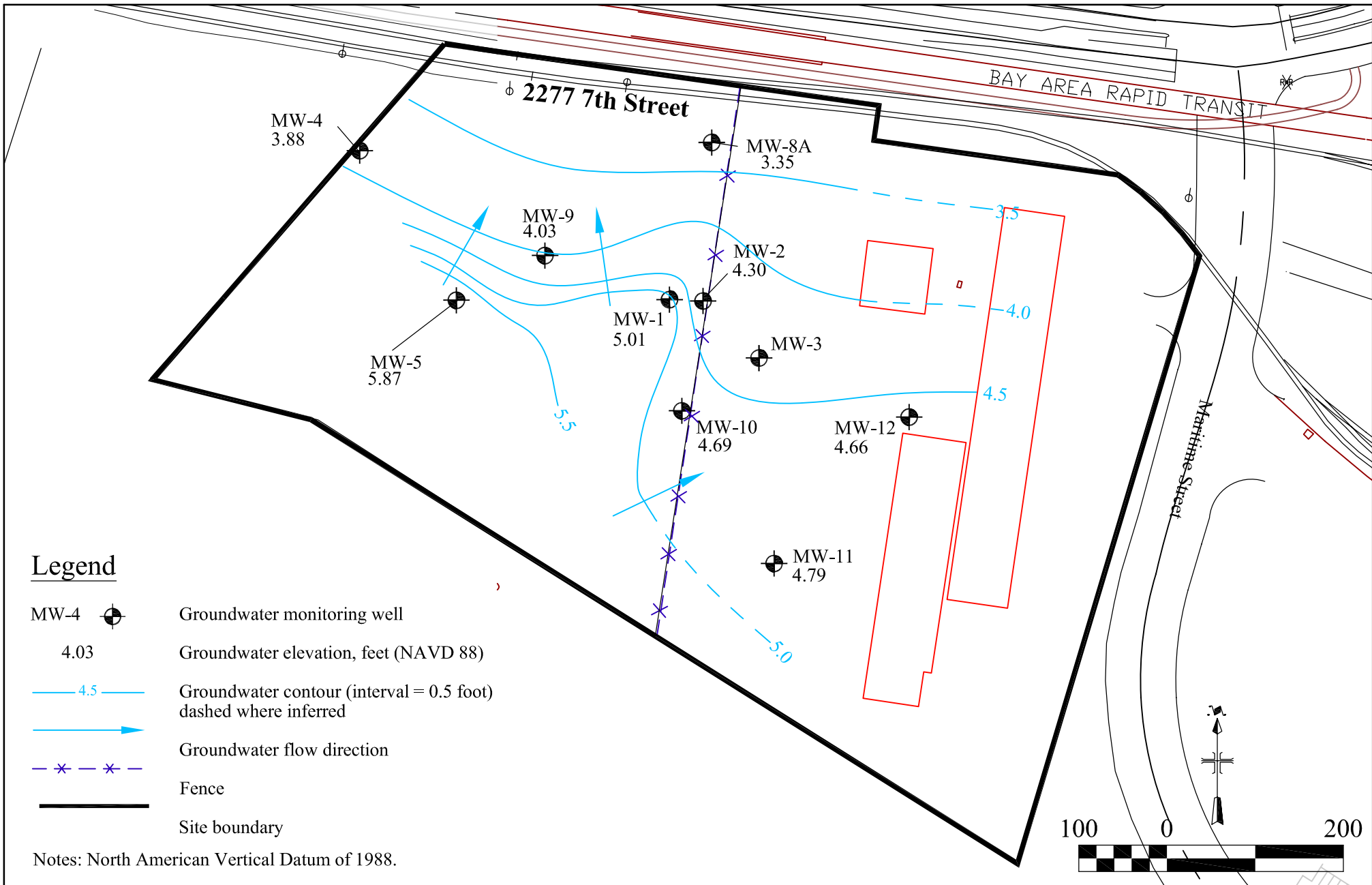
Figures

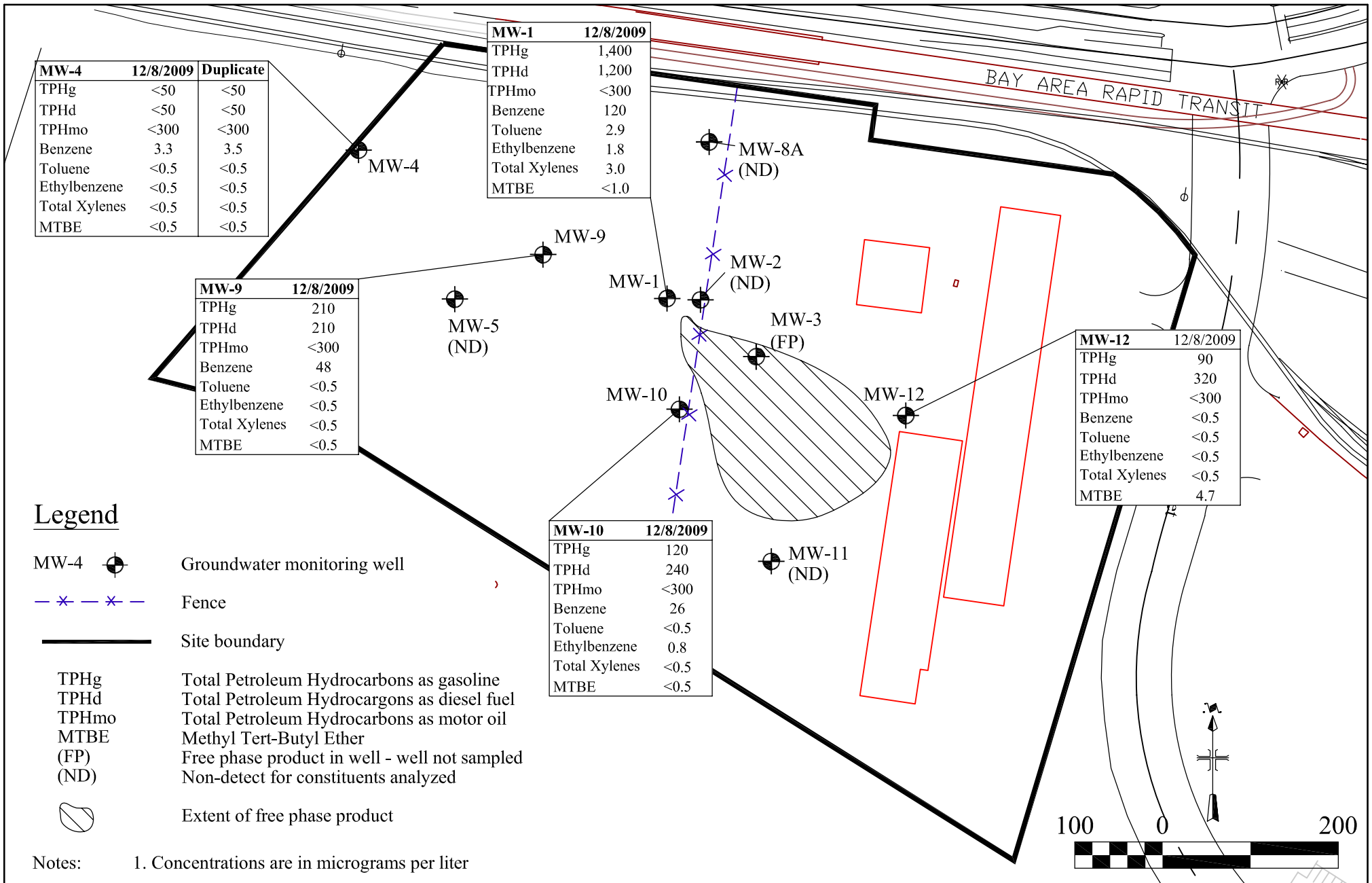










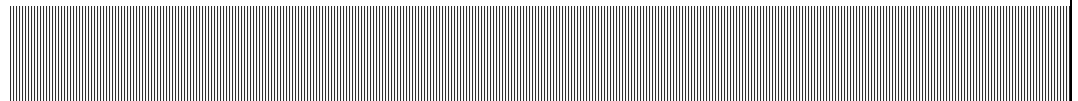




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Tables



**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-1						
	04/18/00	13.65	NM	8.21	0.0	5.44
	05/22/00	13.65	NM	8.51	0.0	5.14
	07/10/01	13.65	8.8	10.00	1.20	3.65
	12/12/01	13.65	NM	NA	NA	NA
	03/08/02	13.65	NM	NA	NA	NA
	06/13/02	13.65	8.70	10.00	1.30	3.65
	09/26/02	13.65	8.60	9.50	0.90	4.15
	03/17/03	13.65	7.61	8.88	1.27	4.77
	06/18/03	13.65	8.20	9.44	1.24	4.21
	09/03/03	13.65	8.50	9.40	0.90	4.25
	11/26/03	13.65	8.85	9.25	0.40	4.40
	03/05/04	13.65	6.76	7.07	0.31	6.58
	06/02/04	13.65	8.26	8.71	0.45	4.94
	09/03/04	13.65	8.70	9.11	0.41	4.54
	12/16/04	13.65	7.75	7.92	0.17	5.73
	03/29/05	13.65	6.21	6.38	0.17	7.27
	06/14/05	13.65	7.41	7.61	0.20	6.04
	08/10/05	13.65	8.05	8.55	0.50	5.10
	09/29/05	13.65	8.28	8.95	0.67	4.70
	12/21/05	13.65	5.70	5.90	0.20	7.75
	03/24/06	13.65	5.98	6.27	0.29	7.38
	07/28/06	13.65	7.88	8.35	0.47	5.30
	11/29/06	NA	10.58	10.81	0.23	NA
	06/01/07	15.80	11.11	11.45	0.34	4.35
	11/14/07	15.80	10.87	10.93	0.06	4.87
	06/05/08	15.80	11.36	11.46	0.10	4.34
	12/18/08	15.80	10.82	10.89	0.07	4.91
	03/04/09	15.80	9.38	9.52	0.14	6.28
	04/01/09	15.80	10.65	10.67	0.02	5.13
	06/17/09	15.80	11.21	11.28	0.07	4.52
	12/08/09	15.80	NP	10.79	0.0	5.01
MW-2						
	12/31/97	13.87	NP	8.73	0.0	5.14
	04/13/98	13.87	NP	7.72	0.0	6.15
	11/06/98	13.87	NP	9.43	0.0	4.44
	03/19/99	13.87	NP	8.21	0.0	5.66
	06/24/99	13.87	NP	8.91	0.0	4.96
	09/28/99	13.87	NP	9.42	0.0	4.45
	11/12/99	13.87	NP	9.63	0.0	4.24
	02/11/00	13.87	NP	8.54	0.0	5.33
	05/22/00	13.87	NP	8.10	0.0	5.77
	09/06/00	13.87	NP	8.79	0.0	5.08
	12/19/00	13.87	NP	9.19	0.0	4.68
	02/21/01	13.87	NP	7.99	0.0	5.88
	04/03/01	13.87	NP	8.23	0.0	5.64
	07/10/01	13.87	NP	8.70	0.0	5.17
	12/12/01	13.87	NP	8.16	0.0	5.71
	01/22/02	13.87	NP	7.64	0.0	6.23
	03/08/02	13.87	NP	8.31	0.0	5.56
	06/13/02	13.87	NP	8.64	0.0	5.23
MW-2 (cont)	09/26/02	13.87	NP	8.95	0.0	4.92

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	12/12/02	13.87	NP	9.17	0.0	4.70
	03/17/03	13.87	NP	7.77	0.0	6.10
	06/18/03	13.87	NP	8.44	0.0	5.43
	09/03/03	13.87	NP	8.98	0.0	4.89
	11/26/03	16.72	NP	12.01	0.0	4.71
	03/05/04	16.72	NP	9.75	0.0	6.97
	06/02/04	16.72	NP	11.22	0.0	5.50
	09/03/04	16.72	NP	11.62	0.0	5.10
	12/16/04	16.72	NP	10.80	0.0	5.92
	03/29/05	16.72	NP	9.67	0.0	7.05
	06/14/05	16.72	NP	10.68	0.0	6.04
	08/10/05	16.72	NP	11.05	0.0	5.67
	09/29/05	16.72	NP	11.32	0.0	5.40
	12/21/05	16.47	NP	9.57	0.0	6.90
	03/24/06	16.47	NP	9.55	0.0	6.92
	07/28/06	16.47	NP	10.85	0.0	5.62
	11/29/06	NA	NP	11.69	0.0	NA
	06/01/07	16.43	NP	11.72	0.0	4.71
	11/14/07	16.43	NP	12.28	0.0	4.15
	06/05/08	16.43	NP	12.01	0.0	4.42
	12/18/08	16.43	NP	12.20	0.0	4.23
	03/04/09	16.43	NP	10.19	0.0	6.24
	04/01/09	16.43	NP	11.34	0.0	5.09
	06/17/09	16.43	NP	11.90	0.0	4.53
	12/09/09	16.43	NP	12.13	0.0	4.30
MW-3						
	11/06/98	13.73	8.84	9.94	1.10	NC
	03/19/99	13.73	7.52	8.05	0.53	NC
	06/24/99	13.73	8.38	8.56	0.18	NC
	11/12/99	13.73	9.14	9.23	0.09	NC
	02/11/00	13.73	7.97	8.37	0.40	NC
	03/01/00	13.73	6.59	7.24	0.65	NC
	03/21/00	13.73	6.50	6.56	0.06	NC
	05/22/00	13.73	7.51	8.05	0.54	NC
	06/26/00	13.73	7.82	8.20	0.38	NC
	07/25/00	13.73	7.90	8.92	1.02	NC
	08/31/00	13.73	8.15	9.50	1.35	NC
	09/06/00	13.73	8.21	9.42	1.21	NC
	09/21/00	13.73	8.30	8.88	0.58	NC
	12/19/00	13.73	8.60	9.65	1.05	NC
	02/22/01	13.73	6.36	8.15	1.79	NC
	04/03/01	13.73	7.48	8.88	1.40	NC
	04/23/01	13.73	7.85	9.10	1.25	NC
	05/30/01	13.73	7.75	9.10	1.35	NC
	07/10/01	13.73	8.10	9.60	1.50	NC
	03/08/02	13.73	7.80	8.00	0.20	NC
	04/03/02	13.73	7.60	7.70	0.10	NC
	04/23/02	13.73	7.90	8.40	0.50	NC
	04/25/02	13.73	7.90	8.80	0.90	NC
	05/10/02	13.73	8.10	8.20	0.10	NC
MW-3 (cont)	05/24/02	13.73	8.05	8.10	0.05	NC
	06/13/02	13.73	8.10	8.70	0.60	NC

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
	07/05/02	13.73	8.10	8.95	0.85	NC
	07/19/02	13.73	8.10	8.90	0.80	NC
	07/30/02	13.73	8.10	8.90	0.80	NC
	08/14/02	13.73	8.10	8.90	0.80	NC
	09/13/02	13.73	8.30	9.30	1.00	NC
	09/26/02	13.73	8.30	9.00	0.70	NC
	10/14/02	13.73	8.60	9.50	0.90	NC
	11/04/02	13.73	8.75	9.99	1.24	NC
	11/21/02	13.73	8.59	11.29	2.70	NC
	12/06/02	13.73	8.56	9.30	0.74	NC
	12/18/02	13.73	7.35	8.43	1.08	NC
	12/30/02	13.73	6.50	7.15	0.65	NC
	01/02/03	13.73	6.20	6.20	0.00	7.53
	01/03/03	13.73	6.21	6.21	0.00	7.52
	01/14/03	13.73	6.20	6.21	0.01	7.52
	01/30/03	13.73	6.81	6.85	0.04	6.88
	02/18/02	13.73	7.09	7.15	0.06	NC
	02/26/03	13.73	7.04	7.11	0.07	NC
	03/13/03	13.73	7.22	8.11	0.89	NC
	03/17/03	13.73	7.15	7.50	0.35	NC
	04/16/03	13.73	7.27	8.25	0.98	NC
	06/18/03	13.73	7.78	9.00	1.22	NC
	09/03/03	13.73	8.31	9.96	1.65	NC
	11/26/03	15.69	10.79	12.85	2.06	NC
	03/05/04	15.69	8.39	9.85	1.46	NC
	06/02/04	15.69	10.03	11.35	1.32	NC
	09/03/04	15.69	10.46	12.06	1.60	NC
	12/16/04	15.69	9.41	10.38	0.97	NC
	03/29/05	15.69	8.17	9.01	0.84	NC
	06/14/05	15.69	9.59	10.55	0.96	NC
	08/10/05	15.69	9.91	11.15	1.24	NC
	09/29/05	15.69	10.21	11.61	1.40	NC
	12/21/05	15.69	8.21	8.28	0.07	NC
	03/24/06	15.69	8.20	8.82	0.62	NC
	07/28/06	15.69	9.81	9.83	0.02	5.86
	11/29/06	NA	10.72	11.70	0.98	NA
	06/01/07	15.66	10.77	11.46	0.69	NC
	11/14/07	15.66	10.98	12.19	1.21	NC
	06/05/08	15.66	10.51	11.96	1.45	NC
	12/18/08	15.66	10.78	12.00	1.22	NC
	03/04/09	15.66	9.31	9.93	0.62	NC
	04/01/09	15.66	10.38	11.10	0.72	NC
	06/17/09	15.66	10.79	12.30	1.51	NC
	12/08/09	15.66	11.05	12.81	1.76	NC

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-4						
	12/31/97	12.66	NP	7.09	0.0	5.57
	04/13/98	12.66	NP	7.71	0.0	4.95
	11/06/98	12.66	NP	8.69	0.0	3.97
	03/19/99	12.66	NP	8.00	0.0	4.66
	06/24/99	12.66	NP	8.45	0.0	4.21
	09/28/99	12.66	NP	8.73	0.0	3.93
	11/12/99	12.66	NP	8.83	0.0	3.83
	02/11/00	12.66	NP	7.71	0.0	4.95
	05/22/00	12.66	NP	8.09	0.0	4.57
	09/06/00	12.66	NP	8.32	0.0	4.34
	12/19/00	12.66	NP	8.47	0.0	4.19
	02/21/01	12.66	NP	7.51	0.0	5.15
	04/03/01	12.66	NP	8.13	0.0	4.53
	07/10/01	12.66	NP	8.12	0.0	4.54
	12/12/01	12.66	NP	7.65	0.0	5.01
	01/22/02	12.66	NP	7.60	0.0	5.06
	03/08/02	12.66	NP	7.96	0.0	4.70
	06/13/02	12.66	NP	8.20	0.0	4.46
	09/26/02	12.66	NP	8.21	0.0	4.45
	12/12/02	12.66	NP	8.38	0.0	4.28
	03/17/03	12.66	NP	7.72	0.0	4.94
	06/18/03	12.66	NP	8.02	0.0	4.64
	09/03/03	12.66	NP	8.29	0.0	4.37
	11/26/03	12.66	NP	8.69	0.0	3.97
	03/05/04	12.66	NP	7.45	0.0	5.21
	06/02/04	12.66	NP	8.25	0.0	4.41
	09/03/04	12.66	NP	8.31	0.0	4.35
	12/16/04	12.66	NP	7.96	0.0	4.70
	03/29/05	12.66	NP	7.11	0.0	5.55
	06/14/05	12.66	NP	7.90	0.0	4.76
	08/10/05	12.66	NP	7.86	0.0	4.80
	09/29/05	12.66	NP	8.00	0.0	4.66
	12/21/05	12.66	NP	7.30	0.0	5.36
	03/24/06	12.66	NP	7.05	0.0	5.61
	07/28/06	12.66	NP	7.92	0.0	4.74
	11/29/06	NA	NP	11.63	0.0	NA
	06/01/07	15.91	NP	11.82	0.0	4.09
	11/14/07	15.91	NP	11.88	0.0	4.03
	06/05/08	15.91	NP	11.67	0.0	4.24
	12/18/08	15.91	NP	11.20	0.0	4.71
	03/04/09	15.91	NP	10.93	0.0	4.98
	04/01/09	15.91	NP	11.63	0.0	4.28
	06/17/09	15.91	NP	11.88	0.0	4.03
	12/08/09	15.91	NP	12.03	0.0	3.88

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-5						
	12/31/97	13.00	NP	6.38	0.0	6.62
	04/13/98	13.00	NP	5.56	0.0	7.44
	11/06/98	13.00	NP	6.59	0.0	6.41
	03/19/99	13.00	NP	6.20	0.0	6.80
	06/24/99	13.00	NP	6.73	0.0	6.27
	09/28/99	13.00	NP	6.91	0.0	6.09
	11/12/99	13.00	NP	7.06	0.0	5.94
	02/11/00	13.00	NP	7.00	0.0	6.00
	05/22/00	13.00	NP	6.21	0.0	6.79
	09/06/00	13.00	NP	6.56	0.0	6.44
	12/19/00	13.00	NP	6.68	0.0	6.32
	02/21/01	13.00	NP	6.08	0.0	6.92
	04/03/01	13.00	NP	6.38	0.0	6.62
	07/10/01	13.00	NP	6.58	0.0	6.42
	12/12/01	13.00	NP	6.40	0.0	6.60
	01/22/02	13.00	NP	6.10	0.0	6.90
	03/08/02	13.00	NP	6.10	0.0	6.90
	06/13/02	13.00	NP	6.31	0.0	6.69
	09/26/02	13.00	NP	6.60	0.0	6.40
	12/12/02	13.00	NP	6.75	0.0	6.25
	03/17/03	13.00	NP	5.73	0.0	7.27
	06/18/03	13.00	NP	6.10	0.0	6.90
	09/03/03	13.00	NP	6.50	0.0	6.50
	11/26/03	13.00	NP	6.70	0.0	6.30
	03/05/04	13.00	NP	5.70	0.0	7.30
	06/02/04	13.00	NP	6.27	0.0	6.73
	09/03/04	13.00	NP	6.61	0.0	6.39
	12/16/04	13.00	NP	6.02	0.0	6.98
	03/29/05	13.00	NP	5.25	0.0	7.75
	06/14/05	13.00	NP	5.82	0.0	7.18
	08/10/05	13.00	NP	6.00	0.0	7.00
	09/29/05	13.00	NP	6.26	0.0	6.74
	12/21/05	13.00	NP	5.91	0.0	7.09
	03/24/06	13.00	NP	NA ²	NA ²	NA
	07/28/06	13.00	NP	6.08	0.0	6.92
	11/29/06	NA	NP	9.39	0.0	NA
	06/01/07	15.39	NP	10.60	0.0	4.79
	11/14/07	15.39	NP	9.77	0.0	5.62
	06/05/08	15.39	NP	9.74	0.0	5.65
	12/18/08	15.39	NP	9.80	0.0	5.59
	03/04/09	15.39	NP	8.78	0.0	6.61
	04/01/09	15.39	NP	9.16	0.0	6.23
	06/17/09	15.39	NP	9.51	0.0	5.88
	12/08/09	15.39	NP	9.52	0.0	5.87

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-6						
	06/24/99	13.51	NP	8.61	0.0	4.90
	09/28/99	13.51	NP	9.26	0.0	4.25
	11/12/99	13.51	NP	8.01	0.0	5.50
	02/11/00	13.51	NP	7.20	0.0	6.31
	05/22/00	13.51	NP	7.13	0.0	6.38
	09/06/00	13.51	NP	7.12	0.0	6.39
	12/19/00	13.51	NP	7.57	0.0	5.94
	02/21/01	13.51	NP	7.50	0.0	6.01
	04/03/01	13.51	NP	6.88	0.0	6.63
	07/10/01	13.51	NP	7.15	0.0	6.36
	12/12/01	13.51	NP	9.50	0.0	4.01
	01/22/02	13.51	NP	6.69	0.0	6.82
	03/08/02	13.51	NP	6.98	0.0	6.53
	06/13/02	13.51	NP	7.45	0.0	6.06
	09/26/02	13.51	NP	7.95	0.0	5.56
	12/12/02	13.51	NP	7.71	0.0	5.80
	12/18/02	Monitoring well was destroyed				
MW-7						
	12/31/97	13.86	NP	8.88	0.0	4.98
	04/13/98	13.86	NP	7.86	0.0	6.00
	11/06/98	13.86	NP	9.55	0.0	4.31
	03/19/99	13.86	NP	8.41	0.0	5.45
	06/24/99	13.86	NP	9.08	0.0	4.78
	09/28/99	13.86	NP	9.60	0.0	4.26
	11/12/99	13.86	NP	9.77	0.0	4.09
	02/11/00	13.86	NP	8.67	0.0	5.19
	05/22/00	13.86	NP	8.43	0.0	5.43
	09/06/00	13.86	NP	8.88	0.0	4.98
	12/19/00	13.86	NP	9.21	0.0	4.65
	02/21/01	13.86	NP	8.13	0.0	5.73
	04/03/01	13.86	NP	8.45	0.0	5.41
	07/10/01	13.86	NP	8.87	0.0	4.99
	12/12/01	13.86	NP	8.39	0.0	5.47
	01/22/02	13.86	NP	7.99	0.0	5.87
	03/08/02	13.86	NP	8.51	0.0	5.35
	06/13/02	13.86	NP	8.90	0.0	4.96
	09/26/02	13.86	NP	9.00	0.0	4.86
	12/12/02	13.86	NP	9.28	0.0	4.58
	12/18/02	Monitoring well was destroyed				

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-8 ³						
	12/31/97	12.45	8.49	8.82	0.33	NC
	11/06/98	12.45	9.25	10.30	1.05	NC
	11/21/98	Monitoring well was destroyed and replaced with well MW-8A				
MW-8A						
	12/12/01	12.45	NP	7.20	0.0	NA
	01/22/02	12.45	NP	7.20	0.0	5.25
	03/08/02	12.45	NP	7.70	0.0	4.75
	06/13/02	12.45	NP	7.72	0.0	4.73
	09/26/02	12.45	NP	7.91	0.0	4.54
	12/12/02	12.45	NP	8.15	0.0	4.30
	03/17/03	12.45	NP	7.28	0.0	5.17
	06/18/03	12.45	NP	7.72	0.0	4.73
	09/03/03	12.45	NP	8.18	0.0	4.27
	11/26/03	12.45	NP	8.55	0.0	3.90
	03/05/04	12.45	NP	6.92	0.0	5.53
	06/02/04	12.45	NP	7.92	0.0	4.53
	09/03/04	12.45	NP	8.16	0.0	4.29
	12/16/04	12.45	NP	7.62	0.0	4.83
	03/29/05	12.45	NP	6.63	0.0	5.82
	06/14/05	12.45	NP	7.60	0.0	4.85
	08/10/05	12.45	NP	7.50	0.0	4.95
	09/29/05	12.45	NP	7.76	0.0	4.69
	12/21/05	12.45	NP	6.90	0.0	5.55
	03/24/06	12.45	NP	6.65	0.0	5.80
	07/28/06	12.45	NP	7.34	0.0	5.11
	11/29/06	NA	NP	11.41	0.0	NA
	06/01/07	14.99	NP	11.26	0.0	3.73
	11/14/07	14.99	NP	11.40	0.0	3.59
	06/05/08	14.99	NP	11.45	0.0	3.54
	12/18/08	14.99	NP	11.30	0.0	3.69
	03/04/09	14.99	NP	10.07	0.0	4.92
	04/01/09	14.99	NP	10.92	0.0	4.07
	06/17/09	14.99	NP	11.40	0.0	3.59
	12/08/09	14.99	NP	11.64	0.0	3.35
MW-9						
	12/18/08	16.33	NP	12.88	0.0	3.45
	03/04/09	16.33	NP	11.04	0.0	5.29
	04/01/09	16.33	NP	11.51	0.0	4.82
	06/17/09	16.33	NP	11.95	0.0	4.38
	12/08/09	16.33	NP	12.30	0.0	4.03
MW-10						
	12/18/08	15.65	NP	14.34	0.0	1.31
	03/04/09	15.65	NP	9.78	0.0	5.87
	04/01/09	15.65	NP	10.33	0.0	5.32
	06/17/09	15.65	NP	10.79	0.0	4.86
	12/08/09	15.65	NP	10.96	0.0	4.69
MW-11						
	12/18/08	15.47	NP	13.42	0.0	2.05
	03/04/09	15.47	NP	9.57	0.0	5.90
	04/01/09	15.47	NP	9.94	0.0	5.53
	06/17/09	15.47	NP	10.40	0.0	5.07
	12/09/09	15.47	NP	10.68	0.0	4.79

**TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Measured	Elevation ¹ Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation ¹ (feet)
MW-12						
	12/18/08	16.79	NP	12.75	0.0	4.04
	03/04/09	16.79	NP	10.60	0.0	6.19
	04/01/09	16.79	NP	11.23	0.0	5.56
	6/17/2009	16.79	NP	11.83	0.0	4.96
	12/8/2009	16.79	NP	12.13	0.0	4.66

Notes:

Source of data prior to December 2005: Innovative Technical Solutions, Inc. *Third Quarter of 2005 Groundwater Monitoring and Product Monitoring Report*, 8 November 2005.

NP = no product detected with the interface probe

NC = not calculated due to the presence of free-phase product in the well

btc = below top of the well casing

NA = not available

NM = not measured

-- = no measurable product.

¹ Wells were resurveyed on January 24, 2009. Elevation data is relative to North American Vertical Datum of 1988 (NAVD 88).

² Well could not be measured due to abundant surface water covering well head.

³ Viscous product not related to the lighter product identified in other wells.

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-1									
	05/22/00	3,600	41,000	<3,000	100	13 ⁸	2.9	2.05	3.2 ⁸
	12/08/09	1,400	1,200 ²	<300	120	2.9	1.8	3.0	<1.0
MW-2									
	05/27/94	87	470	NA	<0.5	<0.5	<0.5	<0.5	NA
	03/29/95	<50	110	1,400	<0.4	<0.3	<0.3	<0.4	NA
	09/06/95	<50	NA	NA	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	<50	1200	<0.4	<0.3	<0.3	<0.4	NA
	04/04/96	<50	160	320	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	<50	120	1400	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	230 ^{1,2}	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	<50	714	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	51	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1.0	NA
	12/31/97	<50	<47	<280	1.4	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	11/12/99	<50	120 ^{2,6}	<300	<0.5	<0.5	<0.5	<0.5	6.3 ^{8,9}
	02/11/00	<50	<50	<300	5.4	<0.5	<0.5	<0.5	<2
	05/22/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	09/06/00	<50	<50	<300	0.76 ⁸	<0.5	<0.5	<0.5	<0.5 ¹⁰
	12/19/00	200 ^{3,11}	<50	<300	39	1.8	<0.5	2.6	<0.5 ^{10,12}
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/05/01	<50	<50	<300	4.4	<0.5	<0.5	<0.5	5.0 ¹⁴
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	62 ¹⁵	<57	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	69 ²	<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
	06/18/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/03	<50	<50	<300	3.2	<0.5	<0.5	<0.5	<2.0
	11/26/03	<50	<50	<300	3	<0.5	<0.5	<0.5	<2.0
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	96 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	03/24/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-2 (cont)	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/18/08	390 ²	840	<300	1.1	<0.5	0.9	<0.5	<0.5
	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/17/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/09/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3									
	Not sampled due to the presence of free-phase product								
MW-4									
	09/11/95	150	<200	500	23	<0.3	<0.3	<0.4	NA
	01/08/96	790	90	400	170	1.2	0.6	0.6	NA
	04/04/96	1,100	180	300	320	1.6	1.1	1.2	NA
	07/10/96	1,200	120	300	470	1.5	0.8	0.8	NA
	12/03/96	990	220 ^{1,2}	<250	350	3.3	1.3	1.3	NA
	03/28/97	440 ²	<50	<250	190	1.2	0.64	<1.0	NA
	06/13/97	1,300	92 ⁵	<250	500	5.5	3.4	2.8	NA
	09/18/97	1,300	150	<250	550	4.9	2.1	2.00	NA
	12/31/97	73 ^{1,2,3}	<47	<280	110 ¹	1.0 ¹	<0.5	<1.0	NA
	04/13/98	150 ^{2,3}	<50	<300	520	2.9	<2.5	<5.0	NA
	11/06/98	<50	<50	<300	250	1.7	<1.0	<1.0	<4
	03/19/99	81	<50	<300	250	<1	1.2	<1.0	<4
Dup.	06/24/99	190	<50	<300	360	1.4	2.2	1.0	24
	09/28/99	750 ^{3,5}	63 ^{3,5}	<300	280	1.5	<1.0	<1.0	<4
	11/12/99	330 ³	840 ²	<300	740	<2.5	<2.5	<2.5	42 ⁹
	02/11/00	200 ²	<50	<300	58	0.73	<0.5	<0.5	4.4 ⁸
	05/22/00	240	<50	<300	500	<2.5	<2.5	<2.5	17
	09/06/00	530 ^{2,3}	<50	<300	190	0.93	0.6	0.57	<0.5 ¹⁰
	12/19/00	960 ^{3,11}	70 ⁵	<300	420	<2.5	<2.5	<2.5	<0.5 ^{10,12}
	12/19/00	1,200 ^{3,11}	<50	<300	440	<2.5	<2.5	<2.5	<0.5 ^{10,12}
	02/21/01	450 ¹³	<50	<300	120	<0.5	<0.5	<0.5	<0.5 ¹⁰
	07/10/01	<250	110 ^{2,13}	<300	620	2.6	2.9	<2.5	<0.5 ^{8,10}
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 ¹⁴
	03/08/02	490 ²	54 ²	<500	180	<2.5	<2.5	<2.5	<25
	06/13/02	830 ²	<50	<500	250	<5.0	<5.0	<5.0	<50
Dup.	06/13/02	820 ²	<56	<560	240	<5.0	<5.0	<5.0	<50
	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
	09/03/03	140 ^{11,15}	<50	<300	240	1.3	<0.5	<0.5	<2.0
Dup.	09/03/03	83 ^{11,15}	<50	<300	130	0.58 ¹⁷	<0.5	<0.5	<2.0
	11/26/03	160 ¹⁵	68 ¹⁵	<300	320	0.91 ¹⁷	<0.5	0.53	<2.0
Dup.	11/26/03	120 ¹⁵	<50	<300	210	0.66 ¹⁷	<0.5	<0.5	<2.0

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-4 (cont)	03/05/04	90 ¹¹	<50	<300	190	1.1	0.55	0.50 ¹⁷	23 ^{14,17} , <0.5 ¹⁰
Dup.	03/05/04	84 ¹¹	<50	<300	180	0.81	<0.5	<0.5	21 ^{14,17} , <0.5 ¹⁰
	06/02/04	620 ¹³	<50	<300	210	0.55 ¹⁷	<0.5	<0.5	<2.0
Dup.	06/02/04	400 ¹³	<50	<300	130	<0.5	<0.5	<0.5	<2.0
	09/03/04	780 ^{13,15}	<50	<300	<0.5	1.0 ¹⁷	<0.5	0.57	<2.0
Dup.	09/03/04	370 ^{13,15}	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	840	<50	<300	290	1.3 ¹⁷	0.69	0.75	<2.0
Dup.	12/16/04	670	<50	<300	230	1.3 ¹⁷	<0.5	<0.5	<2.0
	03/29/05	440 ¹³	<50	<300	140	0.57	<0.5	<0.5	<2.0
Dup.	03/29/05	540 ¹³	<50	<300	170	0.72	<0.5	<0.5	<2.0
	08/10/05	500 ¹⁸	<50	<250	180	<2.5	<2.5	<2.5	<2.5
	09/29/05	360 ¹⁸	59 ²⁰	<250	160	<5.0	<5.0	<5.0	<5.0
Dup.	09/29/05	420 ¹⁸	<50	<250	150	<5.0	<5.0	<5.0	<5.0
	12/21/05	110	<50	<300	76	<0.5	<0.5	<0.5	<0.5
Dup.	12/21/05	160	<50	<300	76	<0.5	<0.5	<0.5	<0.5
	03/24/06	420	51	<300	120	0.8	<0.7	<0.7	<0.7
Dup.	03/24/06	440	<50	<300	130	<0.7	<0.7	<0.7	<0.7
	08/04/06	560	92 ²	<300	160	<1.3	4.3	<1.3	<1.3
Dup.	08/04/06	590	100 ²	<300	150	<1.3	4.5	<1.3	<1.3
	11/29/06	300	<50	<300	42	<0.7	1.0	<0.7	<0.7
Dup.	11/29/06	300	<50	<300	60	<0.7	<0.7	<0.7	<0.7
	06/01/07	100 ^{13,15}	<50	<300	10	<0.5	<0.5	<0.5	<0.5
Dup.	06/01/07	100 ^{13,15}	<50	<300	11	<0.5	<0.5	<0.5	<0.5
	11/14/07	54 ¹⁵	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5
Dup.	11/14/07	51 ¹⁵	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5
	06/05/08	67 ¹⁵	<50	<300	14	<0.5	<0.5	<0.5	<0.5
Dup.	06/05/08	91 ¹⁵	<50	<300	15	<0.5	<0.5	<0.5	<0.5
	12/18/08	99 ²	520	<300	0.5	<0.5	<0.5	<0.5	<0.5
Dup.	12/18/08	88 ²	850	<300	0.7	<0.5	0.6	<0.5	<0.5
	03/04/09	60 ²	<50	<300	3.8	<0.5	<0.5	<0.5	<0.5
Dup.	03/04/09	<50	<50	<300	4.4	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	7.5	<0.5	<0.5	<0.5	<0.5
Dup.	04/01/09	<50	<50	<300	7.8	<0.5	<0.5	<0.5	<0.5
	06/19/09	69 ²	<50	<300	15	<0.5	<0.5	<0.5	<0.5
	12/08/09	<50	<50	<300	3.3	<0.5	<0.5	<0.5	<0.5
Dup.	12/08/09	<50	<50	<300	3.5	<0.5	<0.5	<0.5	<0.5
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	<2.0
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/24/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.1

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-5 (cont)	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	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	<2.0
	05/22/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/06/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/19/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	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	<0.5	<0.5	<0.5	<0.5	<2.0
	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
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	11/26/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	4.1 ¹⁴ , <0.5 ¹⁰
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	2.2 ¹⁴ , <0.5 ¹⁰
	03/29/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
Dup.	08/10/05	<50 ¹⁹	<50 ¹⁹	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	180 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	180	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/18/08	3,100 ²	3,600	<300	0.5	<0.5	<0.5	<0.5	1.8
	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/19/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/08/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-6									
	11/06/98	120	12,000	1,200	19	0.65	1.8	<0.5	<2
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2
	06/24/99	120	1,700 ⁷	<300 ⁷	18	<0.5	1.0	<0.5	54
	09/28/99	130 ^{3,5}	820	<300	20	0.51	2.2	<0.5	<2
	11/12/99	150	11,000 ^{2,6}	3,000 ^{3,6}	27	<0.5	2.2	<0.5	13 ⁹
	02/11/00	270 ²	2,300	<300	23	0.51	2.7	<0.5	5.8
	05/22/00	350	3,000	<300	18	0.51	<0.5	<0.5	7.7
	09/06/00	190	610	<300	26	<0.5	1.7	<0.5	<0.5 ¹⁰
	12/19/00	130 ^{3,11}	620	<300	24	<0.5	1.6	<0.5	<2
	02/21/01	120 ¹³	440	<300	21	<0.5	0.96	<0.5	<2

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-6 (cont)	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
58	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-8									
	Not sampled due to the presence of free-phase product								
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

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-8A (cont)	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
	09/03/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	3.0 ¹⁴ / $<0.5^{10}$
	11/26/03	<50	94 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/05/04	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	06/02/04	<50	67 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	09/03/04	<50	86 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/16/04	<50	160 ^{6,15}	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/29/05	<50	53	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	08/10/05	<50 ¹⁹	150 ^{15,19}	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	09/29/05	<50	66 ²¹	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	63 ^{15,22}	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	03/24/06	<50	71	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	70 ¹⁵	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/05/08	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/18/08	350 ²	7,800	2,200 ²	<0.5	<0.5	<0.5	<0.5	1.3
	03/04/09	<50	51 ²	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/17/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/08/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-9									
	12/18/08	52 ²	72	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	03/04/09	290 ²	310 ²	<300	44	<0.5	0.6	0.6	<0.5
	04/01/09	210 ²	210 ²	<300	36	<0.5	<0.5	<0.5	<0.5
	06/19/09	240 ²	240 ²	<300	43	<0.5	<0.5	<0.5	<0.5
	12/08/09	210 ²	210 ²	<300	48	<0.5	<0.5	<0.5	<0.5
MW-10									
	12/18/08	140 ²	8,000	430 ²	<0.5	<0.5	<0.5	<0.5	1.0
	03/04/09	96 ²	110 ²	<300	11	<0.5	0.5	<0.5	<0.5
	04/01/09	87 ²	100 ²	<300	14	<0.5	0.5	<0.5	<0.5
	06/17/09	90 ²	220 ²	<300	10	<0.5	1.0	<0.5	<0.5
	12/08/09	120 ²	240 ²	<300	26	<0.5	0.8	<0.5	<0.5
MW-11									
	12/18/08	1,900 ²	15,000	800 ²	<0.5	<0.5	<0.5	<0.5	5.0
	03/04/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	04/01/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/19/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	12/09/09	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-12									
	12/18/08	25,000 ²	19,000	980 ²	<0.5	<0.5	<0.5	<0.5	5.1
	03/04/09	150 ²	550 ²	<300	<0.5	<0.5	<0.5	<0.5	4.8
	04/01/09	71 ²	420 ²	<300	<0.5	<0.5	<0.5	<0.5	5.8
	06/17/09	64 ²	310 ²	<300	<0.5	<0.5	<0.5	<0.5	5.7
Dup.	06/17/09	67 ²	310 ²	<300	<0.5	<0.5	<0.5	<0.5	5.4
	12/08/09	90 ²	320 ²	<300	<0.5	<0.5	<0.5	<0.5	4.7

**TABLE 2. Groundwater Analytical Results Summary
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE

Notes:

Data prior to December 2005 from *3rd Quarterly Groundwater Monitoring, and Product Recovery Report* dated 8 November 2005, by Innovative Technical Solutions, Inc.

µg/L = micrograms per liter

Dup. = duplicate sample

NA = not analyzed

TPHg = total petroleum hydrocarbons as gasoline.

TPHd = total petroleum hydrocarbons as diesel fuel.

TPHmo = total petroleum hydrocarbons as motor oil.

MTBE = methyl tert-butyl ether

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

² Hydrocarbons present do not match profile of laboratory standard.

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

⁴ Chromatographic pattern matches known laboratory contaminant.

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

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

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

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

⁹ Trip blank contained MTBE at a concentration of 4.2 µg/L.

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

¹¹ Sample exhibits unknown single peak or peaks.

¹² EPA Method 8260 confirmation analyzed past holding time.

¹³ Lighter hydrocarbons contributed to the quantitation.

¹⁴ MTBE results from EPA Test Method 8021B.

¹⁵ Sample exhibits fuel pattern that does not resemble standard.

¹⁶ Sample extracted out of hold time.

¹⁷ Presence confirmed, but Relative Percent Difference (RPD) between columns exceeds 40%.

¹⁸ Unmodified or weakly modified gasoline is significant.

¹⁹ Liquid sample contains greater than ~1 vol. % sediment.

²⁰ Gasoline compounds are significant.

²¹ Diesel range compounds are significant; no recognizable pattern.

²² Heavier hydrocarbons contributed to the quantitation.

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 07/01/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.94	11.05	0.11	11.25	Off	P=7;D=15	6/24/09 18:00	8/3/07 18:01	28:25	Measured from TOC, not top of white cap. Difference is 0.12 inches.
RW-4	10.10	11.32	1.22	11.0	Off	P=7;D=15	6/25/09 18:00	7/15/07 18:01	93:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.64	10.62	1.98	10.0	5.4	P=7;D=15	6/24/09 18:00	9/14/07 18:01	368:50	Well valve still leaking. Removed 0.5 gallons from bucket (4 weeks of leakage).
RW-7	8.02	9.88	1.86	8.75	3.4	P=7;D=15	6/24/09 18:00	9/14/07 18:30	432:59	
RW-8	9.14	10.55	1.41	10.0	5.6	P=7;D=15	6/24/09 18:00	8/10/07 18:01	108:35	
RW-9	--	--	--	11.0	Off	P=7;D=15	6/24/09 18:00	11/28/07 18:01	21:15	Unable to measure product/water levels due to equipment placed on well
MW-3	10.80	12.39	1.59		NA	NA		NA		Removed 1.5 gallons of product.
Elapsed time at blower					--	hrs	Site column water level		--	Drums of purge water have been removed.
Air flow rate at blower stack					--	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.21	ft				
Depth to interface in Convault					2.03	ft				
Approximate total liquid volume recovered					330	gal				
Approximate product volume recovered					215	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 07/08/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.96	11.05	0.09	11.25	Off	P=7;D=15	7/1/09 18:00	8/3/07 18:01	28:40	
RW-4	10.11	11.29	1.18	11.0	Off	P=7;D=15	7/1/09 18:00	7/15/07 18:01	93:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.58	10.67	2.09	10.0	6.0	P=7;D=15	7/1/09 18:00	9/14/07 18:01	369:05	
RW-7	7.98	9.90	1.92	8.75	3.9	P=7;D=15	7/1/09 18:00	9/14/07 18:30	433:14	
RW-8	9.16	10.63	1.47	10.0	4.2	P=7;D=15	7/1/09 18:00	8/10/07 18:01	108:50	
RW-9	10.09	11.11	1.02	11.0	Off	P=7;D=15	7/1/09 18:00	11/28/07 18:01	21:30	
MW-3	10.85	12.41	1.56		NA	NA		NA		Removed 1.5 gallons of product.
Elapsed time at blower				--	hrs	Site column water level			--	
Air flow rate at blower stack				--	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				1.19	ft					
Depth to interface in Convault				2.01	ft					
Approximate total liquid volume recovered				335	gal					
Approximate product volume recovered				215	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 07/15/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.10	11.26	0.16	11.25	Off	P=7;D=15	7/8/09 18:00	8/3/07 18:01	28:55	Measure from top of casing, not well cap.
RW-4	10.21	10.37	0.16	11.0	Off	P=7;D=15	7/8/09 18:00	7/15/07 18:01	94:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.70	10.80	2.10	10.0	5.8	P=7;D=15	7/8/09 18:00	9/14/07 18:01	369:20	Measure from well cap.
RW-7	8.10	10.07	1.97	8.75	2.4	P=7;D=15	7/8/09 18:00	9/14/07 18:30	433:29	
RW-8	9.21	10.74	1.53	10.0	4.2	P=7;D=15	7/8/09 18:00	8/10/07 18:01	109:05	Measure from well cap.
RW-9	10.83	10.89	0.06	11.0	Off	P=7;D=15	7/8/09 18:00	11/28/07 18:01	21:45	
MW-3	10.86	12.68	1.82		NA	NA		NA		Removed 2 gallons of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					--	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.15	ft				
Depth to interface in Convault					2.02	ft				
Approximate total liquid volume recovered					346	gal				
Approximate product volume recovered					228	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 07/22/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.04	11.10	0.06	11.25	Off	P=7;D=15	7/15/09 18:00	1/21/09 18:00	29:10	
RW-4	10.18	11.39	1.21	11.0	Off	P=7;D=15	7/15/09 18:00	1/21/09 18:00	94:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.75	10.90	2.15	10.0	5.2	P=7;D=15	7/15/09 18:00	1/21/09 18:00	369:35	
RW-7	7.95	10.10	2.15	8.75	4.4	P=7;D=15	7/15/09 18:00	1/21/09 18:00	433:44	
RW-8	9.20	10.70	1.50	10.0	4.6	P=7;D=15	7/15/09 18:00	1/21/09 18:00	109:20	
RW-9	9.86	10.78	0.92	11.0	Off	P=7;D=15	7/15/09 18:00	1/21/09 18:00	22:00	
MW-3	10.89	12.65	1.76		NA	NA		NA		Removed 1 gallon of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					--	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.14	ft				
Depth to interface in Convault					2.02	ft				
Approximate total liquid volume recovered					348	gal				
Approximate product volume recovered					230	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 07/29/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.01	11.06	0.05	11.25	Off	P=7;D=15	7/22/09 18:00	1/21/09 18:00	29:25	
RW-4	10.24	10.83	0.59	11.0	Off	P=7;D=15	7/22/09 18:00	1/21/09 18:00	94:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.77	10.95	2.18	10.0	5.0	P=7;D=15	7/22/09 18:00	1/21/09 18:00	369:50	
RW-7	8.29	10.16	1.87	8.75	1.8	P=7;D=15	7/22/09 18:00	1/21/09 18:00	433:59	
RW-8	9.22	10.85	1.63	10.0	4.1	P=7;D=15	7/22/09 18:00	1/21/09 18:00	109:35	Valve is leaking.
RW-9	9.90	10.79	0.89	11.0	Off	P=7;D=15	7/22/09 18:00	1/21/09 18:00	22:15	
MW-3	10.87	12.54	1.67		NA	NA		NA		
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					--	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.12	ft				
Depth to interface in Convault					2.01	ft				
Approximate total liquid volume recovered					353	gal				
Approximate product volume recovered					233	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 08/05/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.10	11.14	0.04	11.25	Off	P=7;D=15	7/28/09 18:00	1/21/09 18:00	29:40	
RW-4	10.31	10.88	0.57	11.0	Off	P=7;D=15	7/28/09 18:00	1/21/09 18:00	94:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.73	10.93	2.20	10.0	4.8	P=7;D=15	7/28/09 18:00	1/21/09 18:00	370:05	
RW-7	8.26	10.26	2.00	8.75	--	P=7;D=15	7/28/09 18:00	1/21/09 18:00	434:14	Valve is very leaky. Vacuum gauge fell off well and was found in well box
RW-8	9.60	10.90	1.30	10.0	3.4	P=7;D=15	7/28/09 18:00	1/21/09 18:00	109:50	Reattached gauge.
RW-9	9.95	10.59	0.64	11.0	Off	P=7;D=15	7/28/09 18:00	1/21/09 18:00	22:30	
MW-3	10.93	12.69	1.76		NA	NA		NA		
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					33	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.22	ft				
Depth to interface in Convault					2.16	ft				
Approximate total liquid volume recovered					327	gal				
Approximate product volume recovered					246	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 08/12/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.11	11.15	0.04	11.25	Off	P=7;D=15	8/5/09 18:00	1/21/09 18:00	29:55	
RW-4	10.28	11.27	0.99	11.0	Off	P=7;D=15	8/5/09 18:00	1/21/09 18:00	95:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.75	10.96	2.21	10.0	4.6	P=7;D=15	8/5/09 18:00	1/21/09 18:00	370:20	Valve is very leaky.
RW-7	8.20	10.27	2.07	8.75	0.0 → 5.2	P=7;D=15	8/5/09 18:00	1/21/09 18:00	434:29	No Vacuum. Adjusted vacuum to 5.2.
RW-8	9.32	10.93	1.61	10.0	2.6	P=7;D=15	8/5/09 18:00	1/21/09 18:00	110:05	
RW-9	9.99	10.40	0.41	11.0	Off	P=7;D=15	8/5/09 18:00	1/21/09 18:00	22:45	
MW-3	10.97	12.84	1.87		NA	NA		NA		Removed 1.5 gallons of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					29	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					1.20	ft				
Depth to interface in Convault					2.15	ft				
Approximate total liquid volume recovered					332	gal				
Approximate product volume recovered					249	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 08/19/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.11	11.13	0.02	11.25	Off	P=7;D=15	8/12/09 18:00	1/21/09 18:00	30:10	
RW-4	10.27	11.33	1.06	11.0	Off	P=7;D=15	8/12/09 18:00	1/21/09 18:00	95:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.81	11.08	2.27	10.0	4.6	P=7;D=15	8/12/09 18:00	1/21/09 18:00	370:35	Valve is leaking.
RW-7	7.98	10.39	2.41	8.75	4.2	P=7;D=15	8/12/09 18:00	1/21/09 18:00	434:44	
RW-8	9.38	10.93	1.55	10.0	2.8	P=7;D=15	8/12/09 18:00	1/21/09 18:00	110:20	
RW-9	9.98	10.51	0.53	11.0	Off	P=7;D=15	8/12/09 18:00	1/21/09 18:00	23:00	
MW-3	10.96	12.75	1.79		NA	NA		NA		Removed 2.5 gallons of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					26	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.4	ppm				
Effluent concentration - lag GAC					0	ppm				
Depth to product in Convault					1.19	ft				
Depth to interface in Convault					2.16	ft				
Approximate total liquid volume recovered					335	gal				
Approximate product volume recovered					254	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 08/26/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.23	11.25	0.02	11.25	Off	P=7;D=15	8/19/09 18:00	1/21/09 18:00	30:25	
RW-4	10.39	11.18	0.79	11.0	Off	P=7;D=15	8/19/09 18:00	1/21/09 18:00	95:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.86	11.11	2.25	10.0	4.6	P=7;D=15	8/19/09 18:00	1/21/09 18:00	370:50	
RW-7	7.75	10.52	2.77	8.75	7.6	P=7;D=15	8/19/09 18:00	1/21/09 18:00	434:59	Decrease vacuum next week if vacuum continues to rise and is >8.0.
RW-8	9.39	11.02	1.63	10.0	2.8	P=7;D=15	8/19/09 18:00	1/21/09 18:00	110:35	
RW-9	10.02	10.66	0.64	11.0	Off	P=7;D=15	8/19/09 18:00	1/21/09 18:00	23:15	
MW-3	10.99	12.94	1.95		NA	NA		NA		Removed 1.5 gallons of product.
Elapsed time at blower				--	hrs	Site column water level			--	
Air flow rate at blower stack				24	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				0.4	ppm					
Effluent concentration - lag GAC				0.3	ppm					
Depth to product in Convault				1.16	ft					
Depth to interface in Convault				2.15	ft					
Approximate total liquid volume recovered				343	gal					
Approximate product volume recovered				259	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 09/02/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.20	11.22	0.02	11.25	Off	P=7;D=15	8/26/09 18:00	1/21/09 18:00	30:40	
RW-4	10.35	11.22	0.87	11.0	Off	P=7;D=15	8/26/09 18:00	1/21/09 18:00	95:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.80	11.13	2.33	10.0	4.4	P=7;D=15	8/26/09 18:00	1/21/09 18:00	371:05	
RW-7	8.08	10.55	2.47	8.75	2.6	P=7;D=15	8/26/09 18:00	1/21/09 18:00	435:14	Vacuum has decreased. Not necessary to adjust.
RW-8	9.41	11.12	1.71	10.0	2.6	P=7;D=15	8/26/09 18:00	1/21/09 18:00	110:50	
RW-9	10.02	10.73	0.71	11.0	Off	P=7;D=15	8/26/09 18:00	1/21/09 18:00	23:30	
MW-3	11.00	12.94	1.94		NA	NA		NA		Removed 2.5 gallons of product.
Elapsed time at blower				--	hrs	Site column water level			--	Depth to product in Convault measurement believed to be an error based on previous and following weeks' data.
Air flow rate at blower stack				19	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				0.6	ppm					
Effluent concentration - lag GAC				0.4	ppm					
Depth to product in Convault				1.03	ft					
Depth to interface in Convault				2.16	ft					
Approximate total liquid volume recovered				377	gal					
Approximate product volume recovered				296	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 09/16/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.27	11.29	0.02	11.25	Off	P=7;D=15	9/9/09 18:00	1/21/09 18:00	31:10	
RW-4	10.50	10.98	0.48	11.0	Off	P=7;D=15	9/9/09 18:00	1/21/09 18:00	96:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.81	11.19	2.38	10.0	4.0	P=7;D=15	9/9/09 18:00	1/21/09 18:00	371:35	
RW-7	7.74	10.81	3.07	8.75	9.0 → 4.8	P=7;D=15	9/9/09 18:00	1/21/09 18:00	435:44	Adjusted vacuum to 4.8.
RW-8	9.42	11.24	1.82	10.0	2.4	P=7;D=15	9/9/09 18:00	1/21/09 18:00	111:20	
RW-9	10.06	10.60	0.54	11.0	Off	P=7;D=15	9/9/09 18:00	1/21/09 18:00	24:00	
MW-3	11.10	13.16	2.06		NA	NA		NA		Removed 2 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	This week's data indicates that Depth to product in Convault measurement on 9/2/09 was likely an error.
Air flow rate at blower stack					19	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0	ppm				
Effluent concentration - lag GAC					0	ppm				
Depth to product in Convault					1.09	ft				
Depth to interface in Convault					2.16	ft				
Approximate total liquid volume recovered					361	gal				
Approximate product volume recovered					280	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 09/23/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.25	11.28	0.03	11.25	Off	P=7;D=15	9/16/09 18:00	1/21/09 18:00	31:25	
RW-4	10.45	11.09	0.64	11.0	Off	P=7;D=15	9/16/09 18:00	1/21/09 18:00	96:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.88	11.27	2.39	10.0	3.8	P=7;D=15	9/16/09 18:00	1/21/09 18:00	371:50	Valve is leaking. Approximately 2 gallons of product in catch bucket. Fixed valve but double-check next week.
RW-7	8.19	10.61	2.42	8.75	0.8 → 5.5	P=7;D=15	9/16/09 18:00	1/21/09 18:00	435:59	Adjusted vacuum to 5.5.
RW-8	9.49	11.26	1.77	10.0	2.0	P=7;D=15	9/16/09 18:00	1/21/09 18:00	111:35	
RW-9	10.08	10.60	0.52	11.0	Off	P=7;D=15	9/16/09 18:00	1/21/09 18:00	24:15	
MW-3	11.08	13.07	1.99		NA	NA		NA		Removed 3.5 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					22	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.2	ppm				
Effluent concentration - lag GAC					0.3	ppm				
Depth to product in Convault					1.04	ft				
Depth to interface in Convault					2.14	ft				
Approximate total liquid volume recovered					374	gal				
Approximate product volume recovered					288	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 09/30/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.30	11.35	0.05	11.25	Off	P=7;D=15	9/23/09 18:00	1/21/09 18:00	31:40	
RW-4	10.52	11.34	0.82	11.0	Off	P=7;D=15	9/23/09 18:00	1/21/09 18:00	96:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.70	10.23	1.53	10.0	6.2	P=7;D=15	9/23/09 18:00	1/21/09 18:00	372:05	
RW-7	7.95	10.78	2.83	8.75	6.0	P=7;D=15	9/23/09 18:00	1/21/09 18:00	436:14	
RW-8	9.48	11.12	1.64	10.0	2.4	P=7;D=15	9/23/09 18:00	1/21/09 18:00	111:50	
RW-9	10.11	10.60	0.49	11.0	Off	P=7;D=15	9/23/09 18:00	1/21/09 18:00	24:30	
MW-3	11.06	13.15	2.09		NA	NA		NA		Removed 4.5 gal of product.
Elapsed time at blower				--	hrs	Site column water level			--	
Air flow rate at blower stack				22	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				0.5	ppm					
Effluent concentration - lag GAC				0.5	ppm					
Depth to product in Convault				1.01	ft					
Depth to interface in Convault				2.15	ft					
Approximate total liquid volume recovered				382	gal					
Approximate product volume recovered				298	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 10/07/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.31	11.33	0.02	11.25	Off	P=7;D=15	9/30/09 18:00	1/21/09 18:00	31:55	
RW-4	10.44	11.65	1.21	11.0	Off	P=7;D=15	9/30/09 18:00	1/21/09 18:00	97:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.91	11.45	2.54	10.0	4.8	P=7;D=15	9/30/09 18:00	1/21/09 18:00	372:20	Valve is leaking.
RW-7	7.95	11.00	3.05	8.75	4.6	P=7;D=15	9/30/09 18:00	1/21/09 18:00	436:29	
RW-8	9.52	11.33	1.81	10.0	2.0	P=7;D=15	9/30/09 18:00	1/21/09 18:00	112:05	
RW-9	10.13	10.65	0.52	11.0	Off	P=7;D=15	9/30/09 18:00	1/21/09 18:00	24:45	
MW-3	11.13	13.16	2.03		NA	NA		NA		Removed 6.5 gal of product.
Elapsed time at blower				--	hrs	Site column water level			--	Note: 0.5 of the 6.5 gallons removed spilled on asphalt when GeoPump tubing broke. Surface was cleaned with paper towels. Contaminated paper towels were left in labeled garbage bag in system area.
Air flow rate at blower stack				19	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				1.7	ppm					
Effluent concentration - lag GAC				1.3	ppm					
Depth to product in Convault				0.97	ft					
Depth to interface in Convault				2.15	ft					
Approximate total liquid volume recovered				393	gal					
Approximate product volume recovered				309	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 10/14/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.90	11.64	0.74	11.25	Off	P=7;D=15	10/7/09 18:00	1/21/09 18:00	32:10	
RW-4	10.36	11.22	0.86	11.0	Off	P=7;D=15	10/7/09 18:00	1/21/09 18:00	97:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.55	11.25	2.70	10.0	10.0 → 5.2	P=7;D=15	10/7/09 18:00	1/21/09 18:00	372:35	Adjusted vacuum to 5.2.
RW-7	7.78	11.25	3.47	8.75	10.6 → 4.5	P=7;D=15	10/7/09 18:00	1/21/09 18:00	436:44	Adjusted vacuum to 4.5.
RW-8	9.08	10.84	1.76	10.0	14.8 → 0.0	P=7;D=15	10/7/09 18:00	1/21/09 18:00	112:20	Tried to adjust vacuum to lower range. Vacuum dropped to zero and even with tightening would not increase. Valve appears to be completely closed and will not turn any more.
RW-9	10.11	10.58	0.47	11.0	Off	P=7;D=15	10/7/09 18:00	1/21/09 18:00	25:00	
MW-3	10.66	12.00	1.34		NA	NA		NA		Removed 0.5 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					19	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.3	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					0.89	ft				
Depth to interface in Convault					2.11	ft				
Approximate total liquid volume recovered					414	gal				
Approximate product volume recovered					319	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 10/21/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.74	11.34	0.60	11.25	Off	P=7;D=15	10/14/09 18:00	1/21/09 18:00	32:25	Pump set at 11 feet, 3 inches. Left pump at this setting.
RW-4	10.03	10.43	0.40	11.0 → 10.42	Off	P=7;D=15	10/14/09 18:00	1/21/09 18:00	97:30	Pump set at 11 feet. Pump moved to 10 feet, 5 inches.
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.85	11.09	2.24	10.0	3.4	P=7;D=15	10/14/09 18:00	1/21/09 18:00	372:50	Pump set at 10 feet. Left pump at this setting.
RW-7	8.02	10.45	2.43	8.75	2.6	P=7;D=15	10/14/09 18:00	1/21/09 18:00	436:59	Pump set at 8 feet, 9 inches. Left pump at this setting.
RW-8	9.60	11.07	1.47	10.0 → 10.5	0.0	P=7;D=15	10/14/09 18:00	1/21/09 18:00	112:35	Pump set at 10 feet. Pump moved to 10.5 feet. Attempted to adjust vacuum. Could not adjust vacuum.
RW-9	9.92	10.37	0.45	11.0 → 10.0	Off	P=7;D=15	10/14/09 18:00	1/21/09 18:00	25:15	Pump was set at 11 feet. Pump moved to 10 feet.
MW-3	10.74	11.64	0.90		NA	NA		NA		Removed 1.5 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	Measured all pump depths from center of pump travel range.
Air flow rate at blower stack					28	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0	ppm				
Effluent concentration - lag GAC					0	ppm				
Depth to product in Convault					0.85	ft				
Depth to interface in Convault					2.07	ft				
Approximate total liquid volume recovered					424	gal				
Approximate product volume recovered					319	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 10/28/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.78	11.22	0.44	11.25	Off	P=7;D=15	10/21/09 18:00	1/21/09 18:00	32:40	
RW-4	10.02	10.56	0.54	10.42	Off	P=7;D=15	10/21/09 18:00	1/21/09 18:00	97:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.87	10.87	2.00	10.0	2.8	P=7;D=15	10/21/09 18:00	1/21/09 18:00	373:05	
RW-7	8.09	10.20	2.11	8.75	0.0 → 5.0	P=7;D=15	10/21/09 18:00	1/21/09 18:00	437:14	Adjusted vacuum to 5.0.
RW-8	9.52	10.38	0.86	10.5	0.0 → 3.8	P=7;D=15	10/21/09 18:00	1/21/09 18:00	112:50	Adjusted vacuum to 3.8. To increase vacuum, turn valve towards "open" past apparent stop. Valve will click several times as it's being turned
RW-9	9.89	10.36	0.47	10.0	Off	P=7;D=15	10/21/09 18:00	1/21/09 18:00	25:30	
MW-3	10.72	11.74	1.02		NA	NA		NA		Removed 1 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					28	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0	ppm				
Effluent concentration - lag GAC					0.2	ppm				
Depth to product in Convault					0.80	ft				
Depth to interface in Convault					2.09	ft				
Approximate total liquid volume recovered					437	gal				
Approximate product volume recovered					338	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 11/04/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.83	11.24	0.41	11.25	Off	P=7;D=15	10/28/09 18:00	1/21/09 18:00	32:55	
RW-4	10.06	10.78	0.72	10.42	Off	P=7;D=15	10/28/09 18:00	1/21/09 18:00	98:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.93	10.92	1.99	10.0	2.4	P=7;D=15	10/28/09 18:00	1/21/09 18:00	373:20	
RW-7	8.02	10.51	2.49	8.75	2.9	P=7;D=15	10/28/09 18:00	1/21/09 18:00	437:29	
RW-8	9.54	10.41	0.87	10.5	0.0 → 7.0	P=7;D=15	10/28/09 18:00	1/21/09 18:00	113:05	Adjusted vacuum to 7.0.
RW-9	9.91	10.50	0.59	10.0	Off	P=7;D=15	10/28/09 18:00	1/21/09 18:00	25:45	
MW-3	10.75	11.82	1.07		NA	NA		NA		Removed 1 gal of product.
Elapsed time at blower					--	hrs	Site column water level		--	
Air flow rate at blower stack					21	scfm	Compressor condensate emptied?		no	
Effluent vacuum					--	iwc				
Effluent concentration - lead GAC					0.0	ppm				
Effluent concentration - lag GAC					0.0	ppm				
Depth to product in Convault					0.80	ft				
Depth to interface in Convault					2.08	ft				
Approximate total liquid volume recovered					437	gal				
Approximate product volume recovered					335	gal				

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 11/18/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.12	11.43	0.31	11.25	Off	P=7;D=15	11/11/09 18:00	1/21/09 18:00	33:25	
RW-4	10.29	11.25	0.96	10.42	Off	P=7;D=15	11/11/09 18:00	1/21/09 18:00	98:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.04	11.12	2.08	10.0	1.8	P=7;D=15	11/11/09 18:00	1/21/09 18:00	373:50	
RW-7	7.74	10.71	2.97	8.75	5.0	P=7;D=15	11/11/09 18:00	1/21/09 18:00	437:59	
RW-8	9.49	10.85	1.36	10.5	2.4	P=7;D=15	11/11/09 18:00	1/21/09 18:00	113:35	
RW-9	10.00	10.56	0.56	10.0	Off	P=7;D=15	11/11/09 18:00	1/21/09 18:00	26:15	
MW-3	11.24	11.40	0.16		NA	NA		NA		Removed 1.5 gal of product. Measurement made post-pumping.
Elapsed time at blower				--	hrs	Site column water level			--	
Air flow rate at blower stack				28	scfm	Compressor condensate emptied?			no	
Effluent vacuum				--	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				0.45	ft					
Depth to interface in Convault				2.07	ft					
Approximate total liquid volume recovered				529	gal					
Approximate product volume recovered				424	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 11/25/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.16	11.49	0.33	11.25	Off	P=7;D=15	11/18/09 18:00	1/21/09 18:00	33:40	
RW-4	10.32	11.48	1.16	10.42	Off	P=7;D=15	11/18/09 18:00	1/21/09 18:00	98:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.08	11.16	2.08	10.0	1.7	P=7;D=15	11/18/09 18:00	1/21/09 18:00	374:05	
RW-7	8.15	10.78	2.63	8.75	2.4	P=7;D=15	11/18/09 18:00	1/21/09 18:00	438:14	
RW-8	9.55	10.72	1.17	10.5	2.6	P=7;D=15	11/18/09 18:00	1/21/09 18:00	113:50	
RW-9	10.04	10.56	0.52	10.0	Off	P=7;D=15	11/18/09 18:00	1/21/09 18:00	26:30	
MW-3	11.01	12.64	1.63		NA	NA		NA		Removed 1.5 gal of product.
Elapsed time at blower				13,649.55	hrs	Site column water level			--	Product removed from Convault prior to weekly site visit
Air flow rate at blower stack				30	scfm	Compressor condensate emptied?			no	
Effluent vacuum				72	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				2.33	ft					
Depth to interface in Convault				2.39	ft					
Approximate total liquid volume recovered				565	gal					
Approximate product volume recovered				440	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 12/01/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.11	11.51	0.40	11.25	Off	P=7;D=15	11/25/09 18:00	1/21/09 18:00	33:55	
RW-4	10.22	11.52	1.30	10.42	Off	P=7;D=15	11/25/09 18:00	1/21/09 18:00	99:00	Having trouble with sounder, depth measurements may not be accurate.
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.08	11.15	2.07	10.0	1.9	P=7;D=15	11/25/09 18:00	1/21/09 18:00	374:20	Valve is leaking. Leak bucket contains 1/2 gal
RW-7	7.76	10.80	3.04	8.75	0 → 5.0	P=7;D=15	11/25/09 18:00	1/21/09 18:00	438:29	Adjusted vacuum to 5.0.
RW-8	9.61	10.58	0.97	10.5	2.2	P=7;D=15	11/25/09 18:00	1/21/09 18:00	114:05	Valve is leaking a bit. Leak bucket contains approx. 200 mL
RW-9	10.06	10.55	0.49	10.0	Off	P=7;D=15	11/25/09 18:00	1/21/09 18:00	26:45	
MW-3	11.03	12.47	1.44		NA	NA		NA		Removed 8 gal of product.
Elapsed time at blower				13,798.47	hrs	Site column water level		--		
Air flow rate at blower stack				37	scfm	Compressor condensate emptied?		yes		
Effluent vacuum				72	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				2.25	ft					
Depth to interface in Convault				2.39	ft					
Approximate total liquid volume recovered				587	gal					
Approximate product volume recovered				461	gal					
Site column too dirty to read. Removed ORC sock from MW-4 and measured DO. DO at 21.5 °C = 0.69 mg/L.										

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 12/09/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	11.28	11.78	0.50	11.25	Off	P=7;D=15	12/2/09 18:00	1/21/09 18:00	34:10	Replaced pump. New pump set at same depth as old pump.
RW-4	10.45	10.75	0.30	10.42	Off	P=7;D=15	12/2/09 18:00	1/21/09 18:00	99:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.15	10.90	1.75	10.0	1.6	P=7;D=20	12/2/09 18:00	1/21/09 18:00	374:40	
RW-7	7.96	10.82	2.86	8.75	4.6	P=7;D=20	12/2/09 18:00	1/21/09 18:00	438:49	
RW-8	9.65	10.50	0.85	10.5	2.4	P=7;D=15	12/2/09 18:00	1/21/09 18:00	114:20	
RW-9	10.18	10.39	0.21	10.0	Off	P=7;D=15	12/2/09 18:00	1/21/09 18:00	27:00	
MW-3	11.05	12.81	1.76		NA	NA		NA		Removed 8 gal of product.
Elapsed time at blower				13,991.48	hrs	Site column water level			--	
Air flow rate at blower stack				29	scfm	Compressor condensate emptied?			no	
Effluent vacuum				76	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				2.20	ft					
Depth to interface in Convault				2.39	ft					
Approximate total liquid volume recovered				600	gal					
Approximate product volume recovered				474	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 12/16/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.81	11.79	0.98	11.25	Off	P=7;D=15	12/9/09 18:00	1/21/09 18:00	34:24	
RW-4	10.14	10.53	0.39	10.42	Off	P=7;D=15	12/9/09 18:00	1/21/09 18:00	99:30	Water in vault (recent rain).
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.97	10.85	1.88	10.0	1.5	P=7;D=20	12/9/09 18:00	1/21/09 18:00	375:00	Adjusted vacuum to 5.0.
RW-7	7.85	10.11	2.26	8.75	6.5	P=7;D=20	12/9/09 18:00	1/21/09 18:00	439:09	Water in vault (recent rain).
RW-8	9.60	10.29	0.69	10.5	2.2	P=7;D=15	12/9/09 18:00	1/21/09 18:00	114:35	
RW-9	9.98	10.22	0.24	10.0	Off	P=7;D=15	12/9/09 18:00	1/21/09 18:00	27:15	
MW-3	10.69	11.71	1.02		NA	NA		NA		Removed 0.5 gal of product.
Elapsed time at blower				14,157.26	hrs	Site column water level			--	
Air flow rate at blower stack				32	scfm	Compressor condensate emptied?			yes	
Effluent vacuum				73	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.1	ppm					
Depth to product in Convault				2.06	ft					
Depth to interface in Convault				2.59	ft					
Approximate total liquid volume recovered				636	gal					
Approximate product volume recovered				563	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 12/23/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.86	11.36	0.50	11.25	Off	P=7;D=15	12/16/09 12:00	1/21/09 18:00	34:40	
RW-4	10.13	10.51	0.38	10.42	Off	P=7;D=15	12/16/09 12:00	1/21/09 18:00	99:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.69	10.84	2.15	10.0	5.2	P=7;D=20	12/16/09 12:00	1/21/09 18:00	375:20	
RW-7	8.02	10.33	2.31	8.75	3.4	P=7;D=20	12/16/09 12:00	1/21/09 18:00	439:29	
RW-8	9.45	10.25	0.80	10.5	3.0	P=7;D=15	12/16/09 12:00	1/21/09 18:00	114:50	
RW-9	10.15	10.48	0.33	10.0	Off	P=7;D=15	12/16/09 12:00	1/21/09 18:00	0:00	
MW-3	10.75	11.67	0.92		NA	NA		NA		Removed 2 gal of product.
Elapsed time at blower				14323.68	hrs	Site column water level			empty	
Air flow rate at blower stack				33	scfm	Compressor condensate emptied?			yes	
Effluent vacuum				74	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				1.89	ft					
Depth to interface in Convault				2.21	ft					
Approximate total liquid volume recovered				681	gal					
Approximate product volume recovered				508	gal					

**TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
July 1 through December 31, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California**

Site Visit Date: 12/30/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H ₂ O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	--	--	--		Off	Off		NA		
RW-3	10.85	11.23	0.38	11.25	Off	P=7;D=15	12/23/09 12:00	1/21/09 18:00	34:55	
RW-4	10.18	10.62	0.44	10.42	Off	P=7;D=15	12/23/09 12:00	1/21/09 18:00	100:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.72	10.74	2.02	10.0	5.2	P=7;D=20	12/23/09 12:00	1/21/09 18:00	375:40	
RW-7	8.01	10.23	2.22	8.75	4.0	P=7;D=20	12/23/09 12:00	1/21/09 18:00	439:49	
RW-8	9.46	10.31	0.85	10.5	2.6	P=7;D=15	12/23/09 12:00	1/21/09 18:00	115:05	
RW-9	10.13	10.50	0.37	10.0	Off	P=7;D=15	12/23/09 12:00	1/21/09 18:00	0:15	
MW-3	10.79	11.52	0.73		NA	NA		NA		Removed 1 gal of product.
Elapsed time at blower				14491.24	hrs	Site column water level			empty	
Air flow rate at blower stack				33	scfm	Compressor condensate emptied?			yes	
Effluent vacuum				32	iwc					
Effluent concentration - lead GAC				0.0	ppm					
Effluent concentration - lag GAC				0.0	ppm					
Depth to product in Convault				2.01	ft					
Depth to interface in Convault				2.33	ft					
Approximate total liquid volume recovered				649	gal					
Approximate product volume recovered				508	gal					

Notes:

NP = no product

ft = ft

-- = not measured

gal = gallons

in/H₂O = inches of water

hr:min = hours:minutes

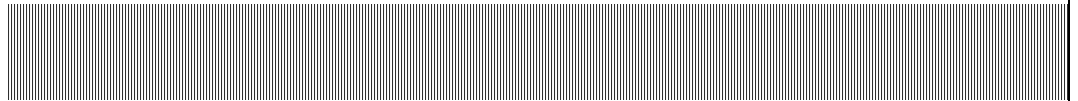
italicized values = estimates



Port of Oakland

530 Water Street • Oakland, CA 94607

Appendix A Groundwater Sampling Forms



**YSI 6920 RENTAL
CALIBRATION CERTIFICATE**

SERVICE TECHNICIAN: JCS

DATE: 12/7/09

RENTAL CUSTOMER:

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSI-6920. 18
SERIALNUMBER:

CALIBRATION INFORMATION

PARAMETERS:	STANDARDS:	PASS ()	LOT#
1. CONDUCTIVITY	<u>1000</u> μ Mhos	<input checked="" type="checkbox"/>	<u>6888</u>
2. pH ZERO	pH 7	<input checked="" type="checkbox"/>	<u>1801964</u>
3. pH SLOPE	pH 4	<input checked="" type="checkbox"/>	<u>1712282</u>
ph SLOPE	pH 10	<input checked="" type="checkbox"/>	<u>1710812</u>
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<input checked="" type="checkbox"/>	n/a
5. DISSOLVED OXYGEN ZERO TEST	(sodium sulfite)	<input checked="" type="checkbox"/>	
6. TURBIDITY ZERO	0.0 NTU's	<input checked="" type="checkbox"/>	100A
7. TURBIDITY SPAN	<u>20</u> NTU's	<input checked="" type="checkbox"/>	<u>120709</u>
8. REDOX (ORP)	<u>231</u> mV (YSI Zobell solution)	<input checked="" type="checkbox"/>	<u>41510</u>

YSI 6920 RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: KM

DATE: 12/7/2009

RENTAL CUSTOMER:

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSI-6920. 12
SERIALNUMBER:

CALIBRATION INFORMATION

PARAMETERS:	STANDARDS:	PASS ()	LOT#
1. CONDUCTIVITY	<u>1000</u> μ Mhos	<u>X</u>	<u>7406</u>
2. pH ZERO	pH 7	<u>X</u>	<u>1907023</u>
3. pH SLOPE	pH 4	<u>X</u>	<u>2907506</u>
ph SLOPE	pH 10	<u>X</u>	<u>1906640</u>
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	<u>X</u>	n/a
5. DISSOLVED OXYGEN ZERO TEST	(sodium sulfite)	<u>X</u>	
6. TURBIDITY ZERO	0.0 NTU's	<u>X</u>	100A
7. TURBIDITY SPAN	<u>20</u> NTU's	<u>X</u>	<u>12/7/09</u>
8. REDOX (ORP)	<u>231</u> mV (YSI Zobell solution)	<u>X</u>	<u>12/28/10</u>

GROUNDWATER SAMPLING

Well No.: **MW-1**

Project No. 4656016 Recorded by: CO/SC Date: 12/8/09
 Project Name: Harbor Facilities Center Depth of well from TOC (feet): 17.65
 Location: Port of Oakland Well diameter (inches): 2
651 Maritime Street, Oakland, California Screened interval from TOC (feet): 7.65-17.65
 Weather: cloudy, 40s TOC elevation, NAVD 88 (feet): 15.80
 Precip. in past 5 days (in.): 0.76 Groundwater elevation, NAVD 88 (feet): 5.01
 Source: Oakland Fire Services Agency "ONSO" Water level from TOC (feet): 10.79 Time: 1020
 Water level instrument: Heron Instruments H.61L Product level from TOC (feet): - Time: 1020

CALCULATION OF WELL VOLUME: Interface Meter

$(17.65 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 1.1 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 3 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

see cal sheet for YSI 6920.34

FIELD MEASUREMENTS:

Began pumping @ 1603

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1605	20.75	6.81	0.46	-79.7	552	52.5	0
1608	21.00	6.71	0.21	-83.6	517	32.8	0.5
1611	21.16	6.67	0.16	-87.3	521	8.0	1
1614	21.23	6.66	0.13	-92.0	530	5.3	1.5
1617	21.26	6.67	0.13	-95.2	526	4.2	2
1620	21.24	6.67	0.12	-96.6	519	2.8	2.5

Purge method: geo pump Sample Time: 1620
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 VOA's; 2 500 mL amber glass
 Sample analyses: TPH-g, d/mo 8015M; BTEX + mtbe 8260 Laboratory: C+T
 Decontamination method: none - disposable tubing Rinsate disposal: -
 Comments: Purge water has sheen; well has lock; keys don't work

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-2**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: Cold
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "onli"
 Water level instrument: Heron Instruments H.O.L.

Recorded by: CO Date: 12/9/09
 Depth of well from TOC (feet): 18.06
 Well diameter (inches): 2
 Screened interval from TOC (feet): 8.06-18.06
 TOC elevation, NAVD 88 (feet): 16.43
 Groundwater elevation, NAVD 88 (feet): 4.3
 Water level from TOC (feet): 12.13 Time: 1230
 Product level from TOC (feet): --- Time: ---

CALCULATION OF WELL VOLUME: Interface Meter

$(18.06 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 0.96 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 1.03 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

See cal sheet for YSF. 6920.34

FIELD MEASUREMENTS:

Began purging @ 1250

air bubbles reduced pump speed ~ 3 min

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1252	19.25	6.40	0.92	-68.9	1500	18.8	0
1254	19.25	5.86	1.30	-72.3	1494	30.1	0.1
1255	19.37	5.67	1.47	-54.8	1492	1.3	0.2
1257	19.48	5.62	1.53	-42.6	1487	10.5	0.25
1258	19.58	5.62	1.56	-34.1	1485	24.9	0.3
1300	19.64	5.62	1.50	-27.0	1482	0.1	0.3 0.5
1302							
1305	19.34	5.78	4.26	-29.8	1482	0.0	0.5 0.6
1307	19.39	5.76	4.03	-30.5	1480	0.6	0.6 0.8

Purge method: grab pump Sample Time: 1315
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: to VOAS, 2 500 ml amber glass; 4 VOAS; 1.5 500 ml amber glass
 Sample analyses: TPH-g, d/mo 8015M; BTEX + mtlbl 8260 Laboratory: CWT
 Decontamination method: none - disposable tubing Rinsate disposal: -
 Comments: _____

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-2**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cloudy, 40's
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "000"
 Water level instrument: Huon Instruments H-011

Recorded by: CO Date: 12/8/09
 Depth of well from TOC (feet): 18.06
 Well diameter (inches): 2
 Screened interval from TOC (feet): 8.06-18.06
 TOC elevation, NAVD 88 (feet): 16.43
 Groundwater elevation, NAVD 88 (feet): 4.33
 Water level from TOC (feet): 12.10 Time: 1015
 Product level from TOC (feet): - Time: -

CALCULATION OF WELL VOLUME:

$(18.06 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$

0.96 gallons in one casing volume
1.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

see cal sheet for YSI 6920.34

FIELD MEASUREMENTS:

Started pumping @ 1516

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
518	19.50	6.90	34.1%	-37.9	1425	1.4	0
521	19.86	6.64	0.88	-37.1	1431	1.9	0.25
524	20.13	6.43	0.56	-37.5	1454	1.5	0.5
527	20.25	6.54	0.50	-37.3	1443	4.4	0.75
530	26.18	6.58	1.10	-46.4	1462		1
Well not recovering; did not sample							

Purge method: geopump Sample Time: _____
 Duplicate/blank number: _____ Duplicate Sample Time: _____
 Sampling equipment: _____ VOA attachment: _____
 Sample containers: _____
 Sample analyses: _____ Laboratory: _____
 Decontamination method: _____ Rinsate disposal: _____
 Comments: _____

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-3**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cold
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "ONO"
 Water level instrument: Heron Instruments A.O.L.

Recorded by: CO Date: 12/9/09
 Depth of well from TOC (feet): 17.47
 Well diameter (inches): 2
 Screened interval from TOC (feet): 7.47-17.47
 TOC elevation, NAVD 88 (feet): 15.66
 Groundwater elevation, NAVD 88 (feet): 2.85
 Water level from TOC (feet): 11.78 ^{2.8'} Time: 11:00
 Product level from TOC (feet): 11.28 ^{1.5'} Time: 11:00

CALCULATION OF WELL VOLUME: Interface M

$$(17.47 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$$

$$\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$$

_____ gallons in one casing volume
 _____ total gallons removed

CALIBRATION:

Free Product found in well; Well not sampled.

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed

Purge method: _____ Sample Time: _____
 Duplicate/blank number: _____ Duplicate Sample Time: _____
 Sampling equipment: _____ VOA attachment: _____
 Sample containers: _____
 Sample analyses: _____ Laboratory: _____
 Decontamination method: _____ Rinsate disposal: _____
 Comments: _____

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-4**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: Overcast, Cold
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency 'ONO'
 Water level instrument: Heron Instruments H.01L

Recorded by: LSH Date: 12/8/09
 Depth of well from TOC (feet): 22.05
 Well diameter (inches): 2
 Screened interval from TOC (feet): 11.25-22.05
 TOC elevation, NAVD 88 (feet): 15.91
 Groundwater elevation, NAVD 88 (feet): 3.89
 Water level from TOC (feet): 12.03 Time: 9:50
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(22.05 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 1.6 gallons in one casing volume
 $\text{well depth} - \text{water level } (12.03) \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 4.0 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

see cal sheet unit # 451-6920.12

FIELD MEASUREMENTS:

start purge:
11:25 11:41

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
11:45	21.42	8.76	1.74	-53.3	913	2.0	0.25
11:47	21.66	7.82	0.47	-135.0	1051	0.0	0.5
11:49	21.74	7.57	0.36	-148.5	1070	-0.6	0.75
11:51	21.75	7.51	0.42	-155.3	1073	-0.1	1.0
11:53	21.78	7.45	0.31	-157.8	1078	-0.4	1.25
11:55	21.80	7.41	0.26	-162.0	1084	-0.7	1.5
11:57	21.77	7.38	0.28	-164.4	1089	-0.8	1.75
11:59							
12:01 11:59	21.81	7.37	0.22	-165.9	1097	-0.7	2.02 2.5
12:03 12:02							2.25 2.5
12:05 12:02	21.78	7.35	0.20	-167.2	1104	-0.9	2.75 3.0
12:07 12:04	21.81	7.33	0.19	-168.9	1114	-0.8	2.93 3.25
12:09 12:06	21.81	7.32	0.18	-169.6	1114	-0.8	3.25 3.5

Purge method: geopump Sample Time: 12:10
 Duplicate/blank number: 0 MW-4 DUP Duplicate Sample Time: 12:10
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 VOAs, 2 500ml amber glass
 Sample analyses: TPH-g, d/mo 8015; BTEX + mme 8260 Laboratory: C&T
 Decontamination method: none disposable tubing Rinsate disposal: —
 Comments: no lock

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-5**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cloudy, 40s
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "dNo"
 Water level instrument: Heron Instruments H-01L

Recorded by: SC Date: 12/8/09
 Depth of well from TOC (feet): 20.8
 Well diameter (inches): 2
 Screened interval from TOC (feet): 10.4-20.8
 TOC elevation, NAVD 88 (feet): 15.39
 Groundwater elevation, NAVD 88 (feet): 5.87
 Water level from TOC (feet): 9.52 Time: 9:35
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(20.80 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 1.8 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 5 total gallons removed

CALIBRATION: YSI 650.12

Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:						
Before Purging:						
After Purging:						

see cal sheet for YSI 6920.12

FIELD MEASUREMENTS:

Start purging @ 9:48

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	Cond. (µS/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:49	14.68	7.54	4.41	-36.9	2050 (µS/cm)	12.3	0.25
9:53	21.04	7.06	2.11	-79.8	1953	16.3	0.50
9:55	21.50	7.04	1.94	-77.2	1905	22.8	0.75
9:57	21.42	7.08	1.67	-78.0	1762	16.3	1.50
9:59	21.49	7.02	1.45	-81.2	1769	10.2	1.75
10:01	21.56	7.02	1.31	-87.6	1889	6.3	2.00
10:03	21.61	7.03	1.24	-93.5	2018	2.7	2.50
10:05	21.60	7.03	1.24	-96.6	2079	1.2	2.75
10:07	21.63	7.04	1.25	-99.0	2115	0.8	3.00
10:09	21.62	7.05	1.34	-102.4	2141	0.1	3.50
10:11	21.64	7.04	1.41	-104.2	2166	0.0	3.75
10:13	21.64	7.04	1.45	-105.0	2170	-0.3	4.00
10:15	21.66	7.04	1.50	-105.3	2171	-0.4	4.50

Purge method: glopump Sample Time: 10:18
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 VOAs, 2 500 ml amber glass
 Sample analyses: TPH - g, d/mo 8015M; BTEX + nitrate 8260 Laboratory: CPT
 Decontamination method: none - disposable tubing Rinsate disposal: —
 Comments: no lock

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-8A**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cloudy, 40's
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "ONO"
 Water level instrument: Huron Instruments H-01L

Recorded by: CO Date: 12/8/09
 Depth of well from TOC (feet): 23.14
 Well diameter (inches): 2
 Screened interval from TOC (feet): 7.54-22.54
 TOC elevation, NAVD 88 (feet): 14.99
 Groundwater elevation, NAVD 88 (feet): 3.35
 Water level from TOC (feet): 11.64 Time: 1030
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(23.14 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 1.9 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

See Cal sheet for YSI 6920.34

FIELD MEASUREMENTS:

Began purge @ 1800 1406

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1404	19.07	6.70	0.36	-123.8	2650	13.2	0.25
1407	19.35	6.68	0.30	-116.0	2342	5.7	0.5
1410	19.46	6.59	0.25	-109.6	2227	2.3	1
1413	19.51	6.56	0.22	-112.8	2200	3.1	1.5
1417	19.54	6.58	0.21	-113.1	2187	2.3	1.75
1420	19.54	6.58	0.21	-110.9	2192	3.0	2
1423	19.56	6.59	0.19	-118.5	2178	5.7	2.5
1426	19.56	6.58	0.19	-119.5	2178	3.6	3
1432	19.54	6.59	0.19	-122.5	2176	1.8	4

Purge method: Geopump Sample Time: 1435
 Duplicate/blank number: n/a Duplicate Sample Time: —
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 VOAs, 2 500 mL amber glass
 Sample analyses: TPH-g, d/ms 8015M; BTEX & mtbe 82160 Laboratory: C+T
 Decontamination method: none, disposable tubing Rinsate disposal: —
 Comments: locked - very rusty lock keys don't work

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-9**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cold, overcast
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "ONO"
 Water level instrument: Heron Instruments H-01L

Recorded by: LSH/SC Date: 12/8/09
 Depth of well from TOC (feet): 25
 Well diameter (inches): 2
 Screened interval from TOC (feet): 15 - 25
 TOC elevation, NAVD 88 (feet): 16.33
 Groundwater elevation, NAVD 88 (feet): 4.03
 Water level from TOC (feet): 12.30 Time: 945
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(25.00 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 2.05 gallons in one casing volume
 well depth - 12.30 x (well radius)² x π x gal/ft³ = 4.25 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

See cal sheet for YSI 6920.12

FIELD MEASUREMENTS:

Purge began @ 13:38

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1339	20.49	7.13	1.80	-162.0	219.1	5.2	0.25
1342	20.73	7.11	0.30	-168.6	2203	4.1	0.50
1345	21.13	7.10	0.40	-172.5	2105	2.1	1.00
1348	21.27	7.08	0.34	-174.4	2134	2.4	1.33
1351	21.25	7.08	0.32	-176.1	2108	1.5	1.67
1354	21.25	7.08	0.29	-176.6	2108	3.3	2.0
1358	21.28	7.07	0.26	-177.5	2087	2.6	2.8
1401	21.26	7.07	0.25	-177.9	2076	2.0	3.5
1404	21.29	7.08	0.24	-178.4	2071	2.8	4.0
1406	21.29	7.07	0.23	-178.4	2070	2.1	4.25
1408	21.30	7.07	0.23	-178.5	2071	2.2	4.5

4 S/cm

Purge method: geopump Sample Time: 1410
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 NOAS, 2 500 mL amber glass
 Sample analyses: TPH-g, d/mo 805M; BTEX+ mtbc 82160 Laboratory: C&T
 Decontamination method: none - disposable tubing Rinsate disposal: —
 Comments: slight sheen on purged water

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

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GROUNDWATER SAMPLING

Well No.: **MW-10**

Project No. <u>4656016</u>	Recorded by: <u>CO</u> Date: <u>12/8/09</u>
Project Name: <u>Harbor Facilities Center</u>	Depth of well from TOC (feet): <u>25</u>
Location: <u>Port of Oakland</u>	Well diameter (inches): <u>2</u>
<u>651 Maritime Street, Oakland, California</u>	Screened interval from TOC (feet): <u>15 - 25</u>
Weather: <u>cloudy, 40s</u>	TOC elevation, NAVD 88 (feet): <u>15.65</u>
Precip. in past 5 days (in.): <u>0.76</u>	Groundwater elevation, NAVD 88 (feet): <u>4.69</u>
Source: <u>Oakland Fire Services Agency "0No"</u>	Water level from TOC (feet): <u>10.96</u> Time: <u>1000</u>
Water level instrument: <u>Heron Instruments H-01L</u>	Product level from TOC (feet): <u>—</u> Time: <u>—</u>

CALCULATION OF WELL VOLUME: Interface Meter

$(25.00 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 2.27 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 5.5 total gallons removed

CALIBRATION:

0.34

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

see cal sheet for YSI-6920, 34

FIELD MEASUREMENTS:

started purging @ 1109

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1110	18.76	6.20	2.10	-125.5	36110	2.1	0
1112	19.77	6.20	0.49	-127.9	3605	1.3	0.25
1115	20.02	5.90	0.39	-124.4	3608	0.6	0.50
1118	20.21	6.06	0.36	-123.7	3617	0.2	0.75
1121	20.28	6.07	0.32	-122.9	3623	0.3	1.00
1124	20.31	6.10	0.29	-123.4	3624	0.7	1.5
1127	20.33	6.12	0.28	-125.3	3627	0.9	2
1130	20.36	6.15	0.27	-126.8	3627	0.8	2.5
1133	20.37	6.18	0.27	-128.3	3625	0.6	3
1136	20.36	6.20	0.27	-129.5	3623	0.6	3.5
1139	20.36	6.22	0.26	-130.1	3622	0.6	3.94
1142	20.37	6.24	0.26	-130.0	3623	0.5	4.5

Purge method: Geo Pump Sample Time: 11:45

Duplicate/blank number: n/a Duplicate Sample Time: n/a

Sampling equipment: n/a VOA attachment: none

Sample containers: 6 VOAs, 2 500 mL amber glass

Sample analyses: TPH-g, d/mo 8015M; BTEX + metal 8260 Laboratory: C+T

Decontamination method: none disposable tubing Rinsate disposal: —

Comments: _____

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-3060

GROUNDWATER SAMPLING

Well No.: **MW-11**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: Cold
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency "100"
 Water level instrument: Heron Instruments H-612

Recorded by: LSH Date: 12/9/09
 Depth of well from TOC (feet): 25
 Well diameter (inches): 2
 Screened interval from TOC (feet): 15 - 25
 TOC elevation, NAVD 88 (feet): 15.47
 Groundwater elevation, NAVD 88 (feet): 4.79
 Water level from TOC (feet): 10.668 Time: 13:38
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(25.00 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 2.3 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

See cal sheet for VSI-6920.12

FIELD MEASUREMENTS:

start purge:
12:59

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1302	20.93	7.55	0.60	-156.4	6022	12.7	0.5
1303	21.30	7.52	0.61	-176.3	6023	13.1	1.0
1308	21.49	7.52	0.50	-191.2	6009	5.5	1.5
1311	21.50	7.51	0.49	-193.2	6006	4.9	2.0
1314	21.52	7.51	0.45	-196.9	6014	3.2	2.5
1317	21.62	7.51	0.41	-201.7	6007	2.4	3.0
1320	21.70	7.50	0.38	-204.7	6000	1.5	3.5
1323	21.79	7.49	0.13	-209.5	5993	1.3	4.0
1326	21.76	7.50	0.24	-210.9	5992	1.0	4.5
1329	21.89	7.49	0.19	-213.2	5976	0.9	5.0
1332	21.90	7.48	0.13	-215.4	5990	0.6	5.5
1335	21.90	7.48	0.13	-217.4	695979	0.4	6.0

Purge method: geopump Sample Time: 1338
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 vials, 2 500 ml amber glass
 Sample analyses: TPH-gal/mo 8015M, BTX + mmbc 8260 Laboratory: C&T
 Decontamination method: none - disposable tubing Rinsate disposal: —
 Comments: no lock on well

TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-12**

Project No. 4656016
 Project Name: Harbor Facilities Center
 Location: Port of Oakland
651 Maritime Street, Oakland, California
 Weather: cool, overcast
 Precip. in past 5 days (in.): 0.76
 Source: Oakland Fire Services Agency (ONO)
 Water level instrument: Heron Instruments H-81L

Recorded by: LSH Date: 12/8/09
 Depth of well from TOC (feet): 25
 Well diameter (inches): 2
 Screened interval from TOC (feet): 15 - 25
 TOC elevation, NAVD 88 (feet): 16.79
 Groundwater elevation, NAVD 88 (feet): 4.66
 Water level from TOC (feet): 12.13 Time: 9:30
 Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME: Interface Meter

$(25.00 \text{ ft} - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 2.08 gallons in one casing volume
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$ 4.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:							
After Purging:							

see cal sheet for VSE 6920.12

FIELD MEASUREMENTS:

start purge @ 15:30

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
15:32	17.82	6.97	0.91	-132.8	1894	5.8	0.25
15:34	18.20	6.95	0.54	-146.8	1888	3.4	0.5
15:36	18.84	6.93	0.44	-164.6	1893	2.3	0.75
15:40	18.90	6.93	0.30	-202.6	1899	1.0	1.5
15:42	18.90	6.94	0.31	-211.4	1897	0.3	2.0
15:46	18.90	6.94	0.29	-234.7	1897	0.2	2.25
15:48	18.90	6.95	0.27	-238.9	1897	0.2	2.75
15:50	18.91	6.95	0.26	-244.4	1895	0.2	3.0
15:52	18.90	6.96	0.24	-263.8	1894	0.1	3.25
15:54	18.93	6.96	0.21	-259.2	1892	0.0	3.5
15:56	18.91	6.96	0.21	-261.2	1892	0.0	3.75
15:58	N/A →						4.0

cond µS/cm

Purge method: geopump Sample Time: 16:00
 Duplicate/blank number: n/a Duplicate Sample Time: n/a
 Sampling equipment: n/a VOA attachment: none
 Sample containers: 6 Vials, 2 500 mL amber glass
 Sample analyses: TPH-g, d/mo 8015M, BTEX + mtbe 8260 Laboratory: C+T
 Decontamination method: none - disposable tubing Rinsate disposal: —
 Comments: water discolored (brown) first 2 minutes of purge, then clear

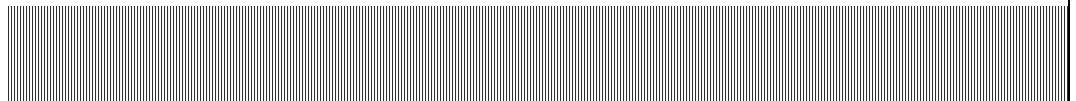
TOC = top of casing
 NAVD 88 = North American Vertical Datum of 1988.



Port of Oakland

530 Water Street • Oakland, CA 94607

Appendix B Analytical Laboratory Reports



Data Validation Worksheet

Lab Report # 217105
 Project Harbor Facilities Complex

DV by: SC
 Date: 1/04/10

Lab IDs	Sample IDs	Date Collected	Parameters			
			TPHg (8015B)	TPHd/mo (8015B)	MTBE + BTEX (8260B)	
-001	MW-5	12/08/09	X	X	X	
-002	MW-4	12/08/09	X	X	X	
-003	MW-4DUP	12/08/09	X	X	X	
-004	MW-9	12/08/09	X	X	X	
-006	MW-10	12/08/09	X	X	X	
-007	MW-8A	12/08/09	X	X	X	
-008	MW-1	12/08/09	X	X	X	
-009	MW-12	12/08/09	X	X	X	
-005	Trip Blank (QCTB)	12/08/09			X	

Lab ID: C+T

NO QUALS

Cooler Temperature: 5.2, 5.8 (4.0+/-2.0 deg C)

Chain-of-Custody: OK

Samples preservatives: OK

Parameter: **TPHg**

HTs: 14 days– analyzed 12/09/09 (1) and 12/10/09 (2)

Batch IDs: 158045 – analyzed 12/09/09 and 12/10/09

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK

MSD OK, surrogates OK

Parameter: **TPHd/mo**

HTs: 7 days– extracted 12/14/09 (6)

Batch IDs: 158224

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK

MSD OK, surrogates OK

Parameter: **BTEX + MTBE**

HTs: 14 days– analyzed 12/11/09 (3) and 12/12/09 (4)

Batch IDs: 158137 – analyzed 12/11/09

158125 – analyzed 12/11/09

158162 – analyzed 12/12/09

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK

MSD OK, surrogates OK

Data Validation Worksheet

Lab Report # 217143
 Project Harbor Facilities Complex

DV by: SC
 Date: 1/04/10

Lab IDs	Sample IDs	Date Collected	Parameters		
			TPHg (8015B)	TPHd/mo (8015B)	MTBE + BTEX (8260B)
-001	MW-11	12/09/09	X	X	X
-002	MW-2	12/09/09	X	X	X
-003	QCTB	12/09/09			X

Lab ID: C+T

NO QUALS

Cooler Temperature: on ice – not specified(4.0+/-2.0 deg C)

Chain-of-Custody: OK

Samples preservatives: OK

Parameter: **TPHg**

HTs: 14 days– analyzed 12/12/09 (3) and 12/13/09 (4)

Batch IDs: 158166 – analyzed 12/12/09 and 12/13/09

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK
 MSD OK, surrogates OK

Parameter: **TPHd/mo**

HTs: 7 days– extracted 12/10/09 (1)

Batch IDs: 158105 – extracted 12/10/09

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK
 MSD OK, surrogates OK

Parameter: **BTEX + MTBE**

HTs: 14 days– analyzed 12/13/09 (4)

Batch IDs: 158175 – analyzed 12/13/09

Surrogates: OK

Method Blank: OK, surrogates OK

LCS: OK, surrogates OK

MS/MSD: MS OK, surrogates OK
 MSD OK, surrogates OK

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

Internal COC: 217105 TVH Water

Destination:
 Curtis & Tompkins, Ltd.
 2840 Eighth Street
 Berkeley, CA 94710
 (510) 486-0900

Sample Num	Client ID	Containers
217105-001	MW-5	
217105-002	MW-4	
217105-003	MW-4 DUP	
217105-004	MW-9	
217105-006	MW-10	
217105-007	MW-8A	
217105-008	MW-1	
217105-009	MW-12	

Relinquished: *Met, Pa* Date/Time: 12/2/09 2200 Received: *[Signature]* Date/Time: 12/9/9900

Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____

Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____

Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____

Curtis & Tompkins, Ltd.
 Analytical Laboratory Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900 Phone
 (510) 486-0532 Fax

CHAIN OF CUSTODY

Analysis

C & T LOGIN #: 217105

Sampler: Lyda Hakes

Report To: Lyda Hakes/Todd Miller

Company: Malden Pirnie

Telephone: 510-596-3000

Fax: 510-596-8655

Project No.: 40510114

Project Name: HFC Semi Annual

Project P.O.:

Turnaround Time: std

X BREX + MBE by USEPA 8260																				
TPH-g by USEPA 801M	X																			
TPH-d/MO by USEPA 8000	X																			
TPH-g by USEPA 801M	X																			
TPH-d/MO by USEPA 8000	X																			

Lab No.	Sample ID.	Sampling Date Time	Matrix			# of Containers	Preservative				
			Soil	Water	Waste		HCL	H ₂ SO ₄	HNO ₃	ICE	
1	MW-5	12/8/2009 10:18	X			3	X	X	X	X	
		12/8/2009 10:18				3	X	X	X	X	
		12/8/2009 10:18				2					
		12/8/2009 12:10				3	X	X	X	X	
2	MW-4				3	X	X	X	X		
					3	X	X	X	X		
3	MW-4 DUP	12/8/2009 12:10				3	X	X	X	X	
					3	X	X	X	X		
4	MW-9	12/8/2009 14:10				3	X	X	X	X	
					3	X	X	X	X		
5	TRIP BLANK (ACTG)				1						

SAMPLE RECEIPT
 Intact Cold
 On Ice Ambient
 Preservative Correct?
 Yes No N/A

RELINQUISHED BY:
Lyda Hakes

RECEIVED BY:
Lyda Hakes 12/8/09 17:15

Notes: Bill Jeff
 Rubin (Port of
 Oakland)

SIGNATURE

DATE / TIME

DATE / TIME

DATE / TIME

Tracy Babjar

From: "Hakes, Lyda" <LHakes@pirnie.com>
To: "Tracy Babjar" <tracy.babjar@ctberk.com>
Cc: "Jeff Rubin" <jrubin@portoakland.com>; "Miller, Todd" <TMiller@PIRNIE.COM>
Sent: Wednesday, December 09, 2009 4:03 PM
Subject: RE: 4656016 - C&T Login Summary (217105)

Hi Tracy, sorry about the oversight. Yes, MW-12 should be analyzed for all 3 analyses (TPH-g, TPH-d/mo, and BTEX + MTBE). Please run the trip blank for BTEX + MTBE.

Thanks,
Lyda

From: Tracy Babjar [mailto:tracy.babjar@ctberk.com]
Sent: Wednesday, December 09, 2009 3:54 PM
To: JRubin@portoakland.com; Hakes, Lyda; Miller, Todd
Subject: 4656016 - C&T Login Summary (217105)

Please note that we have logged in sample MW-12 for all analysis and put the trip blank on hold. If you need me to make any changes I am happy to do so. Tracy

C&T Login Summary for 217105

Project: 4656016	Report To: Malcolm Pirnie, Inc.	Bill To: Po
Site: Port Of Oakland - HFC Semi Annual	2000 Powell St.	53
Lab Login #: 217105	Suite 1180	2n
Report Due: 12/15/09	Emeryville, CA 94608	Oe
PO#:	ATTN: Todd Miller	A.
C&T Proj Mgr: Tracy Babjar	(510) 596-3060	(5

Client ID	Lab ID	Sampled	Received	Matrix	Analyses	COC #	Comments
MW-5	001	12/08	12/08				
				Water	8020MS		MBTXE only.
				Water	SILICA GEL		
				Water	TEHM		Silica Gel
				Water	TVH		
MW-4	002	12/08	12/08				
				Water	8020MS		MBTXE only.
				Water	SILICA GEL		
				Water	TEHM		Silica Gel
				Water	TVH		

12/9/2009

COOLER RECEIPT CHECKLIST



Curtis & Tompkins, Ltd.

Login # 217105 Date Received 12/8/09 Number of coolers 2
Client MALCOLM PIRNIE Project HFC SRM ANNUAL

Date Opened 12/8/09 By (print) M. VILLALBA (sign) [Signature]
Date Logged in [check] By (print) [check] (sign) [check]

1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info

2A. Were custody seals present? ... YES (circle) on cooler on samples NO
How many Name Date

2B. Were custody seals intact upon arrival? YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe)
Bubble Wrap Foam blocks Bags None
Cloth material Cardboard Styrofoam Paper towels

7. Temperature documentation:
Type of ice used: Wet Blue/Gel None Temp(C) 5.2, 5.8
Samples Received on ice & cold without a temperature blank
Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are samples in the appropriate containers for indicated tests? YES NO

11. Are sample labels present, in good condition and complete? YES NO

12. Do the sample labels agree with custody papers? YES NO

13. Was sufficient amount of sample sent for tests requested? YES NO

14. Are the samples appropriately preserved? YES NO N/A

15. Are bubbles > 6mm absent in VOA samples? YES NO N/A

16. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS
[Blank lines for handwritten notes]

Total Volatile Hydrocarbons

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	158045
Units:	ug/L	Sampled:	12/08/09
Diln Fac:	1.000	Received:	12/08/09

Field ID: MW-5 Lab ID: 217105-001
 Type: SAMPLE Analyzed: 12/09/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	96	48-162
Bromofluorobenzene (FID)	90	52-158

Field ID: MW-4 Lab ID: 217105-002
 Type: SAMPLE Analyzed: 12/09/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	98	48-162
Bromofluorobenzene (FID)	91	52-158

Field ID: MW-4 DUP Lab ID: 217105-003
 Type: SAMPLE Analyzed: 12/09/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	48-162
Bromofluorobenzene (FID)	92	52-158

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

Total Volatile Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8015B
Matrix:	Water	Batch#: 158045
Units:	ug/L	Sampled: 12/08/09
Diln Fac:	1.000	Received: 12/08/09

Field ID: MW-1 Lab ID: 217105-008
 Type: SAMPLE Analyzed: 12/10/09

Analyte	Result	RL
Gasoline C7-C12	1,400	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	122	48-162
Bromofluorobenzene (FID)	97	52-158

Field ID: MW-12 Lab ID: 217105-009
 Type: SAMPLE Analyzed: 12/10/09

Analyte	Result	RL
Gasoline C7-C12	90 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	100	48-162
Bromofluorobenzene (FID)	97	52-158

Type: BLANK Analyzed: 12/09/09
 Lab ID: QC524717

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	91	48-162
Bromofluorobenzene (FID)	89	52-158

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

Batch QC Report

Total Volatile Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8015B
Type:	LCS	Diln Fac: 1.000
Lab ID:	QC524718	Batch#: 158045
Matrix:	Water	Analyzed: 12/09/09
Units:	ug/L	

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,025	102	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	48-162
Bromofluorobenzene (FID)	96	52-158

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158045
MSS Lab ID:	217099-012	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/09/09
Diln Fac:	1.000		

Type: MS Lab ID: QC524719

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	15.74	2,000	2,086	103	49-129

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	48-162
Bromofluorobenzene (FID)	101	52-158

Type: MSD Lab ID: QC524720

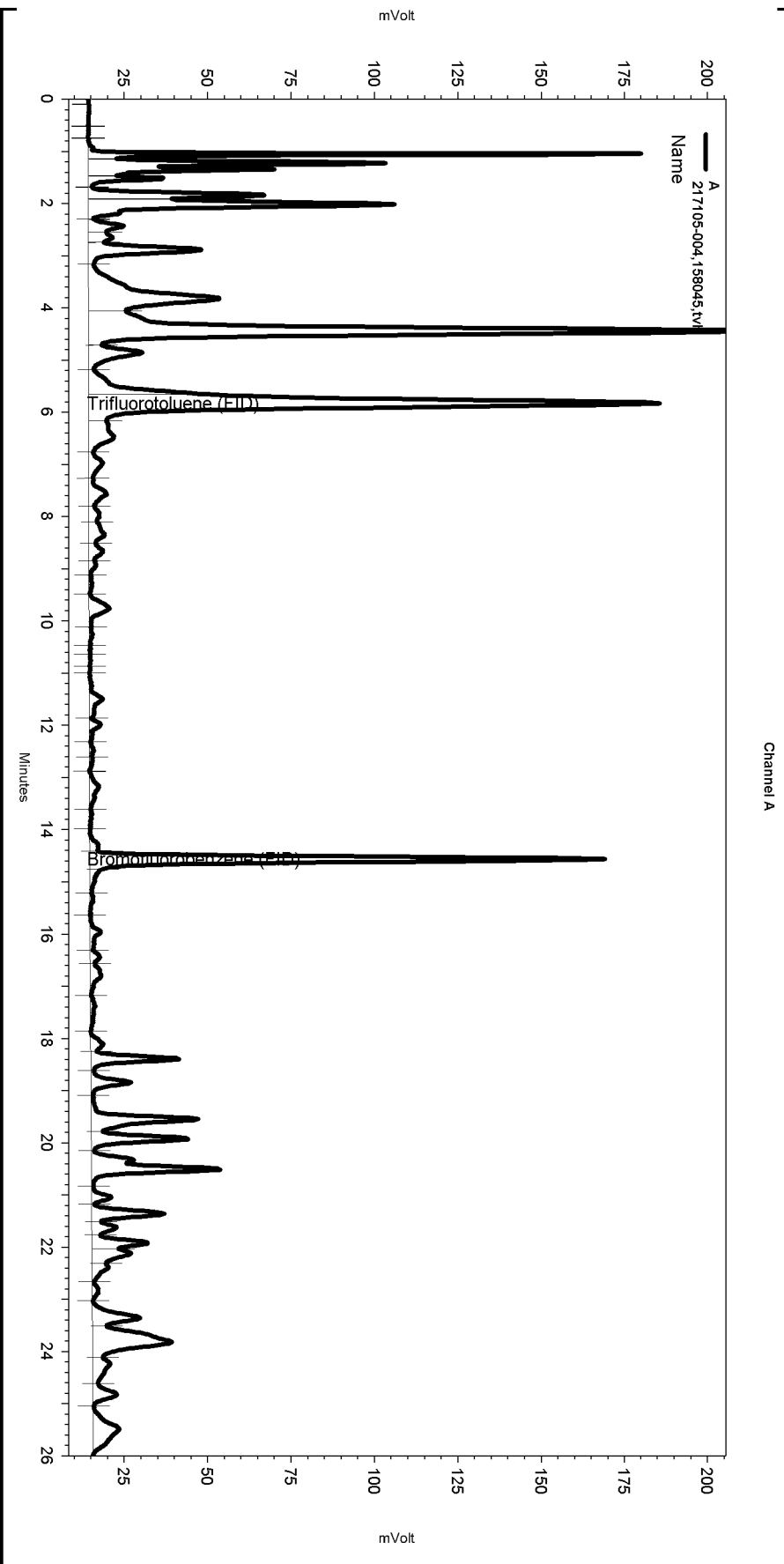
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,192	109	49-129	5	19

Surrogate	%REC	Limits
Trifluorotoluene (FID)	125	48-162
Bromofluorobenzene (FID)	102	52-158

RPD= Relative Percent Difference

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\343.seq
 Sample Name: 217105-004,158045,tvh
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_012
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe329.met

Software Version 3.1.7
 Run Date: 12/9/2009 9:21:01 PM
 Analysis Date: 12/10/2009 9:18:53 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: d1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

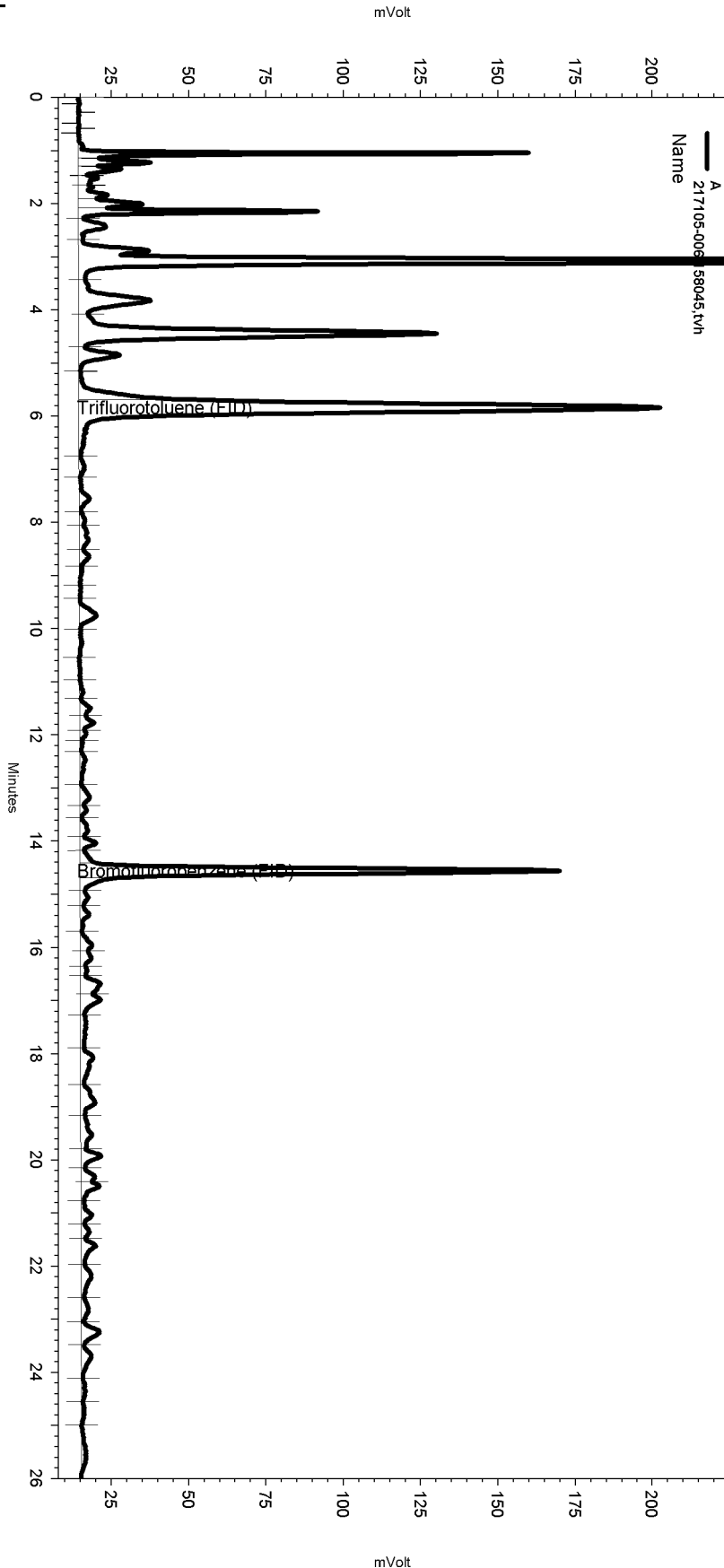
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_012

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.662	0	0
Yes	Split Peak	14.419	0	0
Yes	Split Peak	14.774	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\343.seq
 Sample Name: 217105-006,158045,tvh
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_016
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\TVHBTX329.met

Software Version 3.1.7
 Run Date: 12/9/2009 11:51:30 PM
 Analysis Date: 12/10/2009 9:32:11 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: d1.0



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_016

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.694	0	0
Yes	Split Peak	14.409	0	0
Yes	Split Peak	14.7	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\343.seq
 Sample Name: 217105-008,158045,tvh
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_018
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe329.met

Software Version 3.1.7
 Run Date: 12/10/2009 1:06:38 AM
 Analysis Date: 12/10/2009 9:33:57 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: d1.0

---< General Method Parameters >---

No items selected for this section

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No items selected for this section

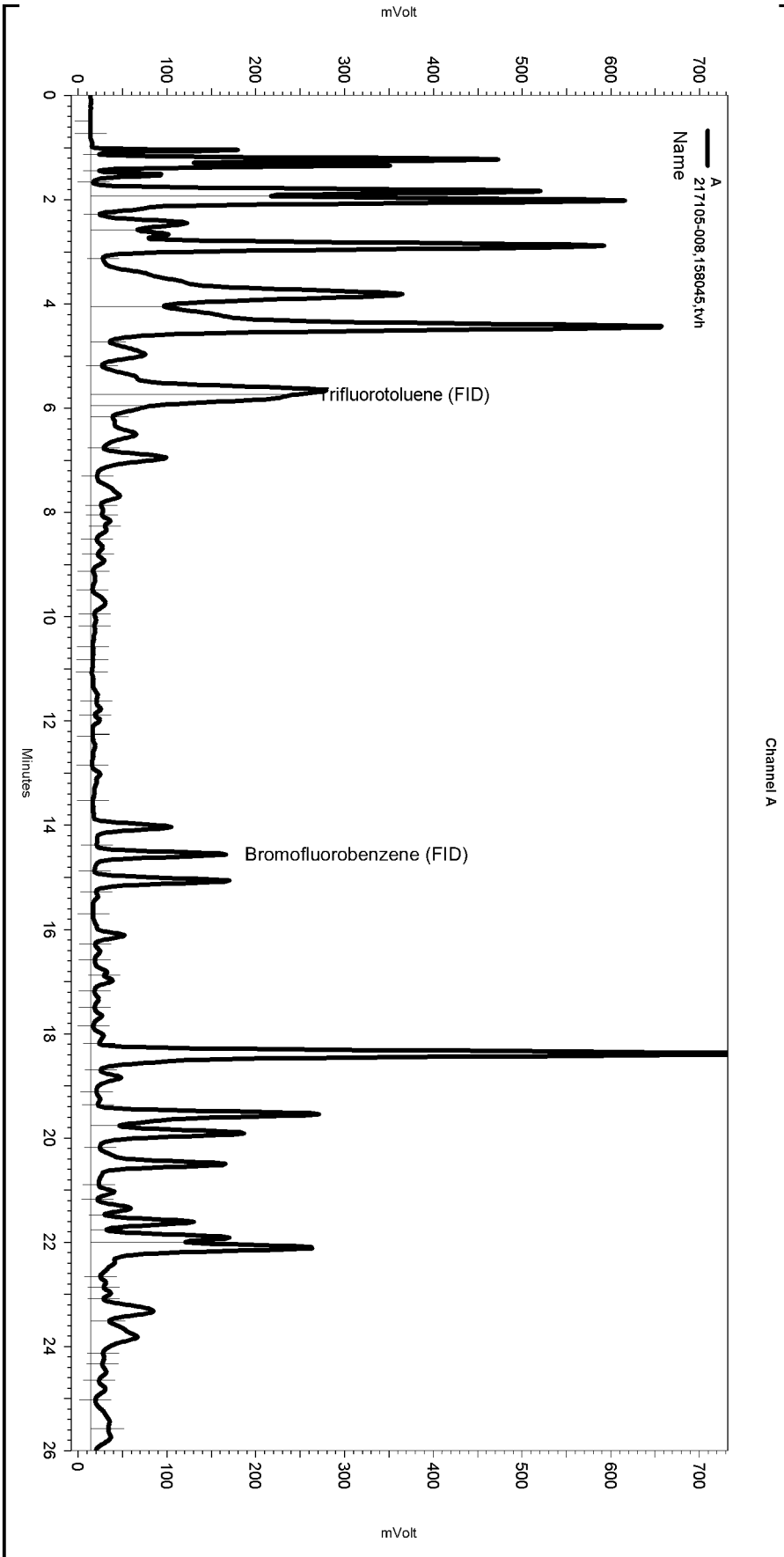
Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

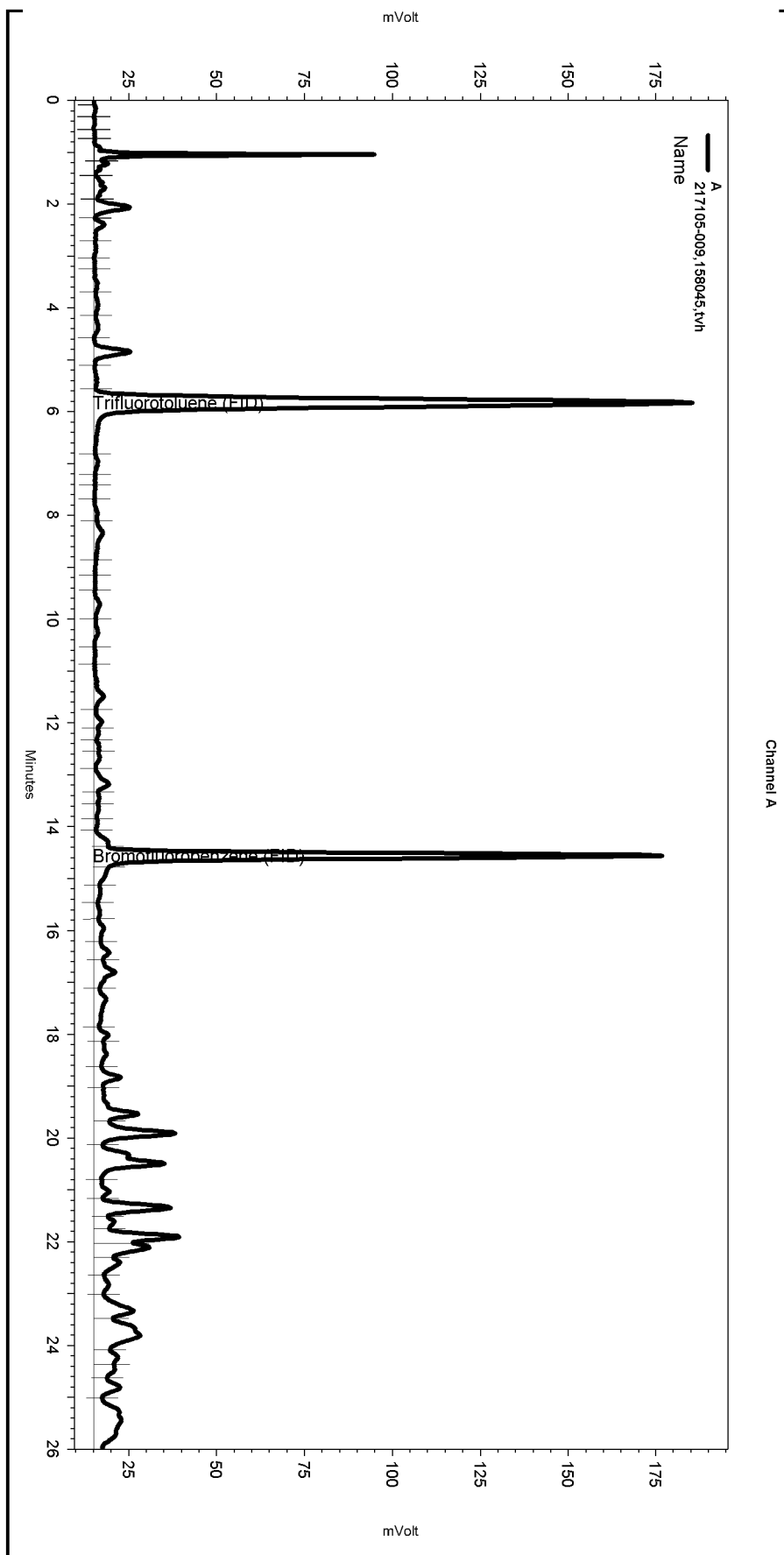
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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	5.736	0	0
Yes	Split Peak	5.951	0	0



Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\343.seq
 Sample Name: 217105-009,158045,tvh
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_019
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\TVHBTX329.met

Software Version 3.1.7
 Run Date: 12/10/2009 7:17:15 AM
 Analysis Date: 12/10/2009 9:35:35 AM
 Sample Amount: 5 Multiplier: 5
 Vial & pH or Core ID: d1.0



---< General Method Parameters >---

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

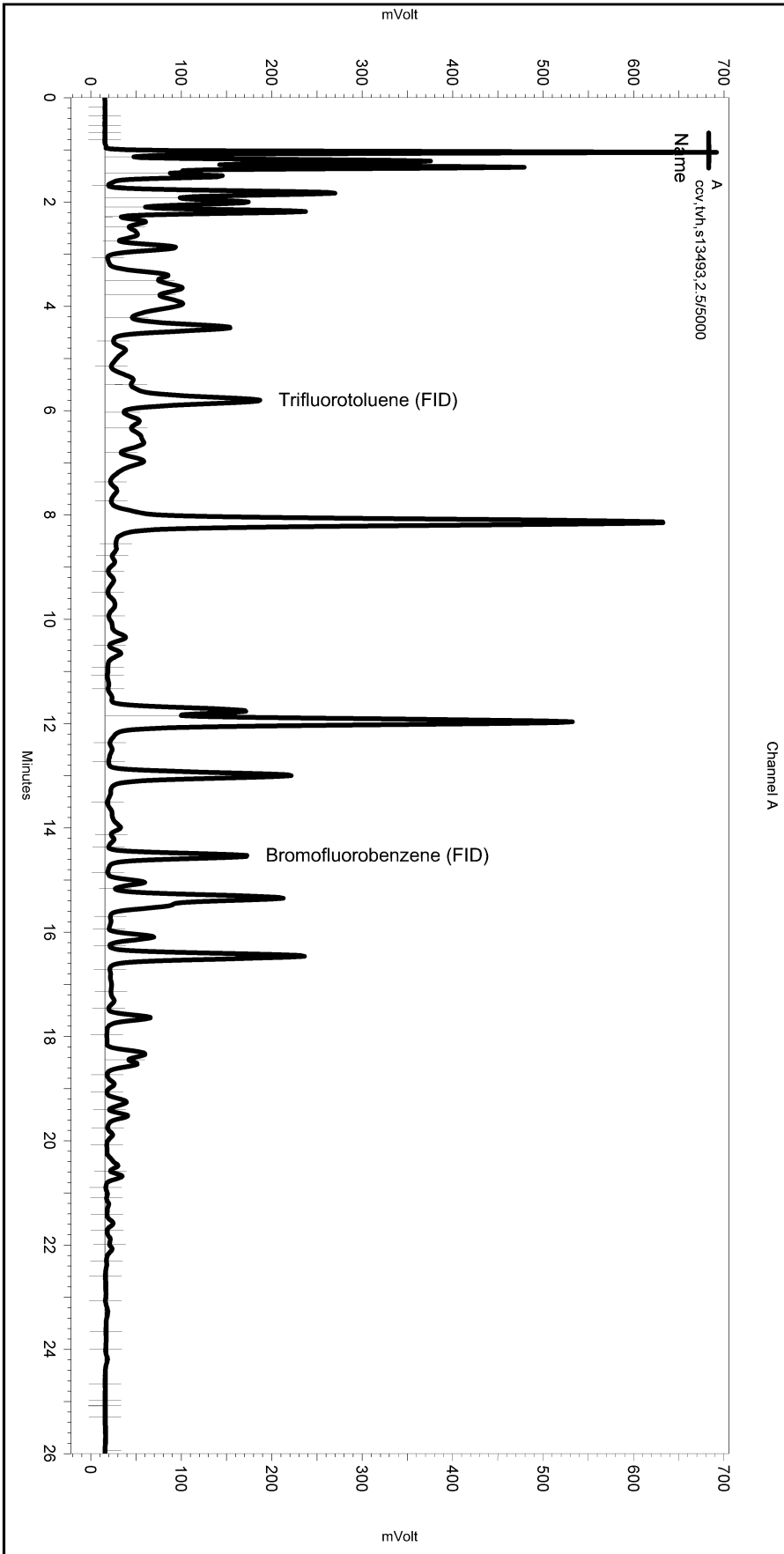
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_019

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	14.388	0	0
Yes	Split Peak	14.777	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\343.seq
 Sample Name: ccv,tvh,s13493,2.5/5000
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\343_002
 Instrument: GC04 Vial: N/A Operator: lims2k3\tvh3
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe329.met

Software Version 3.1.7
 Run Date: 12/9/2009 8:12:30 AM
 Analysis Date: 12/9/2009 8:41:59 AM
 Sample Amount: 1 Multiplier: 1
 Vial & pH or Core ID: {Data Description}



 ---< General Method Parameters >-----

No items selected for this section

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No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Width	0	0	0.2
Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: C:\Documents and Settings\All Users\Application
 Data\ChromatographySystem\Recovery
 Data\Instrument.10047\343_002_3744.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
None				

Total Extractable Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 3520C
Project#:	4656016	Analysis: EPA 8015B
Matrix:	Water	Sampled: 12/08/09
Units:	ug/L	Received: 12/08/09
Diln Fac:	1.000	Prepared: 12/14/09
Batch#:	158224	

Field ID: MW-9 Analyzed: 12/16/09
 Type: SAMPLE Cleanup Method: EPA 3630C
 Lab ID: 217105-004

Analyte	Result	RL
Diesel C10-C24	210 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	76	39-150

Field ID: MW-10 Analyzed: 12/16/09
 Type: SAMPLE Cleanup Method: EPA 3630C
 Lab ID: 217105-006

Analyte	Result	RL
Diesel C10-C24	240 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	78	39-150

Field ID: MW-8A Analyzed: 12/16/09
 Type: SAMPLE Cleanup Method: EPA 3630C
 Lab ID: 217105-007

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

Surrogate	%REC	Limits
o-Terphenyl	71	39-150

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

Total Extractable Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 3520C
Project#:	4656016	Analysis: EPA 8015B
Matrix:	Water	Sampled: 12/08/09
Units:	ug/L	Received: 12/08/09
Diln Fac:	1.000	Prepared: 12/14/09
Batch#:	158224	

Field ID: MW-1 Analyzed: 12/16/09
 Type: SAMPLE Cleanup Method: EPA 3630C
 Lab ID: 217105-008

Analyte	Result	RL
Diesel C10-C24	1,200 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	74	39-150

Field ID: MW-12 Analyzed: 12/16/09
 Type: SAMPLE Cleanup Method: EPA 3630C
 Lab ID: 217105-009

Analyte	Result	RL
Diesel C10-C24	320 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	74	39-150

Type: BLANK Analyzed: 12/15/09
 Lab ID: QC525479 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	81	39-150

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

Batch QC Report

Total Extractable Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 3520C
Project#:	4656016	Analysis: EPA 8015B
Type:	LCS	Diln Fac: 1.000
Lab ID:	QC525480	Batch#: 158224
Matrix:	Water	Prepared: 12/14/09
Units:	ug/L	Analyzed: 12/15/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,906	76	34-144

Surrogate	%REC	Limits
o-Terphenyl	95	39-150

Batch QC Report

Total Extractable Hydrocarbons		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 3520C
Project#:	4656016	Analysis: EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#: 158224
MSS Lab ID:	216999-038	Sampled: 12/03/09
Matrix:	Water	Received: 12/03/09
Units:	ug/L	Prepared: 12/14/09
Diln Fac:	1.000	Analyzed: 12/15/09

Type: MS Cleanup Method: EPA 3630C
 Lab ID: QC525481

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	40.56	2,500	1,612	63	21-160

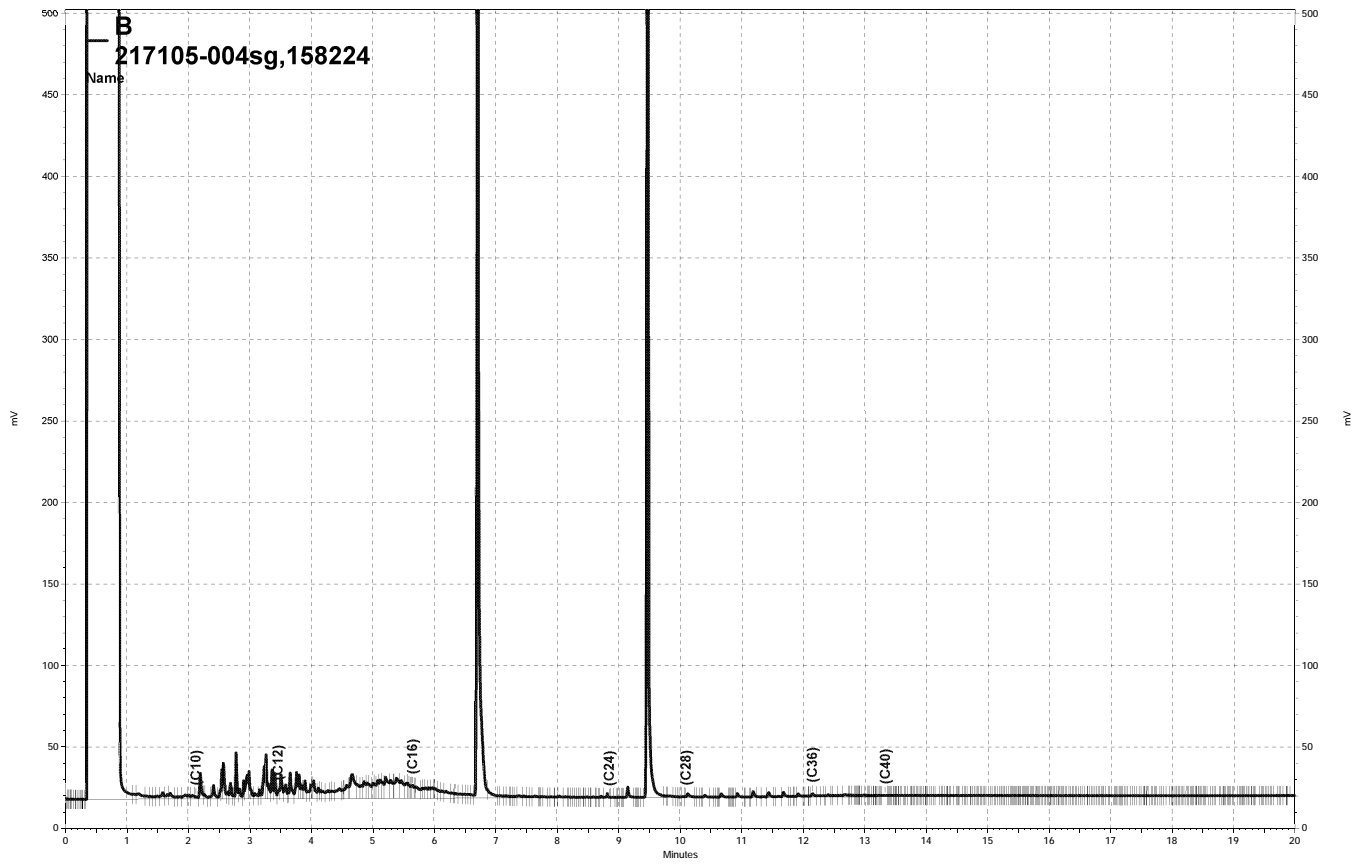
Surrogate	%REC	Limits
o-Terphenyl	78	39-150

Type: MSD Cleanup Method: EPA 3630C
 Lab ID: QC525482

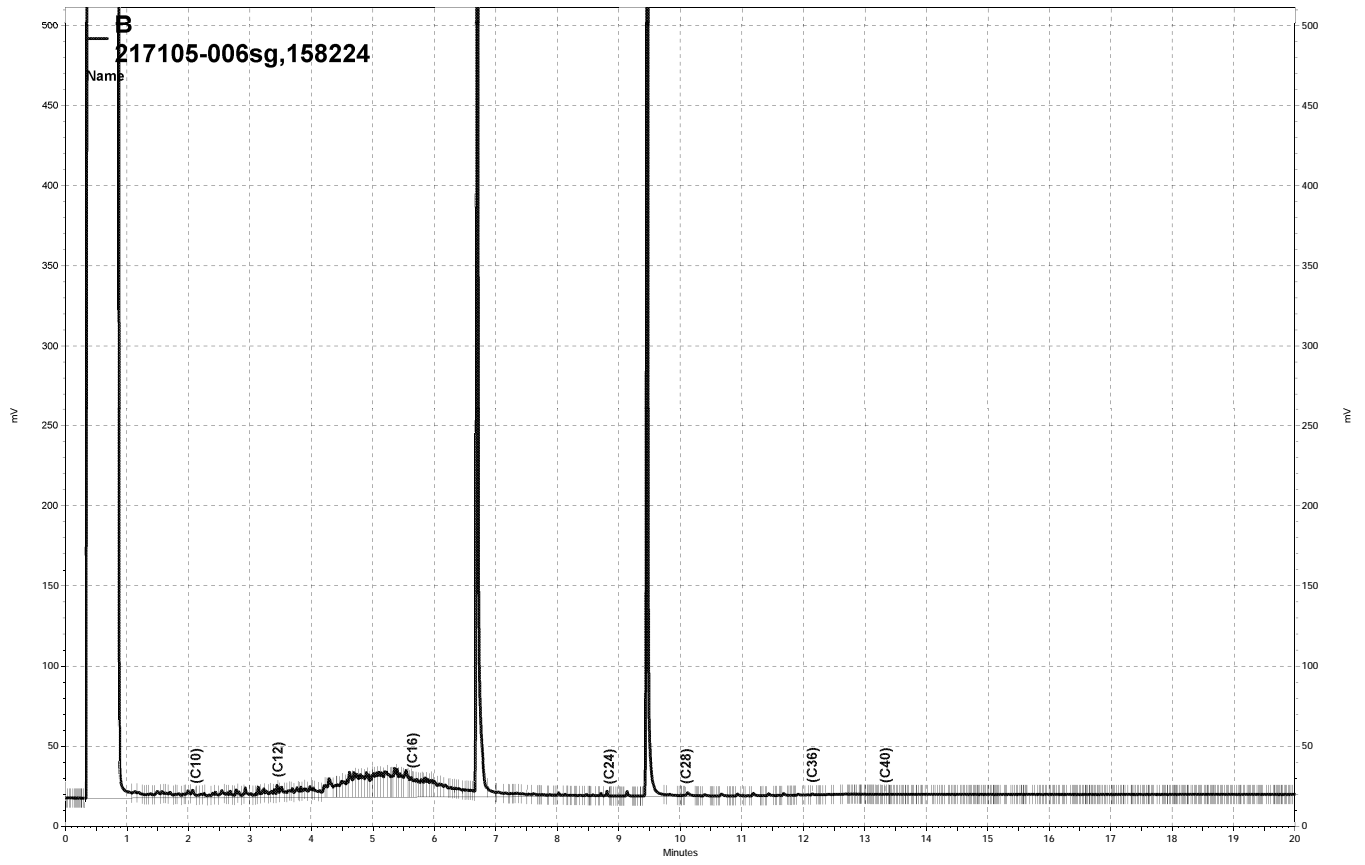
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,030	80	21-160	23	58

Surrogate	%REC	Limits
o-Terphenyl	102	39-150

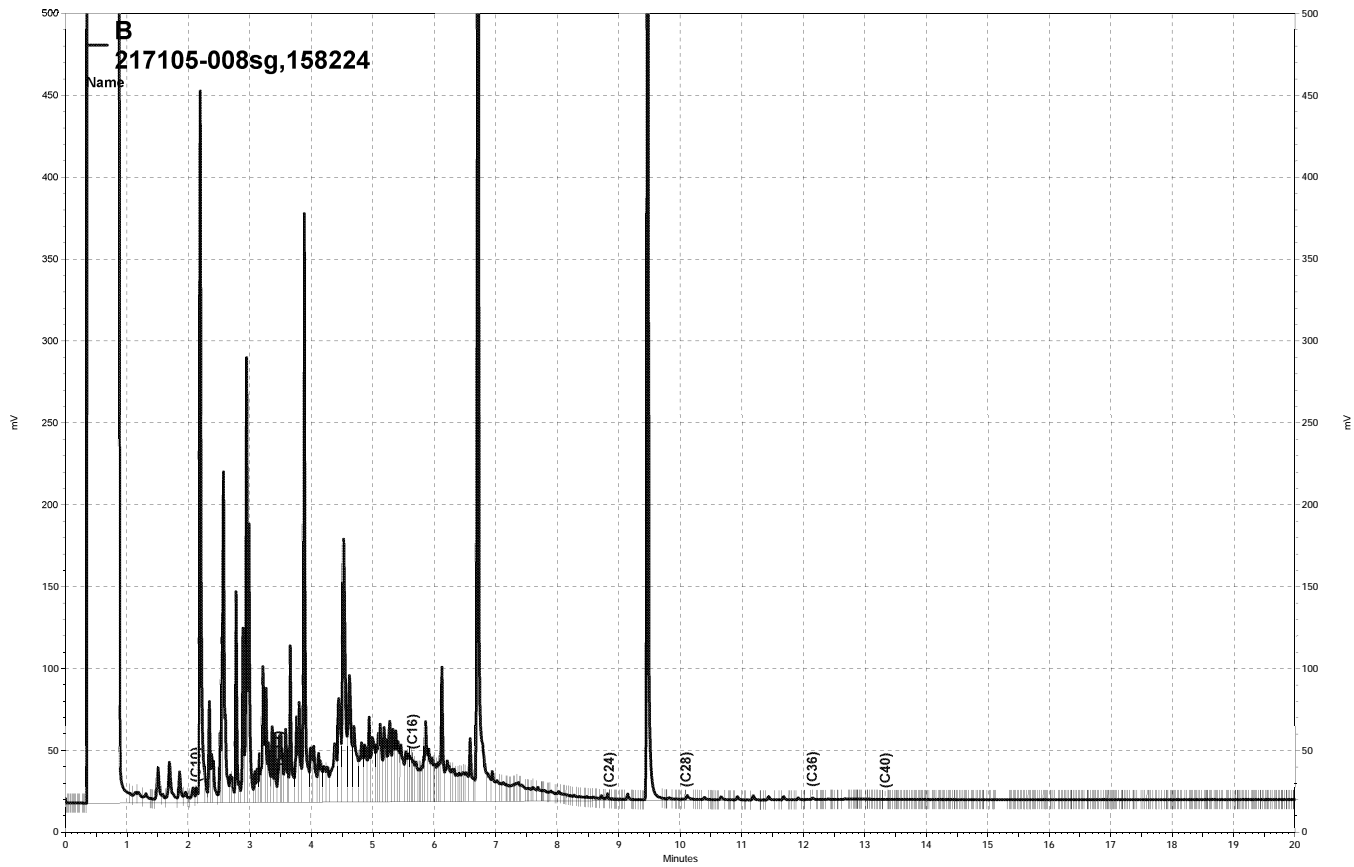
RPD= Relative Percent Difference



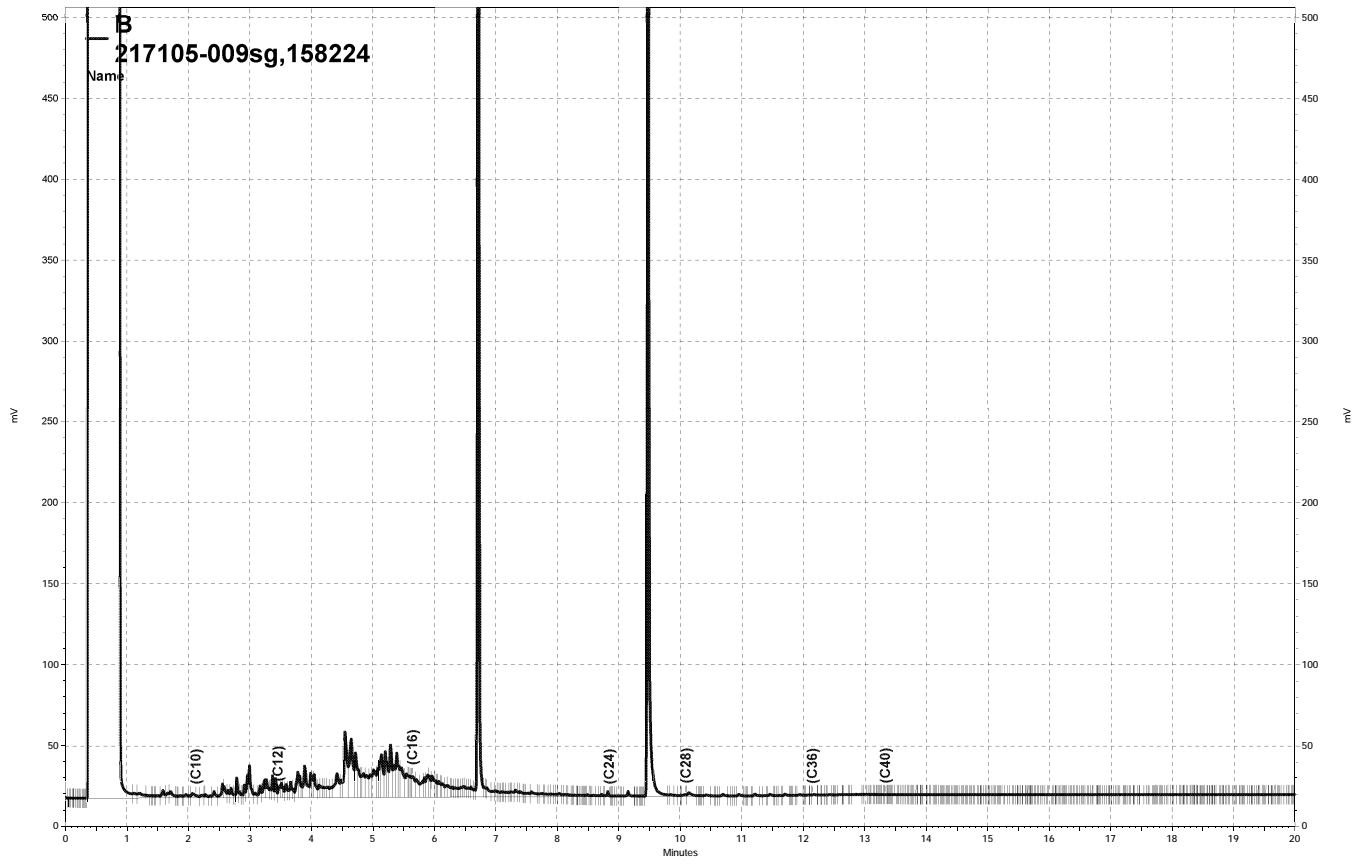
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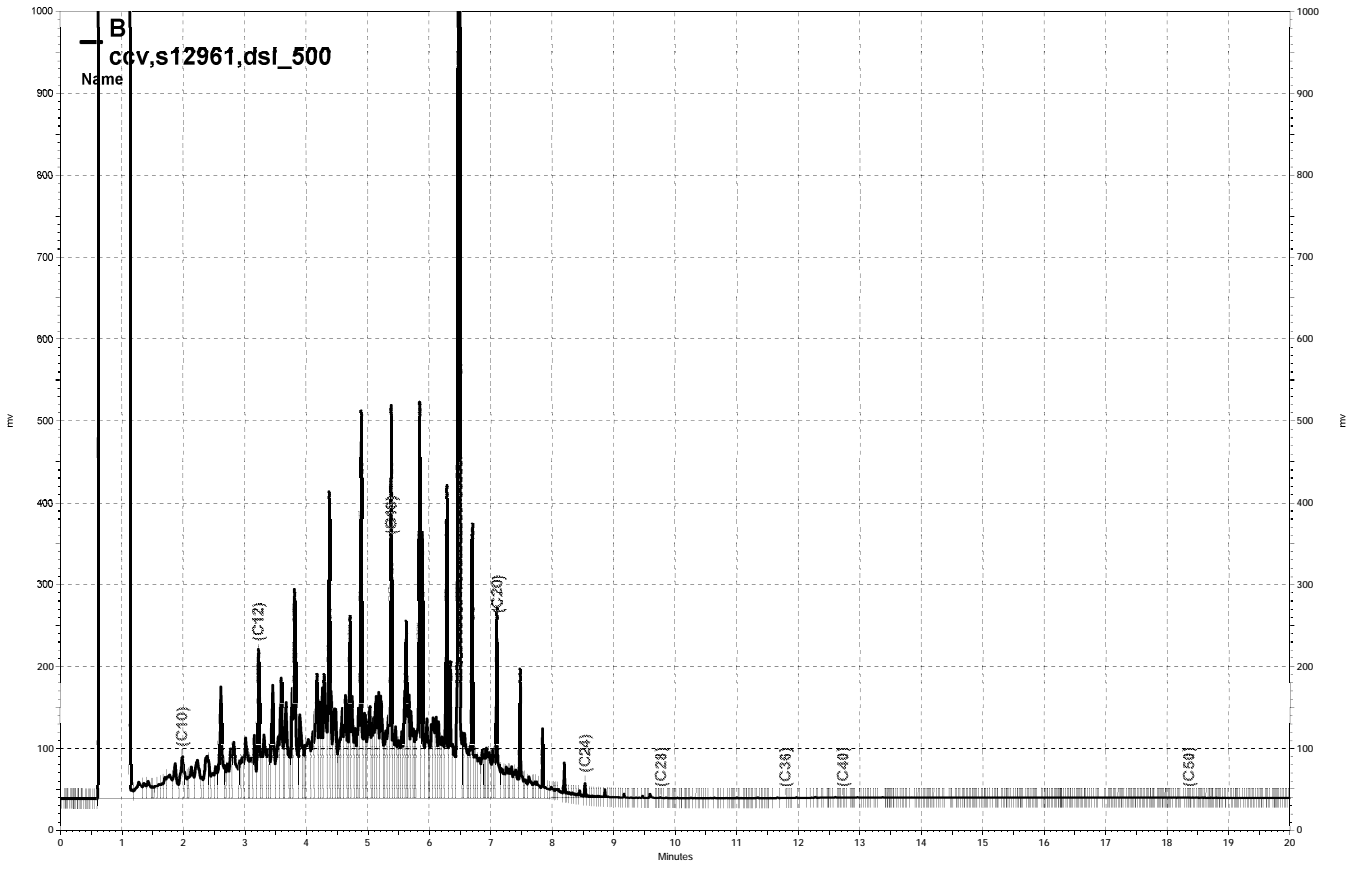
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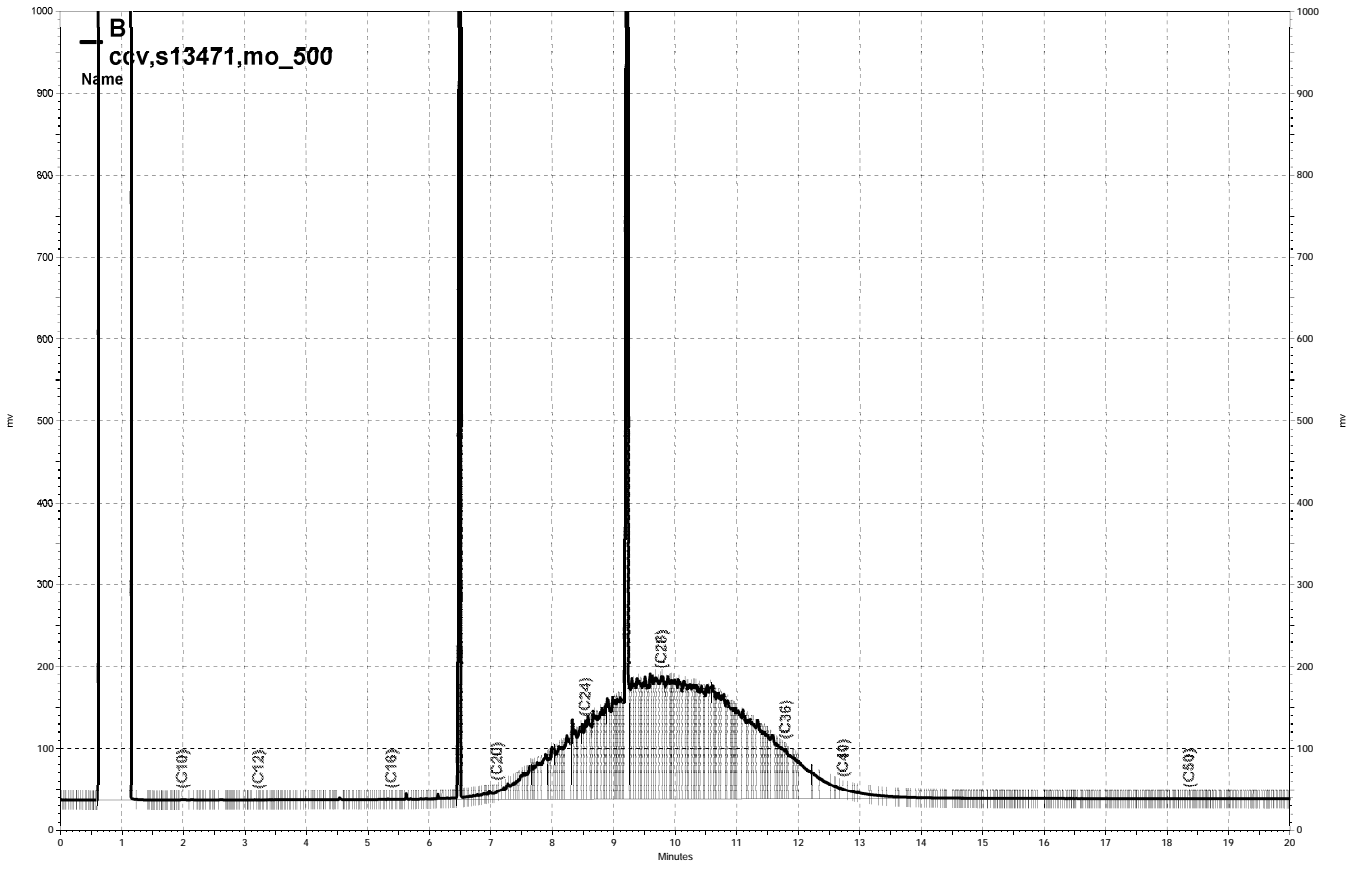
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Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	158137
Lab ID:	217105-001	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	85	73-140
Toluene-d8	99	88-113
Bromofluorobenzene	91	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	158137
Lab ID:	217105-002	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	3.3	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	87	73-140
Toluene-d8	99	88-113
Bromofluorobenzene	90	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-4 DUP	Batch#:	158137
Lab ID:	217105-003	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	3.5	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	83	73-140
Toluene-d8	100	88-113
Bromofluorobenzene	90	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-9	Batch#:	158137
Lab ID:	217105-004	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	48	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	83	73-140
Toluene-d8	99	88-113
Bromofluorobenzene	86	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	TRIP BLANK (QCTB)	Batch#:	158137
Lab ID:	217105-005	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	84	73-140
Toluene-d8	99	88-113
Bromofluorobenzene	91	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-10	Batch#:	158137
Lab ID:	217105-006	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	26	0.5
Toluene	ND	0.5
Ethylbenzene	0.8	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	79	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	86	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	158125
Lab ID:	217105-007	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	73-140
Toluene-d8	94	88-113
Bromofluorobenzene	92	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-1	Batch#:	158162
Lab ID:	217105-008	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/12/09
Diln Fac:	2.000		

Analyte	Result	RL
MTBE	ND	1.0
Benzene	120	1.0
Toluene	2.9	1.0
Ethylbenzene	1.8	1.0
m,p-Xylenes	1.4	1.0
o-Xylene	1.6	1.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	96	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	93	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-12	Batch#:	158125
Lab ID:	217105-009	Sampled:	12/08/09
Matrix:	Water	Received:	12/08/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	4.7	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	108	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	95	80-127

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Type:	BLANK	Diln Fac: 1.000
Lab ID:	QC525065	Batch#: 158125
Matrix:	Water	Analyzed: 12/11/09
Units:	ug/L	

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	73-140
Toluene-d8	94	88-113
Bromofluorobenzene	94	80-127

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS					
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual			
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B		
Project#:	4656016	Analysis:	EPA 8260B		
Matrix:	Water	Batch#:	158125		
Units:	ug/L	Analyzed:	12/11/09		
Diln Fac:	1.000				

Type: BS Lab ID: QC525066

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.14	86	61-123
Benzene	20.00	19.67	98	81-122
Toluene	20.00	19.19	96	82-122
Ethylbenzene	20.00	21.05	105	86-125
m,p-Xylenes	40.00	41.78	104	83-127
o-Xylene	20.00	21.20	106	81-122

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	102	73-140
Toluene-d8	93	88-113
Bromofluorobenzene	91	80-127

Type: BSD Lab ID: QC525067

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	16.80	84	61-123	2	11
Benzene	20.00	20.85	104	81-122	6	12
Toluene	20.00	19.78	99	82-122	3	12
Ethylbenzene	20.00	21.85	109	86-125	4	12
m,p-Xylenes	40.00	43.75	109	83-127	5	13
o-Xylene	20.00	21.55	108	81-122	2	12

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	91	80-127

RPD= Relative Percent Difference

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Type:	LCS	Diln Fac: 1.000
Lab ID:	QC525121	Batch#: 158137
Matrix:	Water	Analyzed: 12/11/09
Units:	ug/L	

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	23.60	94	61-123
Benzene	25.00	26.08	104	81-122
Toluene	25.00	24.83	99	82-122
Ethylbenzene	25.00	24.66	99	86-125
m,p-Xylenes	50.00	52.90	106	83-127
o-Xylene	25.00	25.39	102	81-122

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	76	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	80	80-127

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Type:	BLANK	Diln Fac: 1.000
Lab ID:	QC525122	Batch#: 158137
Matrix:	Water	Analyzed: 12/11/09
Units:	ug/L	

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	75	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	83	80-127

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS			
Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	158137
MSS Lab ID:	217069-004	Sampled:	12/05/09
Matrix:	Water	Received:	12/07/09
Units:	ug/L	Analyzed:	12/11/09
Diln Fac:	1.000		

Type: MS Lab ID: QC525137

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.1090	25.00	25.44	102	59-128
Benzene	<0.1000	25.00	30.85	123	75-130
Toluene	<0.1000	25.00	24.95	100	79-129
Ethylbenzene	<0.1000	25.00	25.73	103	81-130
m,p-Xylenes	<0.1000	50.00	53.67	107	77-133
o-Xylene	<0.1000	25.00	26.40	106	82-123

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	89	73-140
Toluene-d8	91	88-113
Bromofluorobenzene	86	80-127

Type: MSD Lab ID: QC525138

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	27.99	112	59-128	10	12
Benzene	25.00	26.80	107	75-130	14	* 11
Toluene	25.00	24.67	99	79-129	1	12
Ethylbenzene	25.00	23.98	96	81-130	7	12
m,p-Xylenes	50.00	51.76	104	77-133	4	12
o-Xylene	25.00	24.42	98	82-123	8	11

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	80	73-140
Toluene-d8	94	88-113
Bromofluorobenzene	84	80-127

*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217105	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Type:	BLANK	Diln Fac: 1.000
Lab ID:	QC525243	Batch#: 158162
Matrix:	Water	Analyzed: 12/12/09
Units:	ug/L	

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	73-140
Toluene-d8	95	88-113
Bromofluorobenzene	92	80-127

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS			
Lab #:	217105	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	158162
Units:	ug/L	Analyzed:	12/12/09
Diln Fac:	1.000		

Type: BS Lab ID: QC525244

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	16.58	83	61-123
Benzene	20.00	21.15	106	81-122
Toluene	20.00	20.34	102	82-122
Ethylbenzene	20.00	22.72	114	86-125
m,p-Xylenes	40.00	44.35	111	83-127
o-Xylene	20.00	22.11	111	81-122

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	90	80-127

Type: BSD Lab ID: QC525245

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	15.52	78	61-123	7	11
Benzene	20.00	18.83	94	81-122	12	12
Toluene	20.00	18.62	93	82-122	9	12
Ethylbenzene	20.00	20.57	103	86-125	10	12
m,p-Xylenes	40.00	40.82	102	83-127	8	13
o-Xylene	20.00	20.06	100	81-122	10	12

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	97	73-140
Toluene-d8	96	88-113
Bromofluorobenzene	90	80-127

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

Internal COC: 217143 TVH Water

Destination:

Curtis & Tompkins, Ltd.
 2840 Eighth Street
 Berkeley, CA 94710
 (510) 486-0900

Sample Num	Client ID	Containers
217143-001	MW-11	3
217143-002	MW-2	2

Relinquished: Glenn Treadle Date/Time: 12-10/10:15 Received: 12/10/09 JR Date/Time: 12/10/09 17:00
 Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____
 Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____
 Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____

Curtis & Tompkins, Ltd.
 Analytical Laboratory Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900 Phone
 (510) 486-0532 Fax

CHAIN OF CUSTODY

C & T LOGIN #: 217143

Analysis

Project No.: 4656016
 Project Name: Port HFC semiannual
 Project P.O.: SC
 Turnaround Time: std
 Bill to: Jeff Rubin

Sampler: L Haker
 Report To: L Haker/T Miller
 Company: Malcolm Pirnie
 Telephone: 510.596.3060
 Fax: 510.596.8855

Lab No.	Sample ID.	Sampling Date Time	Matrix			# of Containers	Preservative				RECEIVED BY:	DATE / TIME	
			Soil	Water	Waste		HCL	H ₂ SO ₄	HNO ₃	ICE			DATE / TIME
1	MW-11	12/9/09 13:38	X			3	X	X	X	X	X		
2	MW-2	12/9/09 13:45	X			3	X	X	X	X	X		
3	SC1B	12/9/09	X			1	X	X	X	X	X		

Notes: Intact Cold On Ice Ambient
 Preservative Correct? Yes No N/A

RELINQUISHED BY: [Signature] 12/9/09 5:30pm
 RECEIVED BY: Pat Haker 12/9/09 5:39pm

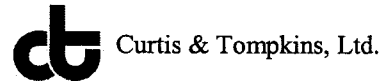
TRH-α/mo 80ISM
 BTEX + MTH
 TRH-g 80ISM

56 cleanup

One of the 500mL ambigs for MW-2 w partially filled.

SIGNATURE

COOLER RECEIPT CHECKLIST



Login # 217143 Date Received 12-09 Number of coolers 1
 Client Malcolm Pirnie Project Port HFC Semiannual

Date Opened 12-9 By (print) Elias Tsadik (sign) Elias Tsadik
 Date Logged in 12-9 By (print) M. Villanueva (sign) [Signature]

1. Did cooler come with a shipping slip (airbill, etc) _____ YES NO
 Shipping info _____

2A. Were custody seals present? ... YES (circle) on cooler on samples NO
 How many _____ Name _____ Date _____

2B. Were custody seals intact upon arrival? _____ YES NO N/A

3. Were custody papers dry and intact when received? YES NO

4. Were custody papers filled out properly (ink, signed, etc)? YES NO

5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO

6. Indicate the packing in cooler: (if other, describe) _____
 Bubble Wrap Foam blocks Bags None
 Cloth material Cardboard Styrofoam Paper towels

7. Temperature documentation:
 Type of ice used: Wet Blue/Gel None Temp(°C) _____

Samples Received on ice & cold without a temperature blank
 Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES
 If YES, what time were they transferred to freezer? _____

9. Did all bottles arrive unbroken/unopened? YES NO

10. Are samples in the appropriate containers for indicated tests? YES NO

11. Are sample labels present, in good condition and complete? YES NO

12. Do the sample labels agree with custody papers? YES NO

13. Was sufficient amount of sample sent for tests requested? YES NO

14. Are the samples appropriately preserved? YES NO N/A

15. Are bubbles > 6mm absent in VOA samples? YES NO N/A

16. Was the client contacted concerning this sample delivery? _____ YES NO

If YES, Who was called? _____ By _____ Date: _____

COMMENTS
~~Sample # 2: Received one empty VOA ET~~
~~Received 2 extra containers for Sample #2 ET~~

Batch QC Report

Total Volatile Hydrocarbons		
Lab #:	217143	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8015B
Type:	LCS	Diln Fac: 1.000
Lab ID:	QC525257	Batch#: 158166
Matrix:	Water	Analyzed: 12/12/09
Units:	ug/L	

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,119	112	73-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	131	48-162
Bromofluorobenzene (FID)	92	52-158

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	158166
MSS Lab ID:	217170-001	Sampled:	12/09/09
Matrix:	Water	Received:	12/10/09
Units:	ug/L	Analyzed:	12/12/09
Diln Fac:	1.000		

Type: MS Lab ID: QC525258

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	11.87	2,000	1,754	87	49-129

Surrogate	%REC	Limits
Trifluorotoluene (FID)	126	48-162
Bromofluorobenzene (FID)	97	52-158

Type: MSD Lab ID: QC525259

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,811	90	49-129	3	19

Surrogate	%REC	Limits
Trifluorotoluene (FID)	126	48-162
Bromofluorobenzene (FID)	99	52-158

RPD= Relative Percent Difference

Total Extractable Hydrocarbons

Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 3520C
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	12/09/09
Units:	ug/L	Received:	12/09/09
Diln Fac:	1.000	Prepared:	12/10/09
Batch#:	158105		

Field ID:	MW-11	Analyzed:	12/11/09
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	217143-001		

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

Surrogate	%REC	Limits
o-Terphenyl	93	39-150

Field ID:	MW-2	Analyzed:	12/11/09
Type:	SAMPLE	Cleanup Method:	EPA 3630C
Lab ID:	217143-002		

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

Surrogate	%REC	Limits
o-Terphenyl	84	39-150

Type:	BLANK	Analyzed:	12/13/09
Lab ID:	QC524963	Cleanup Method:	EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	104	39-150

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Total Extractable Hydrocarbons		
Lab #:	217143	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 3520C
Project#:	4656016	Analysis: EPA 8015B
Type:	LCS	Diln Fac: 1.000
Lab ID:	QC524964	Batch#: 158105
Matrix:	Water	Prepared: 12/10/09
Units:	ug/L	Analyzed: 12/11/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,582	103	34-144

Surrogate	%REC	Limits
o-Terphenyl	117	39-150

Batch QC Report

Total Extractable Hydrocarbons					
Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual		
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 3520C		
Project#:	4656016	Analysis:	EPA 8015B		
Field ID:	ZZZZZZZZZZ	Batch#:	158105		
MSS Lab ID:	217041-004	Sampled:	12/04/09		
Matrix:	Water	Received:	12/04/09		
Units:	ug/L	Prepared:	12/10/09		
Diln Fac:	1.000	Analyzed:	12/11/09		

Type: MS Cleanup Method: EPA 3630C
 Lab ID: QC524965

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	41.48	2,500	2,646	104	21-160

Surrogate	%REC	Limits
o-Terphenyl	121	39-150

Type: MSD Cleanup Method: EPA 3630C
 Lab ID: QC524966

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,683	106	21-160	1	58

Surrogate	%REC	Limits
o-Terphenyl	117	39-150

Purgeable Aromatics by GC/MS

Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	158175
Lab ID:	217143-001	Sampled:	12/09/09
Matrix:	Water	Received:	12/09/09
Units:	ug/L	Analyzed:	12/13/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	128	73-140
Toluene-d8	101	88-113
Bromofluorobenzene	106	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	158175
Lab ID:	217143-002	Sampled:	12/09/09
Matrix:	Water	Received:	12/09/09
Units:	ug/L	Analyzed:	12/13/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	126	73-140
Toluene-d8	101	88-113
Bromofluorobenzene	104	80-127

ND= Not Detected
 RL= Reporting Limit

Purgeable Aromatics by GC/MS

Lab #:	217143	Location:	Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	QCTB	Batch#:	158175
Lab ID:	217143-003	Sampled:	12/09/09
Matrix:	Water	Received:	12/09/09
Units:	ug/L	Analyzed:	12/13/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	124	73-140
Toluene-d8	103	88-113
Bromofluorobenzene	106	80-127

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217143	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Type:	BLANK	Diln Fac: 1.000
Lab ID:	QC525289	Batch#: 158175
Matrix:	Water	Analyzed: 12/13/09
Units:	ug/L	

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	123	73-140
Toluene-d8	101	88-113
Bromofluorobenzene	103	80-127

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Purgeable Aromatics by GC/MS		
Lab #:	217143	Location: Port Of Oakland - HFC Semi Annual
Client:	Malcolm Pirnie, Inc.	Prep: EPA 5030B
Project#:	4656016	Analysis: EPA 8260B
Matrix:	Water	Batch#: 158175
Units:	ug/L	Analyzed: 12/13/09
Diln Fac:	1.000	

Type: BS Lab ID: QC525290

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.77	89	61-123
Benzene	20.00	22.31	112	81-122
Toluene	20.00	20.92	105	82-122
Ethylbenzene	20.00	22.22	111	86-125
m,p-Xylenes	40.00	44.16	110	83-127
o-Xylene	20.00	20.45	102	81-122

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	73-140
Toluene-d8	101	88-113
Bromofluorobenzene	101	80-127

Type: BSD Lab ID: QC525291

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	18.44	92	61-123	4	11
Benzene	20.00	23.08	115	81-122	3	12
Toluene	20.00	21.52	108	82-122	3	12
Ethylbenzene	20.00	23.39	117	86-125	5	12
m,p-Xylenes	40.00	46.58	116	83-127	5	13
o-Xylene	20.00	21.75	109	81-122	6	12

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	73-140
Toluene-d8	100	88-113
Bromofluorobenzene	99	80-127

RPD= Relative Percent Difference