PORT OF OAKLAND

July 24, 2009

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 First Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 Maritime Street, Oakland, CA_2009-07-24

Dear Mr. Plunkett:

Please find enclosed the report entitled *2009 First Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 Maritime Street, Oakland, CA ("Report")* dated July 2009, 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, 2006[2], January 19, 2007[3], and September 30, 2008.[4]

The Port recently replaced Micro Search Environmental Corporation ("MSE Group") with Malcolm Pirnie to perform groundwater monitoring and maintenance of the remediation system. Results of the first 2009 semi-annual sampling event are contained in the enclosed report. In addition, this report contains results of two special groundwater

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[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.

sampling events performed on March 4 and April 1, 2009 by Baseline Environmental Consulting ("Baseline"). These two sampling events were performed to assess whether previous analytical results reported by the MSE Group for the second 2008 semi-annual event were anomalous. Based on the March and April re-sampling events, the December 2008 semi-annual monitoring results do constitute an anomaly. We met with MSE and removed them from further project activities. Malcolm Pirnie has resumed semi-annual monitoring and maintenance of the free product recovery system. Activities will be coordinated with Baseline. The next semi-annual monitoring event will be performed during the November/December 2009 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 First Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report

651 Maritime Street Oakland, California

July 2009

Report Prepared By:

Malcolm Pirnie, Inc.

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4656016

MALCOLM PIRNIE

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INDEPENDENT ENVIRONMENTAL
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July 24, 2009

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

Subject: **June 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 June 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. Hence, the enclosed report documents the groundwater sampling events conducted at the subject site in March and April 2009 by BASELINE Environmental Consultants Inc. (BASELINE) and the event conducted in June 2009 by Malcolm Pirnie. This report also presents the free product recovery system operation and maintenance data collected by BASELINE between January and May 2009 and by Malcolm Pirnie in May and June 2009.

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

Sincerely,

Todd Miller, CHG
Project Manager

Enclosure

PROFESSIONAL GEOLOGIST
Todd Miller
No. 696
Certified
Hydrogeologist
STATE OF CALIFORNIA

Port of Oakland
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2009 First Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report

651 Maritime Street Oakland, California

July 2009

Report Prepared By:

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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
TPH-D	Total petroleum hydrocarbons as diesel
TPH-G	Total petroleum hydrocarbons as gasoline
TPH-MO	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 First 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 first semi-annual report for 2009, and includes the period from January through June. 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 (TPH-D) and as gasoline (TPH-G), 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 TPH-D 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 TPH-D, TPH as motor oil (TPH-MO), benzene, xylenes, and polynuclear aromatic hydrocarbons (PAHs). A water sample collected from the excavation also contained TPH-D. 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 2006, 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

The groundwater monitoring results reported by MSE in February 2009 for wells MW-2, MW-5 and MW-8A were not consistent with historical results; hence, the Port requested that BASELINE Environmental Consulting (BASELINE) resample the 10 Site wells in March 2009 and again in April 2009 to confirm the results. The additional sample events were also expected to confirm the concentration reported in the samples collected from the newly installed monitoring wells MW-9 through MW-12 and help establish a baseline which to evaluate future sample results against. Samples were collected from the Site by BASELINE in March 2009 and April 2009, and by Malcolm Pirnie in June 2009 as part of the ACHCS-approved semi-annual groundwater program.

2.1. March 2009 Groundwater Monitoring Activities

BASELINE performed groundwater monitoring at the Site on March 4, 2009, which 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 an Alconox solution followed by rinsing with deionized water. Instrument readings indicated that there was a measurable amount of free-phase product in monitoring wells MW-1 and MW-3 (Table 1); hence, these wells were neither purged nor sampled.

BASELINE purged wells 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, BASELINE 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 from each well. Field-measured groundwater quality information and water level measurements for the March 2009 monitoring event are provided on groundwater sampling forms included in Appendix A.

After purging, BASELINE collected a groundwater sample directly into laboratory-supplied sample bottles using the peristaltic pump. BASELINE collected a duplicate sample from monitoring well MW-4 (MW-4dup) and an equipment blank sample (QCEB 030409). 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:

- TPH-G in accordance with U.S. Environmental Protection Agency (USEPA) Method 8015B;
- TPH-D and TPH-MO 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 TPH-D and TPH-MO, 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 approximately one week prior to conducting the March sampling. At the time the ORC socks were removed, the DO level in the well was measured at 0.05 milligrams per liter (mg/L), indicating that the oxygen releasing capacity of the ORC socks were spent. Two new ORC socks were placed back into well MW-4 following completion of the groundwater monitoring event.

BASELINE generated approximately 46 gallons of purge and decontamination water during the March 2009 monitoring event. BASELINE placed the water in a properly labeled 55-gallon drum, which was stored in the hazardous materials storage locker located within the Harbor Facilities Complex. The Port's environmental services contractor disposed of the water.

2.2. April 2009 Groundwater Monitoring Activities

BASELINE performed a second round of groundwater monitoring at the Site on April 1, 2009, to verify the results obtained during the March 2009 monitoring event. BASELINE removed the ORC socks in monitoring well MW-4 on March 26, 2009, approximately one week prior to groundwater sampling. The DO level in the groundwater at MW-4 was measured at 16.02 mg/L, indicating the ORC socks were releasing oxygen into the groundwater. BASELINE conducted the April monitoring event following the procedures described above for the March 2009 event. As with the March 2009 event, wells MW-1 and MW-3 contained measureable thicknesses of free product (Table 1); hence these wells were not purged or sampled. Field-measured groundwater quality information and water level measurements for the April 2009 monitoring events are provided on groundwater sampling forms included in Appendix A.

Groundwater samples were transported to C&T under appropriate chain-of-custody procedures on April 1, 2009 and analyzed for the compounds identified in Section 2.1 above. Approximately 50 gallons of purge and decontamination water were generated during the April 2009 monitoring event. BASELINE placed the water in a properly labeled 55-gallon drum, which was stored in the hazardous materials storage locker located within Harbor Facilities Complex. The Port's environmental services contractor disposed of the water.

2.3. June 2009 Semi-annual Groundwater Monitoring Activities

Malcolm Pirnie, assisted by BASELINE, conducted the 2009 first semi-annual groundwater monitoring event at the Site on June 17, 2009. Malcolm Pirnie removed the ORC socks in monitoring well MW-4 on June 11, 2009, approximately one week prior to conducting the groundwater sampling. The DO level in the groundwater at MW-4 was measured at 0.95 mg/L, indicating the ORC socks were nearing their useful lifespan. Malcolm Pirnie and BASELINE conducted the June monitoring event following the procedures described in Section 2.1, above. As with the March 2009 and April 2009 events, wells MW-1 and MW-3 contained measureable thicknesses of free product (Table 1); hence these wells were not purged or sampled. Field-measured groundwater quality information and water level measurements for the June 2009 monitoring events are provided on groundwater sampling forms included in Appendix A.

Groundwater samples were transported to Curtis and Tompkins, Ltd. under appropriate chain-of-custody procedures on June 17, 2009 and analyzed for the compounds identified in Section 2.1 above. However, Malcolm Pirnie was notified by Curtis and Tompkins, Ltd. that four samples had broken during shipment. Malcolm Pirnie returned to the Site on June 19, 2009 and resampled wells MW-4, MW-5, MW-9 and MW-11, following the procedures described in Section 2.1, above. The samples were submitted, under appropriate chain of custody, to Curtis and Tompkins on the same day.

Approximately 80 gallons of purge and decontamination water were generated during the June 2009 monitoring event. Malcolm Pirnie placed the water in properly labeled 55-gallon drums, which were stored in the hazardous materials storage locker located within Harbor Facilities Complex. The Port's environmental services contractor disposed of the water.

3. Results

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

3.1. Groundwater Flow Direction

Site wells were re-surveyed by PLS Surveys, Inc. on January 24, 2009, relative to the 1988 North American Vertical Datum (NAVD88). Survey results are provided in Appendix B. Based on the depth-to-water measurements collected, groundwater beneath the Site dropped in elevation between March and June 2009. In March 2009, groundwater elevations ranged from 4.92 feet above mean sea level (amsl) to 6.61 feet amsl. In June 2009, groundwater elevations ranged from 3.36 feet amsl to 5.88 feet amsl. The groundwater flow directions at the time of the three sampling events were calculated to be toward the northeast, at average gradients ranging from 0.003 to 0.007 ft/ft. Shallow groundwater surface contour maps for the March 2009, April 2009 and June 2009 events are illustrated on Figures 4a through 4c. 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 wells MW-1 and MW-3 during the groundwater monitoring events in March, April and June 2009. Product thickness in well MW-1 ranged between 0.02 and 0.14 feet (Table 1), and has ranged in thickness from non-detectable to 1.3 feet since April 2000. Product thickness in well MW-3 ranged from 0.62 to 1.15 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 January 2009 and June 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 March, April and June 2009 are illustrated on Figures 5a through 5c and summarized in Table 1. The laboratory analytical reports are provided in Appendix C.

3.3.1. TPH-G

The laboratory reported TPH-G in the groundwater samples collected from MW-4, MW-9, MW-10, and MW-12, at concentrations ranging from 64 micrograms per liter (µg/L) to 240 µg/L. TPH-G was not detected in the samples collected from wells MW-2, MW-5, MW-8A, and MW-11. The laboratory report indicated that samples with TPH-G detections exhibited a chromatographic pattern that does not match the gasoline standard. Chromatographs are included in the laboratory reports included in Appendix C.

3.3.2. BTEX and MTBE

The laboratory reported benzene in the groundwater samples collected from wells MW-4 (15 µg/L), MW-9 (43 µg/L), and MW-10 (19 µg/L). Ethylbenzene was detected in the sample collected from well MW-10 at 1.0 µg/L. MTBE was detected in the sample collected from well MW-12 at 5.4 µg/L. The laboratory did not report any toluene or xylenes above their respective method reporting limits in the samples analyzed.

3.3.3. TPH-D and TPH-MO

The laboratory reported TPH-D in the groundwater samples collected from wells MW-2, MW-4, MW-5, MW-8A, and MW-11, at concentrations ranging from 220 µg/L to 310 µg/L. The laboratory reports indicate that the samples with TPH-D detections exhibited a chromatographic pattern that does not match the diesel standard. The laboratory reported TPH-MO concentrations to be below method reporting limits in the samples analyzed. TPH-D chromatographs are included in the laboratory reports included as Appendix C.

3.4. ORC Use

On June 11, six days before groundwater monitoring was performed at the Site, Malcolm Pirnie removed the ORC socks from well MW-4. On June 19, 2009, following completion of the monitoring event, the ORC socks were placed back into the well. The measurement of DO in the groundwater at well MW-4 at the time the ORC socks were removed indicates that they have nearly reached their useful lifespan.

3.5. Quality Assurance / Quality Control

BASELINE and Malcolm Pirnie collected field duplicates from selected monitoring wells to assess representativeness of the sample collection procedures. Two samples from well MW-4 (MW-4Dup) and one from well MW-12 (MW-12Dup) were analyzed for TPH-D, TPH-G, BTEX and MTBE.

The analytical laboratory reported detectable concentrations of TPH-G and benzene in the sample collected from MW-4 in March 2009 and only benzene in the duplicate sample. The relative percent difference (RPD) between the original and the duplicate samples are calculated below:

Benzene RPD |3.8-4.4|/ [(3.8+4.4)/2] = 14.6%

The analytical laboratory reported detectable concentrations benzene in the samples collected from MW-4 and MW-4Dup in April 2009. The RPD between the original and the duplicate samples are calculated below:

TPH-G RPD |7.5-7.8|/ [(7.5+7.8)/2] = 3.9%

The analytical laboratory reported detectable concentrations of TPH-G, TPH-D, and MTBE in the groundwater samples collected from MW-12 and MW-12Dup in June. The RPDs between the original and the duplicate samples are calculated below:

TPH-G RPD |67-64|/ [(67+64)/2] = 4.6%

TPH-D RPD |310-310|/ [(310+310)/2] = 0%

MTBE RPD |5.7-5.4|/ [(5.7+5.4)/2] = 5.4%

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 method 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 first semi-annual monitoring event appropriate and reliable for its intended use.

4. Free Product Recovery System

The Port installed the new free product recovery system at the Harbor Facilities Complex in 2004, as required by the ACHCS in a letter dated 27 March 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 (except well RW-9) 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-9 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.

BASELINE operated the system between January and April 2009, then transitioned operations to Malcolm Pirnie during May 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 Figures 5a through 5c.

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, 212 gallons of

product has been recovered in 23 months (August 2007 through June 2009). A total of 390 gallons of product have been recovered since operation of the new free product recovery system began.

5. Conclusions and Recommendations

The results of the groundwater sampling and free product recovery system O&M tasks indicate that the free-phase product plume appears stable (Figures 5a through 5c), and groundwater concentrations appear to be stable and/or decreasing (Table 2). Malcolm Pirnie recommends continuing operation of the free product recovery system, without change. The measurement of DO in the groundwater at well MW-4 at the time the ORC socks were removed indicates that they have nearly reached their useful lifespan. Malcolm Pirnie intends to replace the socks in well MW-4 in July 2009.

The analytical results from the March, April, and June 2009 sampling events demonstrate that the December 2008 sampling results reported in February 2009 were anomalous and should be considered unreliable to evaluate plume movement or trends.

Port of Oakland
530 Water Street • Oakland, CA 94607

Tables

MALCOLM PIRNIE

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
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

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-2 (cont)	06/13/02	13.87	NP	8.64	0.0	5.23
	09/26/02	13.87	NP	8.95	0.0	4.92
	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
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

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-3 (cont)	04/25/02	13.73	7.90	8.80	0.90	NC
	05/10/02	13.73	8.10	8.20	0.10	NC
	05/24/02	13.73	8.05	8.10	0.05	NC
	06/13/02	13.73	8.10	8.70	0.60	NC
	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	NC
	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	3.66
	03/04/09	15.66	9.31	9.93	0.62	5.73
	04/01/09	15.66	10.38	11.10	0.72	4.56

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

TABLE 1. Historical Groundwater Elevation and Free Product Data
Port of Oakland's Harbor Facilities Complex Site
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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

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
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
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
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

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

Notes:

Source of data prior to December 2005: Innovative Technical Solutions, Inc. *Third Quarter of 2005 Groundwter 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)							
		TPH-G	TPH-D	TPH-MO	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]
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)							
		TPH-G	TPH-D	TPH-MO	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	<0.50	<0.50	<0.50	<0.50	<0.50
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
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Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPH-G	TPH-D	TPH-MO	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
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

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Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPH-G	TPH-D	TPH-MO	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
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

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Monitoring Well	Date Sampled	Concentration (µg/L)							
		TPH-G	TPH-D	TPH-MO	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)							
		TPH-G	TPH-D	TPH-MO	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
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
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
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	<0.50	<0.50	<0.50	<0.50	<0.50
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

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)							
		TPH-G	TPH-D	TPH-MO	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 in gasoline range.

TPHd = total petroleum hydrocarbons in diesel range.

TPHmo = total petroleum hydrocarbons in motor oil range.

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
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 01/08/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01	0:00	
RW-2	NP	9.38	0.00					NA		
RW-3	11.17	11.67	0.50	11.0	Off	P=7;D=10	1/2/09 18:01	8/3/07 18:01	24:20	Purged 3 gal. Replaced filter on skimmer.
RW-4	10.24	10.98	0.74	10.0	Off	P=1;D=10	1/7/09 18:01	7/15/07 18:01	90:30	Purged 1 gallon.
RW-5	8.60	10.24	1.64		Off	Off		8/24/07 18:07	0:00	Purged 2 gal.
RW-6	9.12	10.21	1.09	9.0	Off	C=3;D=15	1/8/09 2:01	9/14/07 18:01	326:10	Purged 3.5 gal. Lowered pump.
RW-7	8.25	11.07	2.82	8.0	Off	C=4;D=15	1/8/09 6:30	9/14/07 18:30	426:90	Purged 5 gal. Lowered pump.
RW-8	9.41	11.94	2.53	9.0	Off	P=1;D=10	1/7/09 18:01	8/10/07 18:01	102:10	Purged 4 gal.
RW-9	9.62	16.40	6.78	11.0	Off	P=7;D=15	1/2/09 18:01	11/28/07 18:01	16:30	Purged 12 gal. Lowered pump.
MW-3	10.98	12.38	1.40		NA	NA	NA	NA	NA	Purge 20 gal of product.

Depth to product in Convault	2.17	ft
Depth to interface in Convault	2.41	ft
Approximate total liquid volume recovered	79	gal
Approximate product volume recovered	63	gal

Site Visit Date: 01/16/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01	0:00	
RW-2	NP	9.79	0.00		Off	Off		NA		
RW-3	11.38	11.43	0.05	11.0	Off	P=7;D=10		8/3/07 18:01	24:20	
RW-4	10.41	11.55	1.14	10.0	Off	P=1;D=10		7/15/07 18:01	90:50	
RW-5	8.84	9.03	0.19		Off	Off		8/24/07 18:07	0:00	
RW-6	9.09	10.96	1.87	9.0	Off	C=3;D=15		9/14/07 18:01	362:25	
RW-7	8.31	10.99	2.68	8.0	Off	C=4;D=15		9/14/07 18:30	426:24	
RW-8	9.55	11.55	2.00	9.0	Off	P=1;D=10		8/10/07 18:01	102:10	
RW-9	10.15	11.54	1.39	12.0	Off	P=7;D=15		11/28/07 18:01	16:30	
MW-3	11.06	12.78	1.72		NA	NA		NA		

Depth to product in Convault	1.90	ft
Depth to interface in Convault	2.32	ft
Approximate total liquid volume recovered	149	gal
Approximate product volume recovered	110	gal

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 01/20/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	--	--	--		Off	P=14;D=10		1/21/09 18:00		
RW-4	--	--	--		Off	P=7;D=15		1/21/09 18:00		Steam cleaned skimmer and replaced filter.
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	--	--	--		Off	P=7;D=15		1/21/09 18:00		
RW-7	--	--	--		Off	P=7;D=20		1/21/09 18:00		
RW-8	--	--	--		Off	P=7;D=15		1/21/09 18:00		
RW-9	--	--	--		Off	P=7;D=15		1/21/09 18:00		
MW-3	--	--	--		NA	NA		NA		
Depth to product in Convault				NM	ft					
Depth to interface in Convault				NM	ft					
Approximate total liquid volume recovered				NM	gal					
Approximate product volume recovered				NM	gal					

Site Visit Date: 01/26/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.18	11.31	0.13	11.0	Off	P=14;D=10	1/2/09 18:01	1/21/09 18:00	24:30	
RW-4	10.30	10.92	0.62	10.0	Off	P=7;D=15	1/7/09 18:01	1/21/09 18:00	90:45	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.93	10.48	1.55	9.0	Off	P=7;D=15	1/8/09 2:01	1/21/09 18:00	362:40	
RW-7	8.27	10.80	2.53	8.0	Off	P=7;D=20	1/8/09 6:30	1/21/09 18:00	426:44	
RW-8	9.34	10.62	1.28	9.0	Off	P=7;D=15	1/7/09 18:01	1/21/09 18:00	102:25	
RW-9	9.98	11.01	1.03	12.0	Off	P=7;D=15	1/2/09 18:01	1/21/09 18:00	16:45	
MW-3	11.04	12.94	1.90		NA	NA		NA		Removed 5 gal of product.
Depth to product in Convault				1.88	ft					
Depth to interface in Convault				2.48	ft					Air Dehumidifier attached to the compressor leaking air.
Approximate total liquid volume recovered				154	gal					
Approximate product volume recovered				157	gal					

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 02/04/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.32	0.12	11.0	Off	P=14;D=10	1/21/09 18:00	1/21/09 18:00	24:30	
RW-4	10.29	10.83	0.54	10.0	Off	P=7;D=15	1/28/09 18:00	1/21/09 18:00	91:00	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.00	10.98	1.98	9.0	Off	P=1;D=10	1/28/09 18:00	1/21/09 18:00	362:55	
RW-7	8.31	10.92	2.61	8.0	Off	P=1;D=10	1/28/09 18:00	1/21/09 18:00	427:40	
RW-8	9.30	11.16	1.86	9.0	Off	P=1;D=10	1/28/09 18:00	1/21/09 18:00	102:40	
RW-9	9.88	11.70	1.82	12.0	Off	P=7;D=15	1/28/09 18:00	1/21/09 18:00	17:00	Skimmer pumping water, changed out skimmer.
MW-3	11.07	12.51	1.44		NA	NA		NA		Removed 3 gal of product.

Depth to product in Convault	1.84	ft	
Depth to interface in Convault	2.48	ft	Ingersoll-Rand tech on-site to repair air dryer.
Approximate total liquid volume recovered	165	gal	
Approximate product volume recovered	168	gal	

Site Visit Date: 02/10/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.39	11.49	0.10	11.0	Off	P=14;D=10	2/4/09 18:00	1/21/09 18:00	24:40	
RW-4	10.50	11.95	1.45	10.0	Off	P=7;D=15	2/4/09 18:00	1/21/09 18:00	91:15	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	9.12	9.68	0.56	9.0	Off	P=1;D=10	2/9/09 18:00	1/21/09 18:00	363:55	
RW-7	8.40	9.84	1.44	8.0	Off	P=1;D=10	2/9/09 18:00	1/21/09 18:00	20:40	
RW-8	9.48	9.95	0.47	9.0	Off	P=1;D=10	2/9/09 18:00	1/21/09 18:00	103:40	
RW-9	10.00	11.06	1.06	10.5	Off	P=7;D=15	2/4/09 18:00	1/21/09 18:00	17:15	Adjusted tag on skimmer line to read correct depth to pump inlet.
MW-3	11.17	13.22	2.05		NA	NA		NA		Removed 9 gal of product.

Depth to product in Convault	1.71	ft	
Depth to interface in Convault	2.37	ft	Grease compressor fittings.
Approximate total liquid volume recovered	199	gal	
Approximate product volume recovered	173	gal	

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 02/24/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	9.32	12.30	2.98	11.0	Off	Off		1/21/09 18:00		
RW-4	8.97	10.35	1.38	9.5	Off	Off		1/21/09 18:00		
RW-5	--	--	--		Off	Off		8/24/07 18:07		Vault covered by truck.
RW-6	8.75	10.02	1.27	9.0	Off	Off		1/21/09 18:00		
RW-7	8.08	8.68	0.60	9.0	Off	Off		1/21/09 18:00		
RW-8	9.10	9.70	0.60	9.0	Off	Off		1/21/09 18:00		
RW-9	9.60	10.69	1.09	10.5	Off	Off		1/21/09 18:00		
MW-3	9.38	10.34	0.96		NA	NA		NA		Removed 2.5 gal of product.

Depth to product in Convault	1.60	ft	Turned off system 2/17/09 due to rain and potential rapid groundwater level rise and to evaluate product recovery.
Depth to interface in Convault	2.30	ft	
Approximate total liquid volume recovered	228	gal	
Approximate product volume recovered	183	gal	

Site Visit Date: 02/25/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	9.60	9.78	0.18	11.0	Off	Off		1/21/09 18:00		Purged RW-3 for 3/4 of an hour, then measured product/water level.
RW-4	--	--	--	9.5	Off	Off		1/21/09 18:00		
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	--	--	--	9.0	Off	Off		1/21/09 18:00		Skimmer pumping water, changed out skimmer, purged for 10 minutes.
RW-7	--	--	--	9.0	Off	Off		1/21/09 18:00		
RW-8	--	--	--	9.0	Off	Off		1/21/09 18:00		
RW-9	--	--	--	10.5	Off	Off		1/21/09 18:00		
MW-3	--	--	--		NA	NA		NA		

Depth to product in Convault	1.59	ft	Turned off system 2/17/09 due to rain and potential rapid groundwater level rise and to evaluate product recovery.
Depth to interface in Convault	2.25	ft	
Approximate total liquid volume recovered	230	gal	
Approximate product volume recovered	173	gal	

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 03/04/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	7.65	7.67	0.02		Off	Off		3/29/07 14:01		
RW-2	NP	5.96	0.00		Off	Off		NA		
RW-3	9.19	12.14	2.95	10.0	Off	Off		1/21/09 18:00		Purged well for one hour, product thickness reduced to 0.7 ft.
RW-4	8.93	9.03	0.10	9.5	Off	Off		1/21/09 18:00		
RW-5	8.00	8.61	0.61		Off	Off		8/24/07 18:07		
RW-6	8.69	9.45	0.76	9.0	Off	Off		1/21/09 18:00		
RW-7	8.03	8.22	0.19	9.0	Off	Off		1/21/09 18:00		
RW-8	9.08	9.46	0.38	9.0	Off	Off		1/21/09 18:00		
RW-9	9.50	10.34	0.84	10.5	Off	Off		1/21/09 18:00		
MW-3	9.31	9.93	0.62		NA	NA		NA		Removed 1.5 gal of product.
Depth to product in Convault				1.60	ft					
Depth to interface in Convault				2.31	ft					
Approximate total liquid volume recovered				228	gal					
Approximate product volume recovered				186	gal					

Site Visit Date: 03/13/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	NP	8.30	0.00		Off	Off		NA		
RW-3	9.75	11.79	2.04	10.0	Off	Off		1/21/09 18:00		
RW-4	9.25	9.32	0.07	10.0	Off	Off		1/21/09 18:00		
RW-5	8.15	8.72	0.57		Off	Off		8/24/07 18:07		
RW-6	8.72	9.57	0.85	10.0	Off	Off		1/21/09 18:00		
RW-7	8.12	8.31	0.19	9.0	Off	Off		1/21/09 18:00		
RW-8	9.04	9.45	0.41	9.0	Off	Off		1/21/09 18:00		
RW-9	9.41	10.25	0.84	10.5	Off	Off		1/21/09 18:00		
MW-3	9.88	10.79	0.91		NA	NA		NA		Removed 1.25 gal of product.
Depth to product in Convault				1.58	ft					
Depth to interface in Convault				2.26	ft					System off.
Approximate total liquid volume recovered				233	gal					
Approximate product volume recovered				178	gal					

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 03/18/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	9.90	11.92	2.02	10.0	Off	P=7;D=15	1/21/09 18:00	1/21/09 18:00	24:20	Skimmer pumping water, changed out skimmer.
RW-4	9.40	9.50	0.10	10.0	Off	Off	1/28/09 18:00	1/21/09 18:00	90:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		
RW-6	8.73	9.59	0.86	9.0	10	P=7;D=15	1/28/09 18:00	1/21/09 18:00	326:10	
RW-7	8.15	8.32	0.17	8.0	10	P=7;D=15	1/28/09 18:00	1/21/09 18:00	426:90	Replaced filter and hose to float.
RW-8	9.06	9.46	0.40	8.0	12	P=7;D=15	1/28/09 18:00	1/21/09 18:00	102:10	Replaced filter and hose to float.
RW-9	9.41	10.28	0.87	10.5	Off	P=7;D=15	1/28/09 18:00	1/21/09 18:00	16:30	
MW-3	10.05	10.78	0.73		NA	NA		NA		Removed 4 gal of product.

Depth to product in Convault	1.56	ft	Restarted system and applied vacuum to RW-6, RW-7, and RW-8.
Depth to interface in Convault	2.28	ft	
Approximate total liquid volume recovered	238	gal	
Approximate product volume recovered	188	gal	

Site Visit Date: 03/26/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.30	10.92	0.62	10.0	Off	P=7;D=15	3/25/09 18:00	1/21/09 18:00	24:20	
RW-4	9.52	9.53	0.01	10.0	Off	Off		1/21/09 18:00	90:30	
RW-5	8.22	8.72	0.50		Off	Off		8/24/07 18:07		
RW-6	8.39	9.45	1.06	8.0	7	P=7;D=15	3/25/09 18:00	1/21/09 18:00	326:10	
RW-7	7.38	7.54	0.16	8.0	12 → 10	P=7;D=15	3/25/09 18:00	1/21/09 18:00	426:90	Adjust vacuum at well head.
RW-8	9.25	9.60	0.35	8.0	1 → 8	P=7;D=15	3/25/09 18:00	1/21/09 18:00	102:10	Adjust vacuum at well head.
RW-9	9.44	9.70	0.26	10.5	Off	P=7;D=15	3/25/09 18:00	1/21/09 18:00	16:30	
MW-3	10.22	10.88	0.66		NA	NA		NA		Removed 2 gal of product.

Depth to product in Convault	1.53	ft	Removed ORC sock from MW-4, DO reading 16.02 mg/L.
Depth to interface in Convault	2.28	ft	
Approximate total liquid volume recovered	246	gal	
Approximate product volume recovered	196	gal	

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 04/01/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	NP	8.03	0.00		Off	Off		3/29/07 14:01		
RW-2	NP	9.35	0.00		Off	Off		NA		
RW-3	10.35	11.00	0.65	10.0	Off	P=7;D=15	3/25/09 18:00	1/21/09 18:00	24:20	
RW-4	9.66	9.72	0.06	10.0	Off	Off	3/11/09 18:00	1/21/09 18:00	90:30	
RW-5	--	--	--		Off	Off		8/24/07 18:07		Vault covered by truck.
RW-6	8.38	9.46	1.08	8.0	7	P=7;D=15	3/25/09 18:00	1/21/09 18:00	326:10	
RW-7	7.75	7.90	0.15	8.0	6	P=7;D=15	3/25/09 18:00	1/21/09 18:00	426:90	
RW-8	9.18	9.58	0.40	9.0	2 → 3	P=7;D=15	3/25/09 18:00	1/21/09 18:00	102:10	
RW-9	9.48	9.75	0.27	10.5	10.5	P=7;D=15	3/25/09 18:00	1/21/09 18:00	16:30	
MW-3	10.38	11.10	0.72		NA	NA		NA		Removed 1.2 gal of product.

Depth to product in Convault	1.52	ft	
Depth to interface in Convault	2.28	ft	Shut off vacuum system due to breakthrough above 10 ppm in first vessel.
Approximate total liquid volume recovered	249	gal	
Approximate product volume recovered	199	gal	

Site Visit Date: 04/22/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.75	11.32	0.57	10.5	Off	P=7;D=15	4/15/09 18:00	1/21/09 18:00	25:55	Lower pump.
RW-4	9.83	9.86	0.03	10.0	Off	Off		1/21/09 18:00	91:30	
RW-5	8.48	8.97	0.49		Off	P=7;D=15	4/15/09 18:00	8/24/07 18:07		
RW-6	8.97	10.03	1.06	9.0	Off	P=7;D=15	4/15/09 18:00	1/21/09 18:00	366:20	Lower pump.
RW-7	8.29	8.53	0.24	8.0	Off	P=7;D=15	4/15/09 18:00	1/21/09 18:00	430:26	
RW-8	9.47	10.00	0.53	9.0	Off	P=7;D=15	4/15/09 18:00	1/21/09 18:00	106:50	
RW-9	9.87	10.51	0.64	10.5	Off	P=7;D=15	4/15/09 18:00	1/21/09 18:00	18:45	
MW-3	10.56	11.72	1.16		NA	NA		NA		Removed 2 gal of product.

Depth to product in Convault	1.51	ft	
Depth to interface in Convault	--	ft	
Approximate total liquid volume recovered	251	gal	
Approximate product volume recovered	--	gal	

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 05/04/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.82	11.41	0.59	11.0	Off	P=7;D=15	4/29/09 18:00	1/21/09 18:00		
RW-4	9.83	11.44	1.61	10.5	Off	Off		1/21/09 18:00		
RW-5	8.45	8.94	0.49		Off	P=7;D=15		8/24/07 18:07		
RW-6	8.45	10.06	1.61	9.0	6 → 10	P=7;D=15	4/29/09 18:00	1/21/09 18:00		
RW-7	7.20	7.94	0.74	8.0	16 → 10	P=7;D=15	4/29/09 18:00	1/21/09 18:00		
RW-8	9.23	9.93	0.70	9.0	3 → 10	P=7;D=15	4/29/09 18:00	1/21/09 18:00		
RW-9	9.87	10.64	0.77	10.0	Off	P=7;D=15	4/29/09 18:00	1/21/09 18:00		
MW-3	10.67	12.00	1.33		NA	NA		NA		Removed 2 gal of product.

Depth to product in Convault	1.50	ft
Depth to interface in Convault	--	ft
Approximate total liquid volume recovered	254	gal
Approximate product volume recovered	--	gal

Site Visit Date: 05/15/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.75	11.32	0.57	11.0	Off	P=7;D=15	5/13/09 18:00	1/21/09 18:00	26:55	
RW-4	9.83	9.86	0.03	10.5	Off	Off		1/21/09 18:00	92:00	
RW-5	8.48	8.97	0.49		Off	P=7;D=15		8/24/07 18:07		
RW-6	8.97	10.03	1.06	9.0	7	P=7;D=15	5/13/09 18:00	1/21/09 18:00	367:20	
RW-7	8.29	8.53	0.24	8.0	8	P=7;D=15	5/13/09 18:00	1/21/09 18:00	431:29	
RW-8	9.47	10.00	0.53	9.0	7	P=7;D=15	5/13/09 18:00	1/21/09 18:00	107:05	
RW-9	9.87	10.51	0.64	10.0	Off	P=7;D=15	5/13/09 18:00	1/21/09 18:00	19:45	
MW-3	10.56	11.72	1.16		NA	NA		NA		Removed 3 gal of product.

Depth to product in Convault	1.46	ft
Depth to interface in Convault	2.19	ft
Approximate total liquid volume recovered	264	gal
Approximate product volume recovered	191	gal

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 05/20/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1	--	--	--		Off	Off		3/29/07 14:01		
RW-2	NP	9.58	0.00		Off	Off		NA		
RW-3	10.94	11.41	0.47	11.0	Off	P=7;D=15	5/13/09 18:00	1/21/09 18:00	26:55	
RW-4	10.05	10.38	0.33	10.5	Off	Off		1/21/09 18:00	92:00	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.50	10.36	1.86	9.0	6	P=7;D=15	5/13/09 18:00	1/21/09 18:00	367:20	
RW-7	7.98	8.94	0.96	8.0	4 → 6	P=7;D=15	5/13/09 18:00	1/21/09 18:00	431:29	
RW-8	9.19	10.17	0.98	9.0	2 → 8	P=7;D=15	5/13/09 18:00	1/21/09 18:00	107:05	
RW-9	9.90	10.73	0.83	10.0	Off	P=7;D=15	5/13/09 18:00	1/21/09 18:00	19:45	
MW-3	10.72	12.00	1.28		NA	NA		NA		Removed 1 gallon of product.

Depth to product in Convault	1.43	ft
Depth to interface in Convault	2.17	ft
Approximate total liquid volume recovered	272	gal
Approximate product volume recovered	194	gal

Site Visit Date: 05/27/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.95	11.33	0.38	11.0	Off	P=7;D=15	5/20/09 18:00	1/21/09 18:00	27:10	
RW-4	10.03	10.54	0.51	10.5	Off	Off		1/21/09 18:00	92:15	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.52	10.41	1.89	9.0	6.5	P=7;D=15	5/20/09 18:00	1/21/09 18:00	367:35	
RW-7	7.82	8.99	1.17	8.0	6.2	P=7;D=15	5/20/09 18:00	1/21/09 18:00	431:44	
RW-8	8.59	9.71	1.12	9.0	8.0	P=7;D=15	5/20/09 18:00	1/21/09 18:00	107:20	
RW-9	9.92	10.81	0.89	10.0	Off	P=7;D=15	5/20/09 18:00	1/21/09 18:00	20:00	
MW-3	10.70	12.00	1.30		NA	NA		NA		Removed 1.5 gallons of product.

Depth to product in Convault	1.39	ft
Depth to interface in Convault	2.10	ft
Approximate total liquid volume recovered	283	gal
Approximate product volume recovered	186	gal

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 06/03/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.05	0.20	11.0	Off	P=7;D=15	5/27/09 18:00	1/21/09 18:00	27:25	
RW-4	10.04	10.69	0.65	10.5	Off	Off		1/21/09 18:00	92:30	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.65	10.53	1.88	9.0	6	P=7;D=15	5/27/09 18:00	1/21/09 18:00	367:50	
RW-7	7.89	9.26	1.37	8.0	5	P=7;D=15	5/27/09 18:00	1/21/09 18:00	431:59	
RW-8	9.95	10.31	0.36	9.0	2	P=7;D=15	5/27/09 18:00	1/21/09 18:00	107:35	
RW-9	9.65	10.73	1.08	10.0	Off	P=7;D=15	5/27/09 18:00	1/21/09 18:00	20:15	
MW-3	10.75	11.80	1.05		NA	NA		NA		Removed 1 gallon of product.
Depth to product in Convault				1.30	ft					
Depth to interface in Convault				2.07	ft					
Approximate total liquid volume recovered				306	gal					
Approximate product volume recovered				202	gal					

Site Visit Date: 06/10/09										
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.05	0.15	11.0	Off	P=7;D=15	6/3/09 18:00	1/21/09 18:00	27:40	
RW-4	10.08	10.96	0.88	10.5	Off	Off		1/21/09 18:00	92:45	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.63	10.55	1.47	9.0	6.0	P=7;D=15	6/3/09 18:00	1/21/09 18:00	368:05	
RW-7	7.92	9.39	1.47	8.0	4.8	P=7;D=15	6/3/09 18:00	1/21/09 18:00	431:14	
RW-8	9.45	10.49	1.04	9.0	1.4	P=7;D=15	6/3/09 18:00	1/21/09 18:00	107:50	
RW-9	9.97	10.98	1.01	10.0	Off	P=7;D=15	6/3/09 18:00	1/21/09 18:00	20:30	
MW-3	10.74	12.14	1.40		NA	NA		NA		Removed 1 gallon of product.
Depth to product in Convault				1.29	ft					
Depth to interface in Convault				2.06	ft					
Approximate total liquid volume recovered				309	gal					
Approximate product volume recovered				202	gal					

TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Site Visit Date: 06/17/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	10.93	11.02	0.09	11.0	Off	P=7;D=15	6/10/09 18:00	1/21/09 18:00	27:55	
RW-4	10.07	11.00	0.93	10.5	Off	Off		1/21/09 18:00	93:00	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.63	10.55	1.47	9.0	5.4	P=7;D=15	6/10/09 18:00	1/21/09 18:00	368:20	
RW-7	7.95	9.41	1.46	8.0	4.2	P=7;D=15	6/10/09 18:00	1/21/09 18:00	432:29	
RW-8	9.19	10.28	1.09	9.0	1.5	P=7;D=15	6/10/09 18:00	1/21/09 18:00	108:05	Increased vacuum on well to 1.5 in H2O
RW-9	9.96	11.17	1.21	10.0	Off	P=7;D=15	6/10/09 18:00	1/21/09 18:00	20:45	
MW-3	10.79	12.30	1.51		NA	NA		NA		Removed 1 gallon of product.

Depth to product in Convault	1.25	ft
Depth to interface in Convault	2.03	ft
Approximate total liquid volume recovered	319	gal
Approximate product volume recovered	204	gal

Site Visit Date: 06/24/09

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H_2O)	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	11.07	0.11	11.0	Off	P=7;D=15	6/17/09 18:00	1/21/09 18:00	28:10	
RW-4	10.15	11.12	0.97	10.5	Off	Off		1/21/09 18:00	93:15	
RW-5	--	--	--		Off	P=7;D=15		8/24/07 18:07		Truck parked on top of vault.
RW-6	8.60	10.59	1.47	9.0	5.4	P=7;D=15	6/17/09 18:00	1/21/09 18:00	368:55	
RW-7	7.75	9.64	1.89	8.0	6.4	P=7;D=15	6/17/09 18:00	1/21/09 18:00	432:44	
RW-8	9.16	10.37	1.21	9.0	5.0	P=7;D=15	6/17/09 18:00	1/21/09 18:00	108:20	
RW-9	--	--	--	10.0	Off	P=7;D=15	6/17/09 18:00	1/21/09 18:00	21:00	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.

Depth to product in Convault	1.22	ft
Depth to interface in Convault	2.03	ft
Approximate total liquid volume recovered	327	gal
Approximate product volume recovered	212	gal

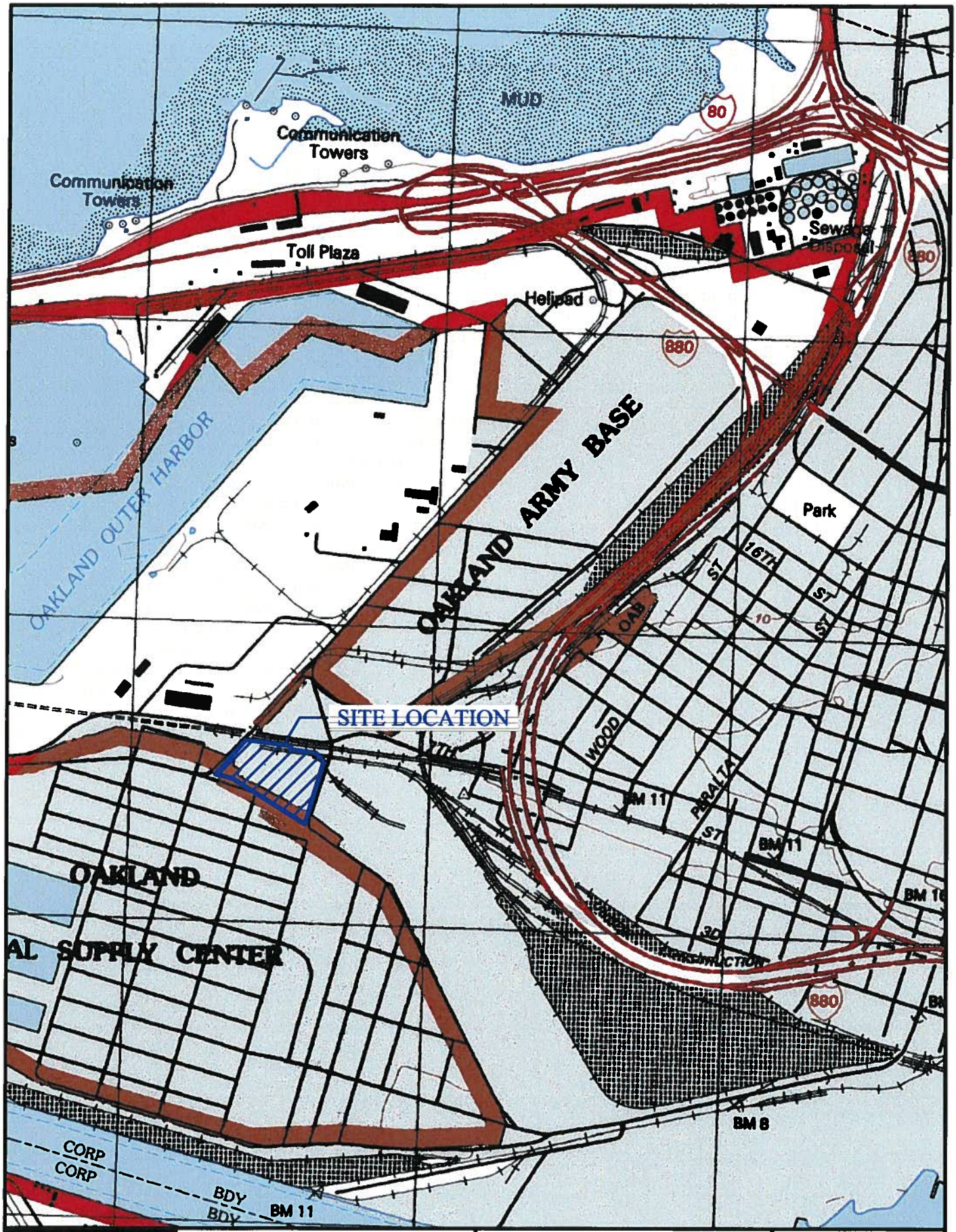
TABLE 3. Free Product Removal System Operation and Maintenance Records Summary
January 8 through June 30, 2009
Port of Oakland's Harbor Facilities Complex Site
555 - 651 Maritime Street, Oakland, California

Notes:
NP = no product
ft = ft
-- = not measured
gal = gallons
in/H2O = inches of water
hr:min = hours:minutes

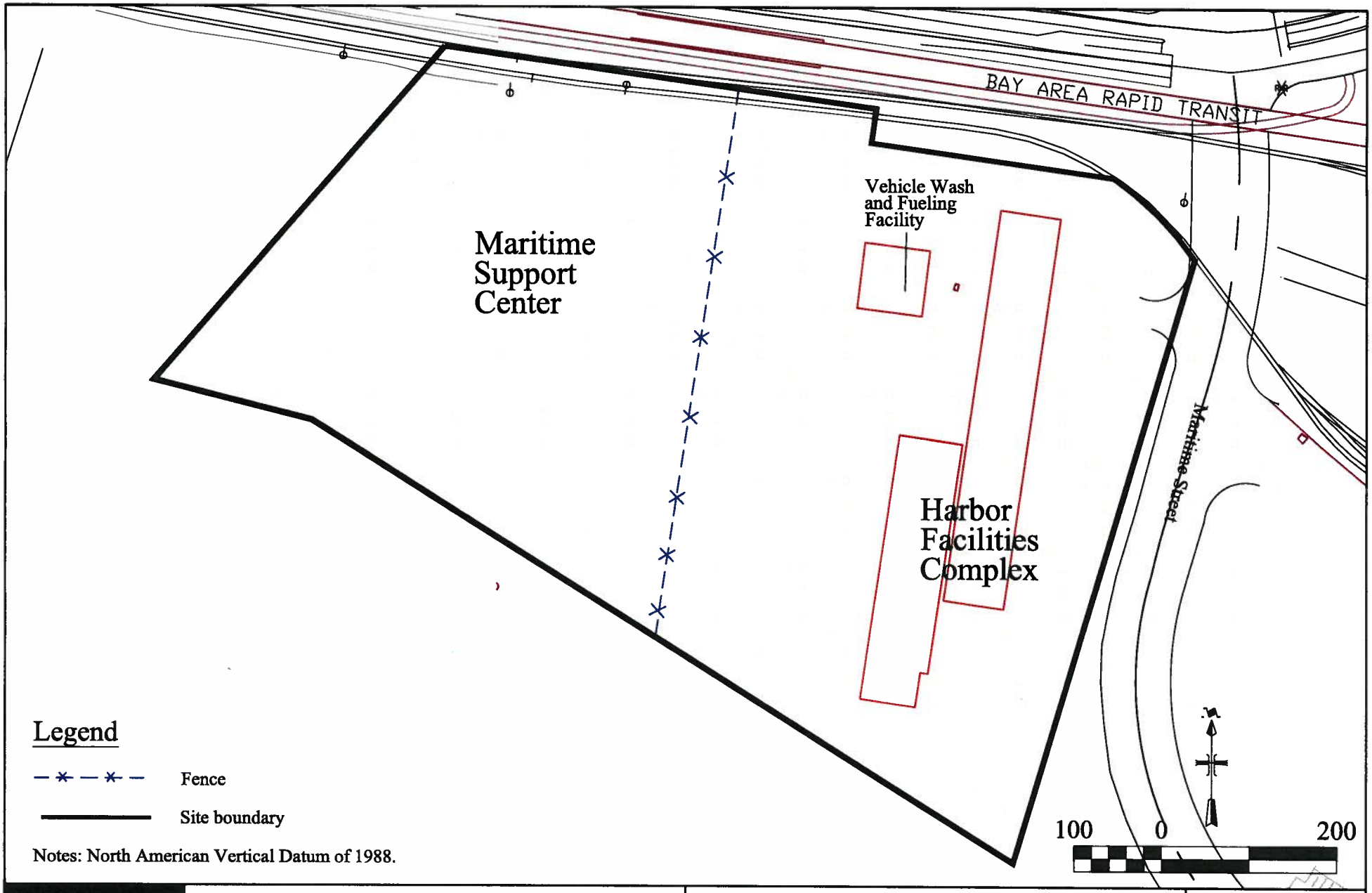
Port of Oakland
530 Water Street • Oakland, CA 94607

Figures

MALCOLM PIRNIE



MALCOLM PIRNIE	PORT OF OAKLAND HARBOR FACILITIES COMPLEX 651 MARITIME STREET	SITE LOCATION MAP	MALCOLM PIRNIE, INC. JULY 2009 FIGURE 1



MALCOLM PIRNIE

PORT OF OAKLAND

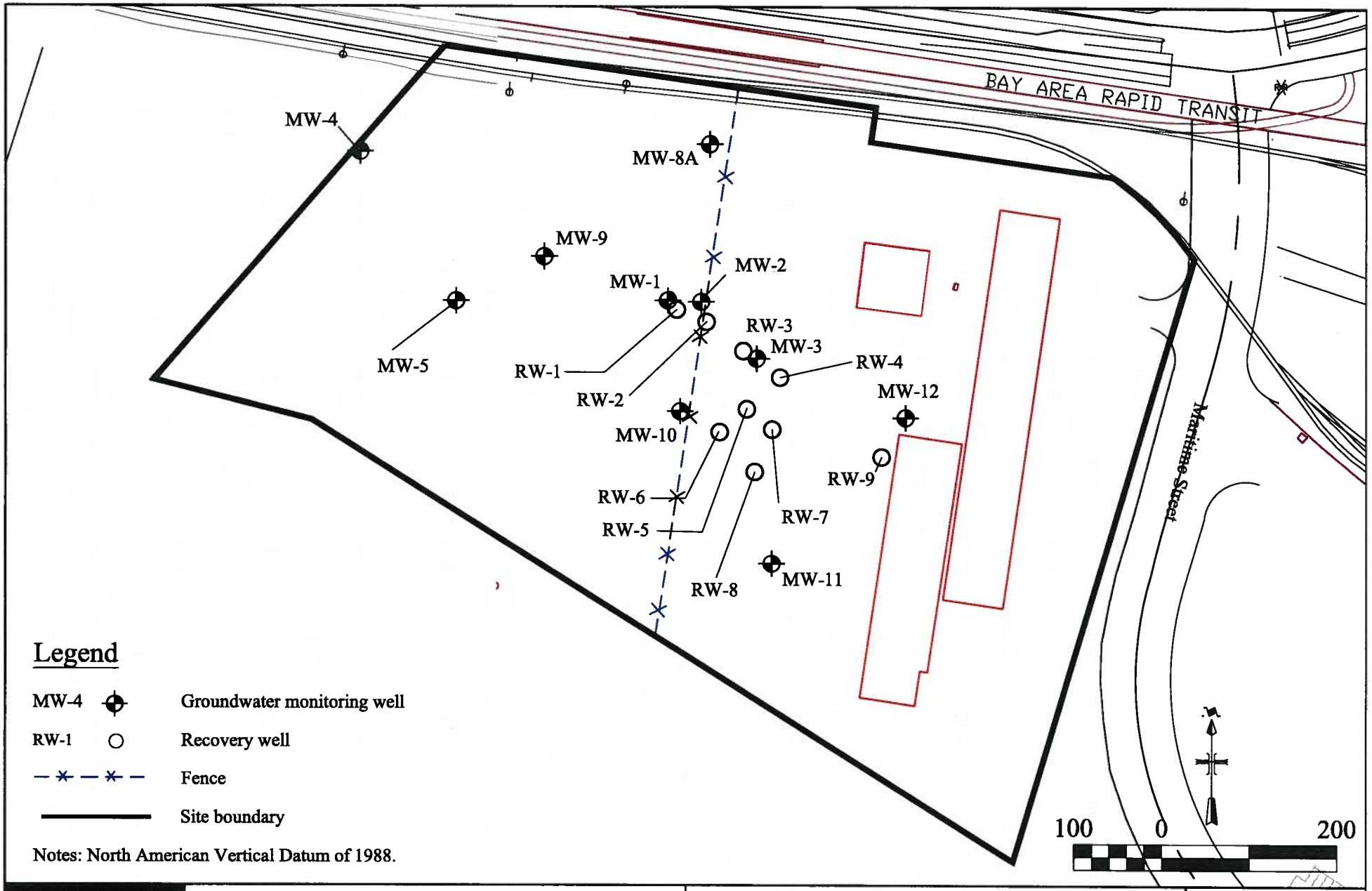
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

HARBOR FACILITIES COMPLEX LAYOUT

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 2



MALCOLM PIRNIE

PORT OF OAKLAND

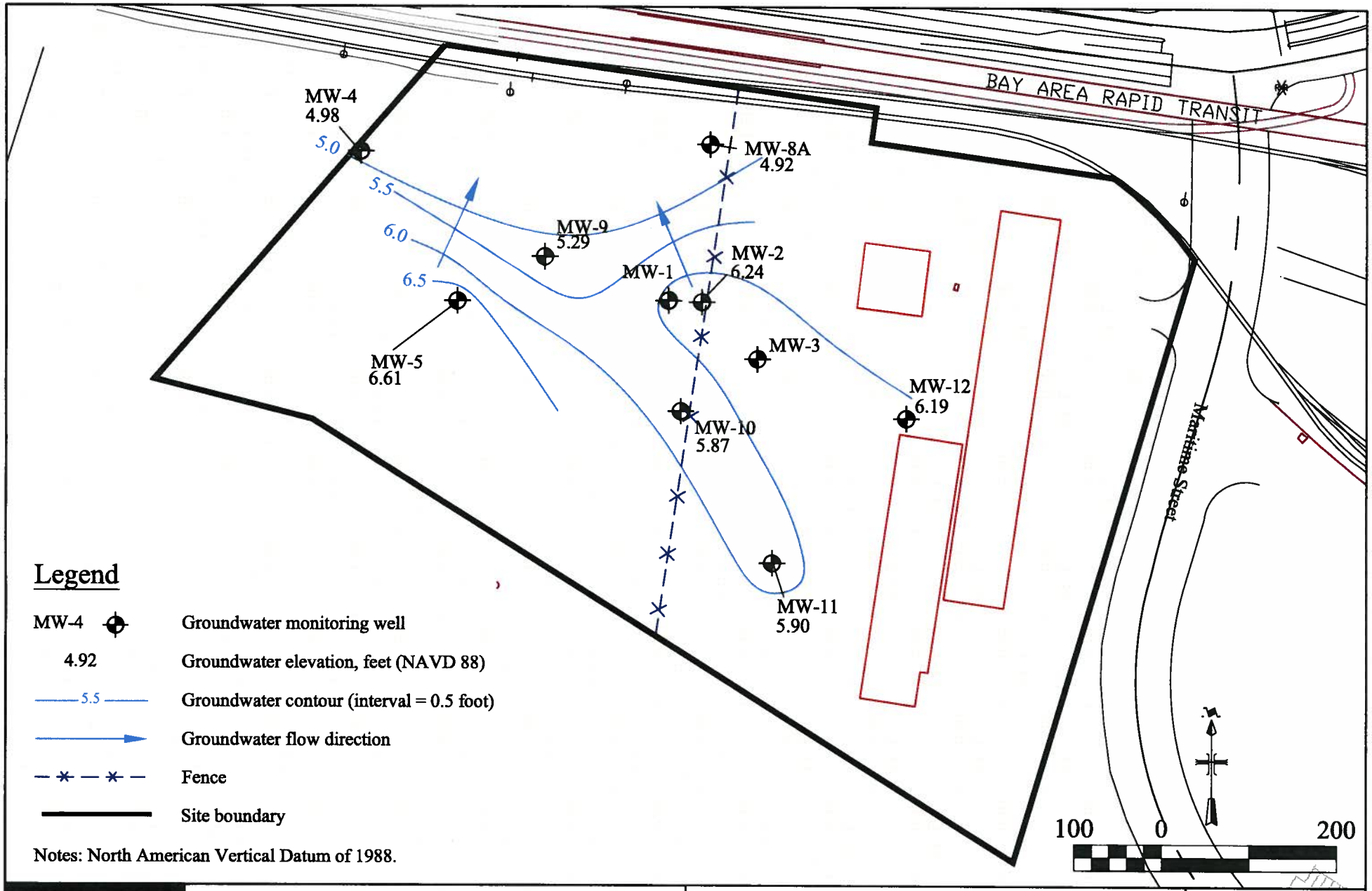
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

SITE PLAN

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 3



MALCOLM PIRNIE

PORT OF OAKLAND

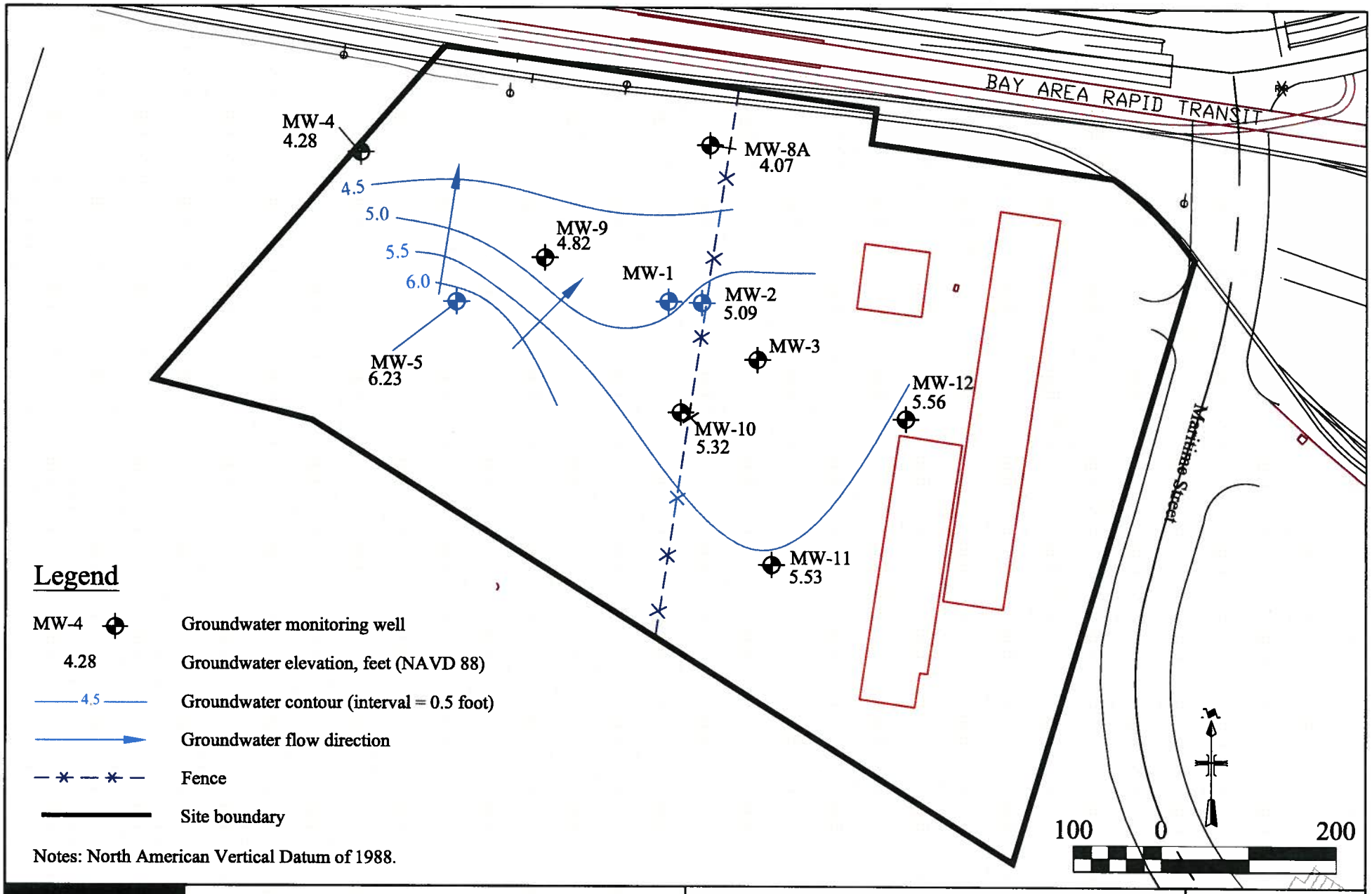
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

GROUNDWATER ELEVATION
MARCH 2009

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 4a



MALCOLM PIRNIE

PORT OF OAKLAND

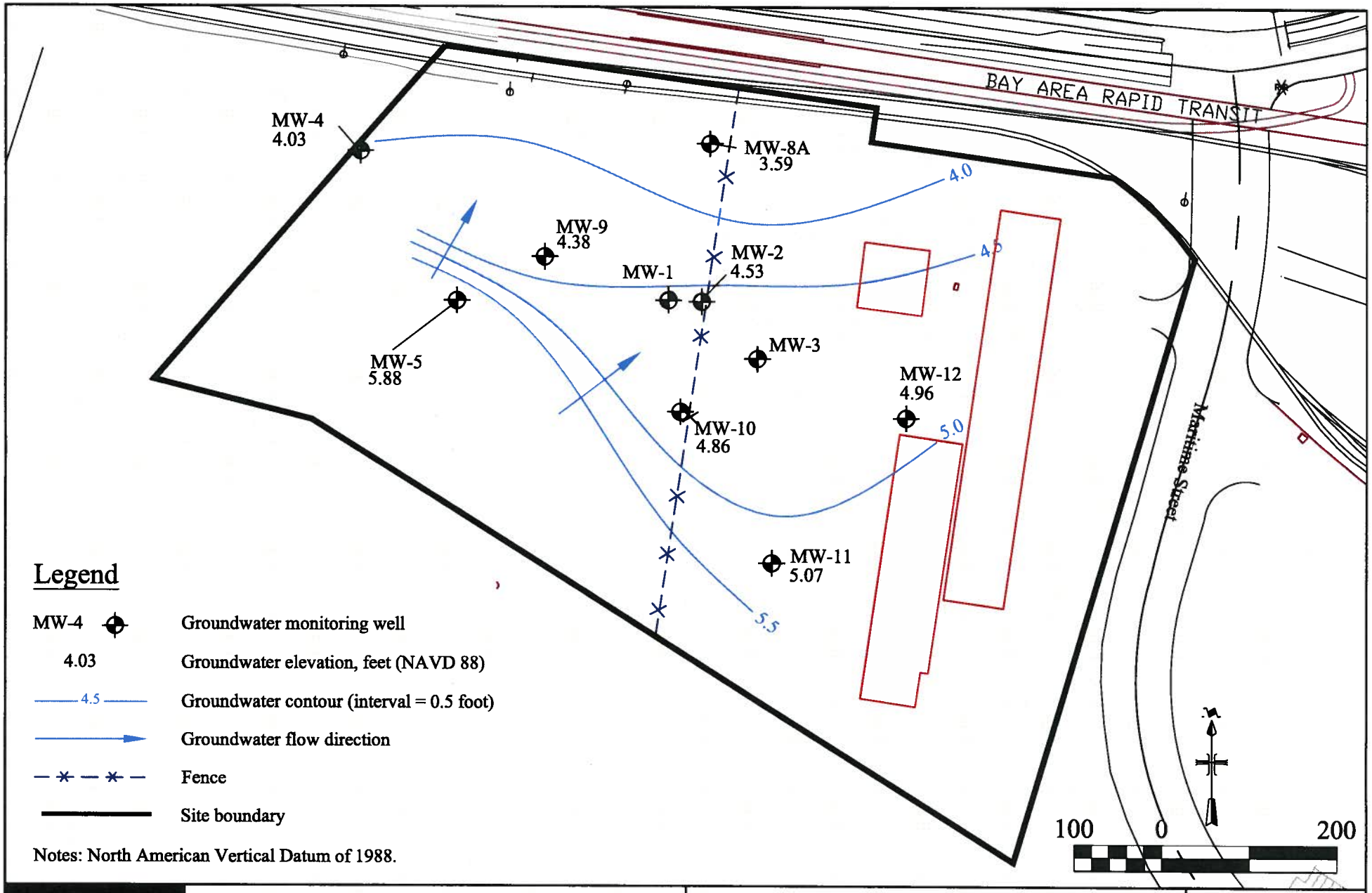
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

GROUNDWATER ELEVATION
APRIL 2009

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 4b



MALCOLM PIRNIE

PORT OF OAKLAND

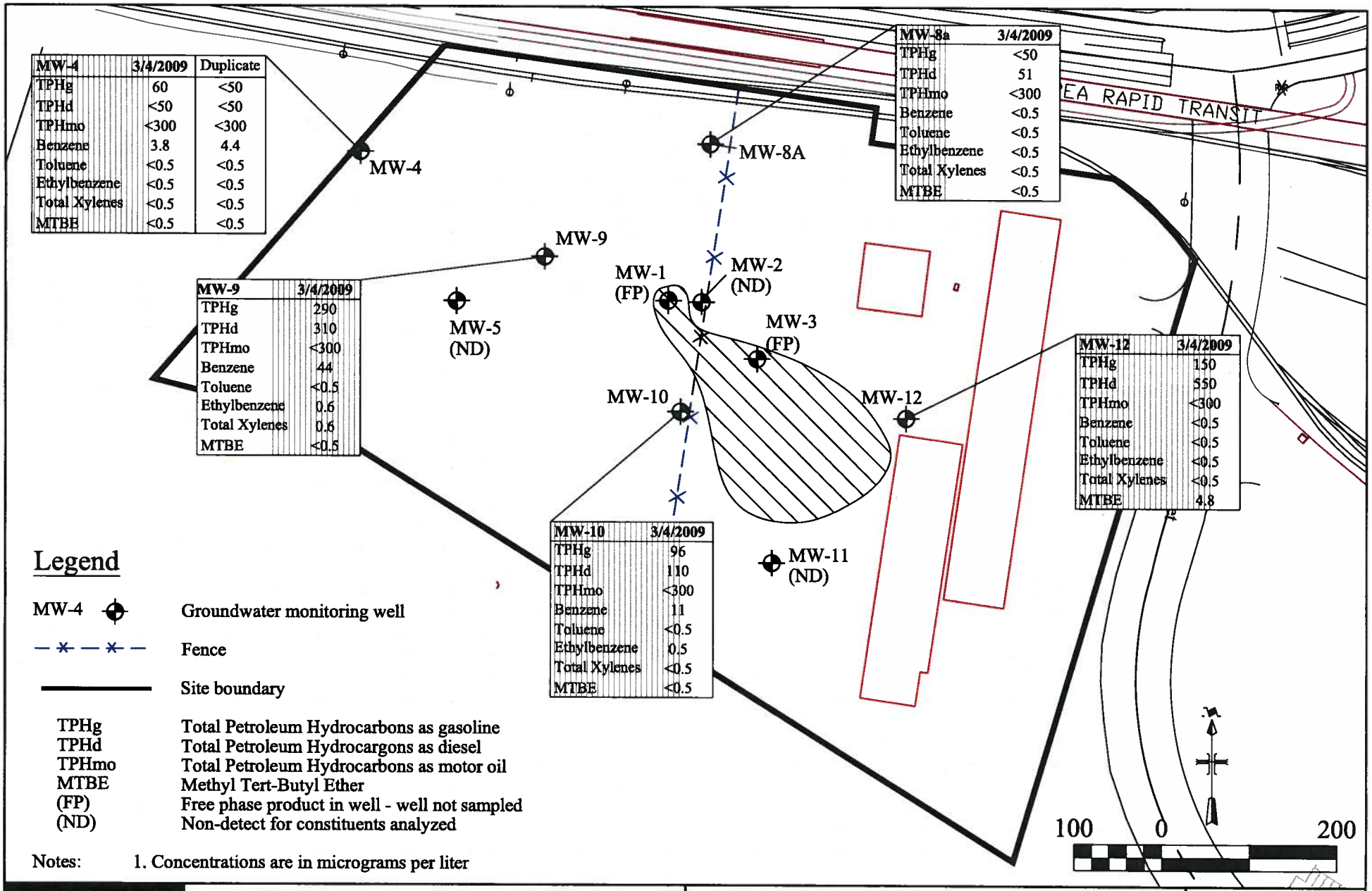
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

GROUNDWATER ELEVATION
JUNE 2009

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 4c



MALCOLM PIRNIE

PORT OF OAKLAND

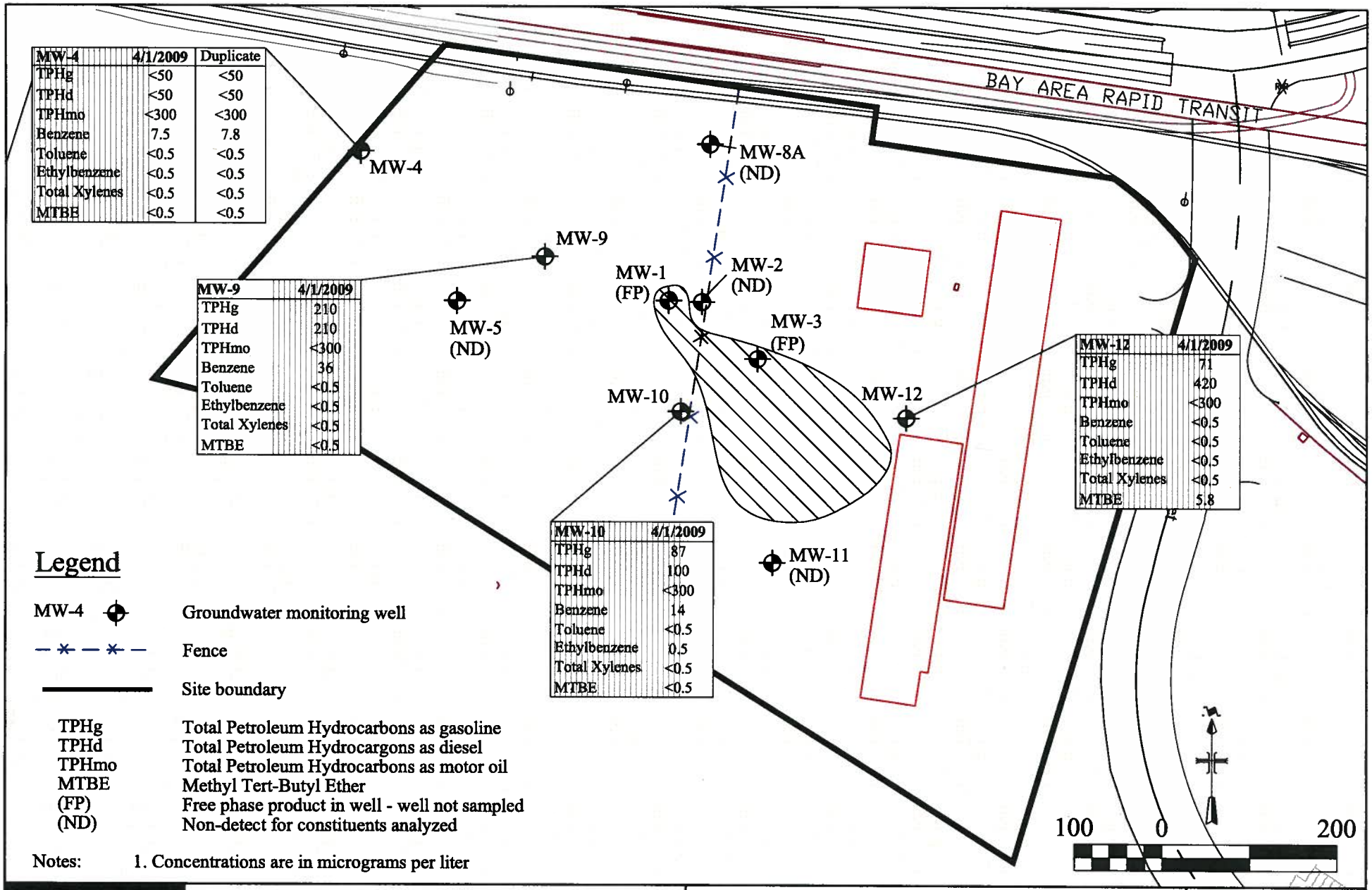
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

ANALYTICAL RESULTS
MARCH 2009

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 5a



MW-4	4/1/2009	Duplicate
TPHg	<50	<50
TPHd	<50	<50
TPHmo	<300	<300
Benzene	7.5	7.8
Toluene	<0.5	<0.5
Ethylbenzene	<0.5	<0.5
Total Xylenes	<0.5	<0.5
MTBE	<0.5	<0.5

MW-9	4/1/2009
TPHg	210
TPHd	210
TPHmo	<300
Benzene	36
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<0.5
MTBE	<0.5

MW-10	4/1/2009
TPHg	87
TPHd	100
TPHmo	<300
Benzene	14
Toluene	<0.5
Ethylbenzene	0.5
Total Xylenes	<0.5
MTBE	<0.5

MW-12	4/1/2009
TPHg	71
TPHd	420
TPHmo	<300
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<0.5
MTBE	5.8

Legend

MW-4 — Groundwater monitoring well

— * — * — Fence

Site boundary

TPHg	Total Petroleum Hydrocarbons as gasoline
TPHd	Total Petroleum Hydrocargons as diesel
TPHmo	Total Petroleum Hydrocarbons as motor oil
MTBE	Methyl Tert-Butyl Ether
(FP)	Free phase product in well - well not sampled
(ND)	Non-detect for constituents analyzed

Notes: 1. Concentrations are in micrograms per liter

MALCOLM PIRNIE

PORT OF OAKLAND

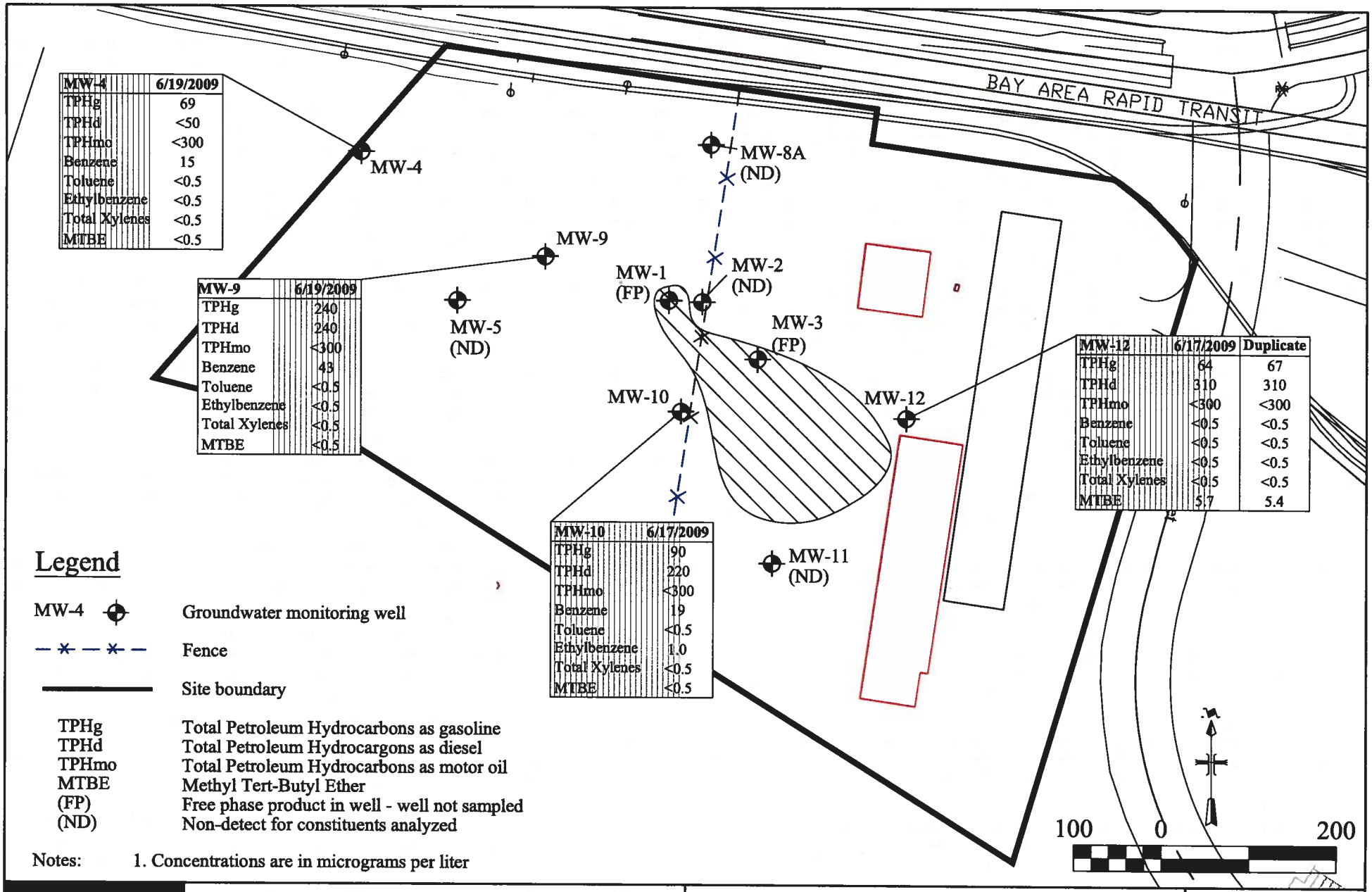
HARBOR FACILITIES COMPLEX
651 MARITIME STREET

ANALYTICAL RESULTS
APRIL 2009

MALCOLM PIRNIE, INC.

JULY 2009

FIGURE 5b



MALCOLM PIRNIE

PORT OF OAKLAND

HARBOR FACILITIES COMPLEX
651 MARITIME STREET

ANALYTICAL RESULTS
JUNE 2009

MALCOLM PIRNIE, INC.
JULY 2009
FIGURE 5c

Port of Oakland
530 Water Street • Oakland, CA 94607

Appendix A
Groundwater Sampling Forms

4656016

MALCOLM PIRNIE

GROUNDWATER SAMPLING

Well No.: **MW-1**

Project No.	Y5395-06	Recorded by:	WKS/RR Date: 3/4/2009
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:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.80
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	6.28
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.52	Time: 8:06
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): 9.38	Time: 8:06

CALCULATION OF WELL VOLUME:

(17.65 ft - 9.52 ft) x (0.083 ft)² x π x 7.48 gal/ft³ = 1.3 gallons in one casing volume

well depth - water level x (well radius)² x π x gal/ft³ = 0 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238 @ 20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238 @ 18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234 @ 15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

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

Measured product level only, no groundwater sample collected due to the presence of free-phase product.

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-2**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	18.06
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	8.06-18.06
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	16.43
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	6.24
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.19	Time: 8:02
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 8:02

CALCULATION OF WELL VOLUME:

(18.06 ft - 10.19 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.3 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 4 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
8:35	16.1	7.50	0.63	-139	1,183	6.8	1
8:42	16.6	7.41	0.46	-103	1,139	2.0	2
8:49	17.0	7.44	0.27	-90	1,138	1.1	3
8:56	17.1	7.42	0.23	-105	1,150	0.9	4

Purge method:	Peristaltic pump and disposable poly tubing		Sample Time: 9:00
Duplicate/blank number:			Duplicate Sample Time:
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Well box was filled with water. Water was purged before removing well cap.		Port contractor to remove.
	Well cap was tight. Padlock on cap was not locked.		

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-3**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	17.47
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	7.47-17.47
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.66
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	5.73
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.93	Time: 13:15
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): 9.31	Time: 13:15

CALCULATION OF WELL VOLUME:

(17.47 ft - 9.93 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.2 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 0 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

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

Measured product level only, no groundwater sample collected due to the presence of free-phase product.

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.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	22.05
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	11.25-22.05
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.91
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	4.98
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.93	Time: 8:21
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 8:21

CALCULATION OF WELL VOLUME:

(22.05 ft - 10.93 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.8 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
10:45	18.3	9.29	0.05	-215	1,068	10	2
10:55	19.2	7.44	0.14	-149	1,082	6.7	4
11:00	19.2	7.42	0.09	-149	1,091	4.9	5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	11:05
Duplicate/blank number:	MW-4dup	Duplicate Sample Time:	11:10
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear. Pumped silt from the bottom of the well.		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-5**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	20.8
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	10.4-20.8
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.39
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	6.61
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 8.78	Time: 8:18
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 8:18

CALCULATION OF WELL VOLUME:

(20.80 ft - 8.78 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.0 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 6.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:58	18.8	7.19	0.56	-118	1,644	26	1
10:07	18.8	7.22	0.29	-128	1,918	8.4	3
10:11	18.6	7.22	0.46	-109	1,930	8.4	4
10:24	18.8	7.20	0.05	-88	1,950	3.0	6.5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	10:30
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

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

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	23.14
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	7.54-22.54
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	14.99
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	4.92
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.07	Time: 7:55
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:55

CALCULATION OF WELL VOLUME:

(23.14 ft - 10.07 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.1 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
8:14	17.5	7.32	0.14	-151	2,032	16	2
8:21	17.7	7.35	0.12	-157	2,021	2.7	3
8:28	17.7	7.36	0.11	-159	2,004	3.0	4
8:35	17.7	7.36	0.12	-161	2,016	3.1	5

Purge method:	Peristaltic pump and disposable poly tubing		Sample Time: 8:40
Duplicate/blank number:			Duplicate Sample Time:
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-9**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	16.33
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	5.29
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.04	Time: 8:15
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 8:15

CALCULATION OF WELL VOLUME:

(25.00 ft - 11.04 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.3 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:44	19.2	7.29	0.13	-152	1,642	4.8	2
10:00	19.3	7.20	0.20	-139	1,623	4.5	4
10:08	19.4	7.21	0.18	-139	1,620	2.6	5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	10:10
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear. Petroleum odor.		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-10**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.65
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	5.87
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.78	Time: 8:12
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 8:12

CALCULATION OF WELL VOLUME:

(25.00 ft - 9.78 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.5 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:00	17.6	6.93	0.22	-122	3,151	210	1
9:06	17.4	7.01	0.25	-94	3,199	6.7	2
9:12	18.1	6.99	0.11	-103	3,178	5.4	3
9:18	18.2	6.98	0.09	-104	3,168	4.3	4
9:24	18.2	6.98	0.07	-105	3,166	3.2	5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	9:30
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-11**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 3/4/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Occasional rain, clouds, and sun	TOC elevation, NAVD 88 (feet):	15.47
Precip. in past 5 days (in.)	0.92	Groundwater elevation, NAVD 88 (feet):	5.90
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.57	Time: 7:32
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:32

CALCULATION OF WELL VOLUME:

(25.00 ft - 9.57 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.5 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 7.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
11:56	21.0	7.64	0.11	-147	5,140	40	2
12:08	20.5	7.67	0.11	-167	5,070	28	4
12:20	21.0	7.67	0.07	-169	5,120	20	6
12:30	20.8	7.66	0.06	-194	5,120	17	7.5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	12:35
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear. Well casing was dry. Well cap was tight.		Port contractor to remove
	No padlock on well cap.		

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-12**

Project No.	Y5395-06	Recorded by:	WKS/RR
Project Name:	Harbor Facilities Center	Date:	3/4/2009
Location:	Port of Oakland	Depth of well from TOC (feet):	25
	651 Maritime Street, Oakland, California	Well diameter (inches):	2
Weather:	Occasional rain, clouds, and sun	Screened interval from TOC (feet):	15 - 25
Precip. in past 5 days (in.)	0.92	TOC elevation, NAVD 88 (feet):	16.79
Source:	Oakland Fire Services Agency "ONO"	Groundwater elevation, NAVD 88 (feet):	6.19
Water level instrument:	Dual-phase interface probe (Solinst)	Water level from TOC (feet): 10.60 Time:	7:30
		Product level from TOC (feet): None Time:	7:30

CALCULATION OF WELL VOLUME:

(25.00 ft - 10.60 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.3 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 8 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100%	238@20°C	1,000	0/10
Before Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10
After Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
11:49	18.4	7.43	0.21	-148	1,843	>1,000	2
12:00	18.2	7.32	0.18	-167	1,960	11	3.5
12:12	18.5	7.15	0.28	-185	1,920	6.3	5
12:22	18.4	7.13	0.12	-189	1,935	3.9	6.5
12:33	18.3	7.09	0.15	-198	1,943	2.9	8

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	12:40
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse	Rinsate disposal:	Stored on site,
Comments:	Sample was clear		Port contractor to remove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-1**

Project No.	Y5395-06	Recorded by:	WKS/RR
Project Name:	Harbor Facilities Center	Date:	4/1/2009
Location:	Port of Oakland	Depth of well from TOC (feet):	17.65
	651 Maritime Street, Oakland, California	Well diameter (inches):	2
Weather:	Sunny, clear, and cool	Screened interval from TOC (feet):	7.65-17.65
Precip. in past 5 days (in.)	0	TOC elevation, NAVD 88 (feet):	15.80
Source:	Oakland Fire Services Agency "ONO"	Groundwater elevation, NAVD 88 (feet):	5.13
Water level instrument:	Dual-phase interface probe (Solinst)	Water level from TOC (feet): 10.67	Time: 8:10
		Product level from TOC (feet): 10.65	Time: 8:10

CALCULATION OF WELL VOLUME:

(17.65 ft - 10.67 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.1 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 0 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

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

Measured product level only, no groundwater sample collected due to the presence of free-phase product.

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-2**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	18.06
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	8.06-18.06
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	16.43
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	5.09
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.34	Time: 7:47
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:47

CALCULATION OF WELL VOLUME:

(18.06 ft - 11.34 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = **1.1** gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = **2.5** total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
8:16	16.4	7.69	0.72	-39	1,300	4.3	1
8:34	17.2	7.68	0.96	-95	1,200	2.7	1.5
9:00	17.3	7.79	0.82	-154	1,200	0.60	2.5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	9:10
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-3**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	17.47
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	7.47-17.47
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	15.66
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	4.56
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.10	Time: 13:30
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): 10.38	Time: 13:30

CALCULATION OF WELL VOLUME:

(17.47 ft - 11.10 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.0 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = _____ total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

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

Measured product level only, no groundwater sample collected due to the presence of free-phase product.

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.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	22.05
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	11.25-22.05
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	15.91
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	4.28
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.63	Time: 7:53
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:53

CALCULATION OF WELL VOLUME:

(22.05 ft - 11.63 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.7 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:46	19.2	7.26	0.42	-99	1,146	6.4	1
9:54	19.2	7.25	0.30	-108	1,136	4.5	2
10:04	19.2	7.22	0.24	-130	1,133	2.9	3
10:14	19.3	7.23	0.21	-128	1,142	2.5	4
10:25	19.4	7.23	0.18	-134	1,151	2.1	5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	10:30
Duplicate/blank number:	MW-4dup	Duplicate Sample Time:	10:35
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear. Dissolved oxygen reading on 3/26/09 immediately after removal of ORC sock was 16.02 mg/L. Replaced ORC socks after sample collection.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-5**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	20.8
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	10.4-20.8
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	15.39
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	6.23
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.16	Time: 7:49
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:49

CALCULATION OF WELL VOLUME:

(20.80 ft - 9.16 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 1.9 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 6.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
9:45	19.0	7.15	0.35	-57	1,697	5.9	1
9:58	18.9	7.14	0.85	-62	1,643	7.9	2.5
10:11	18.9	7.15	0.54	-92	1,731	4.2	4
10:24	19.0	7.14	0.55	-102	1,712	2.5	6.5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	10:30
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

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

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	23.14
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	7.54-22.54
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	14.99
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	4.07
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.92	Time: 7:49
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:49

CALCULATION OF WELL VOLUME:

(23.14 ft - 10.92 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.0 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 6.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
10:52	18.4	7.30	0.13	-151	2,049	6.1	2
11:07	18.7	7.30	0.10	-161	2,014	2.3	3.5
11:20	18.7	7.30	0.10	-158	2,001	3.9	5
11:35	18.4	7.28	0.13	-151	2,022	1.7	6.5

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	11:38
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-9**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	16.33
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	4.82
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.51	Time: 7:51
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:51

CALCULATION OF WELL VOLUME:

(25.00 ft - 11.51 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.2 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 7 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
12:00	20.1	7.22	0.26	-138	1,882	2.8	2
12:10	20.1	7.18	0.16	-139	1,814	2.8	4.5
12:20	20.2	7.17	0.16	-148	1,795	2.5	7

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	12:25
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-10**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	15.65
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	5.32
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.33	Time: 7:58
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:58

CALCULATION OF WELL VOLUME:

(25.00 ft - 10.33 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.4 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 8 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
11:13	19.3	6.96	0.24	-93	3,112	17	1.5
11:23	18.6	6.96	0.28	-123	3,087	4.5	2.5
11:43	18.4	7.19	0.28	-83	3,201	7.0	4.5
12:00	19.6	6.93	0.10	-114	3,133	15	6.5
12:11	19.0	6.95	0.31	-115	3,115	12	8

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	12:15
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-11**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	15.47
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	5.53
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.94	Time: 7:20
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:20

CALCULATION OF WELL VOLUME:

(25.00 ft - 9.94 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.4 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 8.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
8:01	19.2	7.65	0.17	-10	5,200	25	1
8:24	18.7	7.66	0.22	-101	5,200	6.5	3
8:39	19.5	7.63	0.13	-152	5,100	2.5	5
8:54	20.1	7.64	0.08	-171	5,100	2.4	7
9:06	20.1	7.64	0.80	-169	5,100	1.9	8.5

Purge method:	Peristaltic pump and disposable poly tubing		Sample Time: 9:10
Duplicate/blank number:			Duplicate Sample Time:
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear. Well cap has no lock.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-12**

Project No.	Y5395-06	Recorded by: WKS/RR	Date: 4/1/2009
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Sunny, clear, and cool	TOC elevation, NAVD 88 (feet):	16.79
Precip. in past 5 days (in.)	0	Groundwater elevation, NAVD 88 (feet):	5.56
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.23	Time: 7:17
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): None	Time: 7:17

CALCULATION OF WELL VOLUME:

(25.00 ft - 11.23 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.2 gallons in one casing volume

well depth - water level x (well radius)^2 x π x gal/ft^3 = 6 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:		--	7.00	100	244 @ 15°C	1,000	0/10
Before Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10
After Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
13:04	18.6	7.31	0.89	-201	1,830	33	2
13:12	18.3	6.96	0.09	-249	1,804	6.4	3
13:20	18.3	6.94	0.04	-275	1,810	2.7	4
13:28	18.4	6.94	0.07	-289	1,820	1.9	5
13:36	18.5	6.93	0.08	-298	1,811	1.4	6
13:44	18.5	6.92	0.06	-307	1,806	1.2	7

Purge method:	Peristaltic pump and disposable poly tubing	Sample Time:	13:45
Duplicate/blank number:		Duplicate Sample Time:	
Sampling equipment:	Peristaltic pump and disposable poly tubing	VOA attachment:	none
Sample containers:	six 40-ml VOAs and two L AG		
Sample analyses:	TPHg, TPHd, BTEX, MTBE, and TPH-mo	Laboratory:	Curtis & Tompkins
Decontamination method:	Alconox and water, DI water rinse.	Rinsate disposal:	Stored on site,
Comments:	Sample was clear.		Port contractor to remove.

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER SAMPLING

Well No.: **MW-1**

Project No.	4656016	Recorded by: Bill	Date: 6/17/09
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:	overcast, cool	TOC elevation, NAVD 88 (feet):	15.80
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.28	Time: 12:28
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): 11.21	Time: 12:28

CALCULATION OF WELL VOLUME:

(17.65 ft - 0.00 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = well depth - water level x (well radius)^2 x π x gal/ft^3 = ~~2.9~~ gallons in one casing volume

_____ total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	Free Product found in well; well not sampled						
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-2**

Project No. 4656016
Project Name: Harbor Facilities Center
Location: Port of Oakland
651 Maritime Street, Oakland, California
Weather: warm, sunny, some clouds
Precip. in past 5 days (in.): 0
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CD Date: 6/17/09
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): 4.53
Water level from TOC (feet): 11.90 Time: 0820
Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME:

(18.06 ft - ~~4.68~~ 11.90 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

1.0 ~~2.5~~ gallons in one casing volume
3.0 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC ~~(umho/cm)~~	Turbidity (NTU)		
Calibration Standard:	0820		4.00	N/A	N/A	4.49 mS/cm	0.0	0	10
Before Purging:	"	16.5	3.94	9.51	N/A	4.47	2		
After Purging:	1400	21.2	4.12	6.32		~~4.56~~ 4.43	10	0	10.1

FIELD MEASUREMENTS:

1.5 min / 500 mL

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (umho/cm)		Turbidity (NTU)		Cumulative Gallons Removed
825	18.4	~~7.87~~ 7.87	8.63	—	1.47	—	10	0.5	0.5
830	18.4	7.47	8.65	—	1.40	—	10	~~0.5~~ 0.5	0.75
833	18.6	7.55	8.55	—	1.35		10		1
~~835~~ 835	18.1	7.59	8.61		1.35		10		1.5
~~837~~ 837	18.4	7.58	8.58		1.37		10		
840	18.5	7.55	~~8.56~~ 8.56		1.38		10		
845	18.5	7.58	8.60		1.39		10		2
847	18.5	7.50	8.62		1.39		10		2.5

Purge method: Grapump
Duplicate/blank number: n/a
Sampling equipment: n/a
Sample containers: 1L amber, 1x VOAs
Sample analyses: TPH-g, d+mo 8015, VOCs 8260
Decontamination method: disposable tubing
Comments:

Sample Time: 850
Duplicate Sample Time: n/a
VOA attachment: none
Laboratory: C&T
Rinsate disposal: —

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

6.16 x 0.083²
= 0.042 x π
0.133 x 7.48 =

GROUNDWATER SAMPLING

Well No.: **MW-3**

Project No. 4656016
Project Name: Harbor Facilities Center
Location: Port of Oakland
651 Maritime Street, Oakland, California
Weather: sunny, warm
Precip. in past 5 days (in.): 0
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CO Date: 6/17/09
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):
Water level from TOC (feet): 12.30 Time: 14:45
Product level from TOC (feet): 10.79 Time:

CALCULATION OF WELL VOLUME:

(17.47 ft - 0.00 ft) x (0.083 ft)^2 x π x 7.48 gal/ft^3 = 2.9 gallons in one casing volume
well depth - water level x (well radius)^2 x π x gal/ft^3 = — total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	Free product found in well; well not sampled						
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: warm, sunny, some clouds
Precip. in past 5 days (in.): 0
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: (O) Date: 6/17/09
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): 4.03
Water level from TOC (feet): 11.88 Time: 840
Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME:

(22.05 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

1.65 gallons in one casing volume
~~16~~ ~~6.540~~ 6.54 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	see calibration details for MW-2						
After Purging:							

FIELD MEASUREMENTS:

purge rate: 650 ml/min

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)		Turbidity (NTU)		Cumulative Gallons Removed
1127	19.4	7.65	9.13	-108	1.10		10/24		
1131	19.3	7.65	9.19	-98	1.07		10/21		0.69
1136	19.8	7.58	9.03	-173	1.10		10/3.8		1.55
1140	19.7	7.58	9.10	-1605	1.11		10/3.0		2.24
1143	19.8	7.59	9.09	-179	1.10		10/24		2.75
1147	19.8	7.62	9.17	-177	1.10		10/2.2		3.44
1152	20.0	7.63	9.29	-177	1.11		10/1.6		4.30
1157	20.0	7.56	9.25	-173	1.11		10/1.7		5.16
1205	20.1	7.56	9.20	-178	1.11		10/0.45		6.54
			0.93						

Purge method: geopump
Duplicate/blank number: n/a
Sampling equipment: N/A
Sample containers: 1 L amber, 6 VOAs
Sample analyses: TPH-g, d + mo 8015, VOCs 8260
Decontamination method: disposable tubing
Comments: Bill (Baseline) used DO meter - readings very different, i.e. us: 9.20 mg/L, his: 0.93 mg/L

Sample Time: 1200
Duplicate Sample Time: n/a
VOA attachment: none
Laboratory: CBT
Rinsate disposal: —

Resampled 6/19/09

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: warm, sunny, some clouds, light wind
Precip. in past 5 days (in.): 0
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CHales Date: 6/19/09
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): 4.09
Water level from TOC (feet): 11.82 Time: 10:25
Product level from TOC (feet): 0 Time: —

CALCULATION OF WELL VOLUME: ~1.65gal

(22.05 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

~~3.6~~ gallons in one casing volume
_____ total gallons removed

CALIBRATION:

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

started purge ~~in~~ of @10:45

FIELD MEASUREMENTS:

~1050 ml/min (estimate) purge rate

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm) mS/cm	Turbidity (NTU)		Cumulative (approx) Gallons Removed
10:55	20.55	7.92	2.39	-166.0	1019	n.c		1.0
10:57	20.62	8.00	2.21	-86.16	1043			1.25
10:59	20.63	8.016	1.71	-95.85	1069			1.75
11:01	20.66	8.09	1.15	-100.7	1090			2.0
11:03	20.66	8.11	0.90	-102.8	1104			2.25
11:04	20.64	8.17	0.83	-103.9	1109			2.50
11:06	20.62	8.18	0.70	-105.4	1113			2.75
11:08	20.61	8.14	0.52	-108.9	1117			3.00
11:10	20.61	8.13	0.41	-109.9	1120			3.25
11:12	20.62	8.13	0.34	-110.6	1120			3.50

Purge method: low-flow, peristaltic
Duplicate/blank number: n/a
Sampling equipment: n/a
Sample containers: 1 L amber ~~1 VOA~~ 3 VOAs
Sample analyses: TPH-d/mo 8015 w/silica gel
Decontamination method: disposal tubing
Comments:

Sample Time: 11:30
Duplicate Sample Time: —
VOA attachment: —
Laboratory: C&T
Rinsate disposal: n/a

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

Time	Temp	pH	DO	ORP	EC	gal
11:14	~~20.62~~ 20.62	8.13	0.30	-111.1	1122	3.75
11:16	20.63	8.16	0.22	-111.7	1126	4.0
11:17	20.64	8.14	0.20	-112.2	1124	4.12
11:24	20.71	8.104	0.17	-110.7	1132	4.75
11:26	20.76	7.96	0.11	-11	0.9 1132	5.00

Time	Temp	pH	DO	ORP	EC	gal
11:24	20.76	7.97	0.09	-117.2	1132	
11:29	20.76	7.95	0.08	-111.5	1134	

MW-4
6/19/09

GROUNDWATER SAMPLING

Well No.: **MW-5**

Project No.	4656016	Recorded by:	CO Date: 6/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	20.8
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	10.4-20.8
Weather:	Overcast, cool	TOC elevation, NAVD 88 (feet):	15.39
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	5.88
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 9.51	Time: 844
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): —	Time: —

CALCULATION OF WELL VOLUME:

(20.80 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ = 1.83 gallons in one casing volume

well depth - water level x (well radius)² x π x gal/ft³ = 6.16 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	Same as MW-2; see for cal. details						
After Purging:							

FIELD MEASUREMENTS:

650 ml/min Flow rate

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)		Turbidity (NTU)		Cumulative Gallons Removed
1120	20.7	7.44	8.56	-80	1.97		10/18		1
1125	20.6	7.41	8.60	-138	1.98		10/11		1.86
1128	20.7	7.37	8.58	-111	1.85		10/7.6		2.38
1131	20.5	7.42	8.64	-90	1.64		10/15		2.89
1134	20.5	7.42	8.71	-84	1.75		2/11		3.41
1139	20.6	7.38	8.60	-115	1.94		5/5.1		4.27
1150	—	—	—	—	—		—		6.16

Purge method: Geopump — Sample Time: 1150

Duplicate/blank number: — — Duplicate Sample Time: —

Sampling equipment: N/A — VOA attachment: N/A

Sample containers: 1 L amber, 6 VOAs

Sample analyses: TPH-g, d, mo 8015, VOCs 8260 — Laboratory: CET

Decontamination method: disposable tubing — Rinsate disposal: —

Comments: Resampled 6/19/09

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: Sunny, ~70°, light breeze
Precip. in past 5 days (in.): none
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CO Date: 6/19/09
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): 5.97
Water level from TOC (feet): 9.42 Time: 1025
Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME:

(20.80 ft - ~~0.00~~ 9.42 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

1.84 ~~3.4~~ gallons in one casing volume
5.5 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	~~Calibration info provided with rental~~						
After Purging:	Cal solution:						
	1100	29.02	4.18	90.1	244.5	varies µs/cm	

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
started purging @ 1035							
1041	21.79	13.58	~~9.88~~	-72.4	11097		
1102	22.21	6.98	0.85 ~~0.65~~	-29.5	2105		2
1104	21.79						2.5
12:41	22.73	7.87	0.44	-65.9	2221		2.75
1244	21.75	7.81	0.24	-68.2	2172		3.25
1246	21.75	7.75	0.19	-67.2	2061		3.50
1249	21.84	7.66	0.16	-65.9	1748		4
1252	21.82	7.59	0.24	-66.6	1872		4.5
1255	21.78	7.57	0.41	-67.7	2062		5
1258	21.76	7.56	0.47	-67.4	2189		5.5

75+

meter not working; swapped out meter

restart @ 12:40

continue on back

Purge method: geopump and YSI for parameters
Sample Time: 1305
Duplicate/blank number: n/a
Duplicate Sample Time: N/A
Sampling equipment: N/A
VOA attachment: N/A
Sample containers: 1 L amber, ~~6 VOAs~~ 3 VOAs
Sample analyses: TPHg, d, mo 8015, VOCs 8260
Laboratory: CAT
Decontamination method: disposable tubing
Rinsate disposal: —
Comments:

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

MW-5
6/19/09

Time	Temp	pH	DO	ORP	EC	Turbidity	Gal
101	21.77	7.55	0.49	-67.0	2167		G

GROUNDWATER SAMPLING

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

Project No.	4656016	Recorded by: CO	Date: 06/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	23.14
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	7.54-22.54
Weather:	overcast, low 60's	TOC elevation, NAVD 88 (feet):	14.99
Precip. in past 5 days (in.):	none	Groundwater elevation, NAVD 88 (feet):	3.59
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.40	Time: 840
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): N/A	Time: —

CALCULATION OF WELL VOLUME:

(23.14 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

1.9 ~~3.8~~ gallons in one casing volume
3.95 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	Same as MW-2; see for calibration details						
After Purging:							

FIELD MEASUREMENTS:

600 mL/min

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1230	18.8	7.61	9.84		2.65	10	
1233	18.5	7.61	9.89	-132	2.59	17/8.8	0.47
1235	18.4	7.62	9.85		2.29	10	0.79
1238	18.2	7.67	9.74		2.17	10	1.26
1241	18.4	7.58	~~9.78~~	-178	2.16	10/3.2	1.74
1244	18.3	7.67	9.76	-152	2.14	10/2.3	2.21
1246	18.4	7.62	9.62	-164	2.15	10/2.1	2.53
1249	18.3	7.66	9.59	-162	2.12	10/1.1	3.00
1251	18.3	7.61	9.51	-164	2.12	22/0.75	3.32
1255	18.3	7.62	9.49	-167	2.13	1.1	3.95

Purge method: Geopump — Sample Time: 1255
Duplicate/blank number: N/A — Duplicate Sample Time: N/A
Sampling equipment: N/A — VOA attachment:
Sample containers: 1 L amber, 6 VOAs
Sample analyses: TPH-g, d, mo 8015, VOCs 8260 — Laboratory: C&T
Decontamination method: disposable tubing — Rinsate disposal: —
Comments:

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

GROUNDWATER SAMPLING

Well No.: **MW-9**

Project No.	4656016	Recorded by:	Date: 6/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Overcast, cool	TOC elevation, NAVD 88 (feet):	16.33
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	4.38
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.95	Time: 841
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): —	Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ = 2.1 ~~4.1~~ gallons in one casing volume

well depth - water level x (well radius)² x π x gal/ft³ = 6.01 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	see MW-2 for calibration details						
After Purging:							

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
~~1028~~ 1 min (450 mL/min)	19.1	7.51	8.69	-160	2.34	10/3.5	~~0.60~~
1033	19.3	7.49	8.67	-123	2.24	10/1.0	0.60
~~1036~~	19.2	7.46	8.79	-131	2.21	10/2.8	0.95
1040	19.5	7.42	8.78	-153	2.08	10/1.6	~~1.30~~
1045	19.6	7.43	8.86	-155	2.06	10/1.5	2.85
1049	19.7	7.42	8.87	-156	2.02	10/1.0	3.69
1055 (800 mL/min)	19.8	7.44	8.99	-165	2.01	10/0.35	4.96
							6.01

Purge method: Geopump — Sample Time: 1100

Duplicate/blank number: N/A — Duplicate Sample Time: N/A

Sampling equipment: N/A — VOA attachment: N/A

Sample containers: 1 L amber, 6 VOAs

Sample analyses: TPH-g,d,mo 8015, VOCs 8260 — Laboratory: CLT

Decontamination method: disposable tubing — Rinsate disposal: —

Comments: smells strongly of diesel

2.5" of standing water in well box - below TOC

TOC = top of casing — Resampled 6/19/09

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: Sunny, 70°, breezy
Precip. in past 5 days (in.): none
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CD Date: 6/19/09
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): 4.48
Water level from TOC (feet): 11.85 Time: 1320
Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

2.1 ~~4.1~~ gallons in one casing volume
5.5 total gallons removed

CALIBRATION:

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

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)			Cumulative Gallons Removed
1345	20.55	7.92	0.03	-144.4	2208				1.5
1348	20.51	7.85	0.01	-146.8	2175				2
1351	20.51	7.83	0.00	-148.3	2147				2.5
1354	20.51	7.82	0.00	-150.1	2133				3
1357	20.49	7.79	0.03	-151.8	2118				3.5
1400	20.45	7.70	0.01	-152.3	2116				4
1403	20.47	7.61	0.01	-152.9	2109				4.5
1406	20.45	7.57	0.01	-153.2	2105				5
1409	20.46	7.55	0.01	-153.3	2101				5.5

Purge method: Geopump
Duplicate/blank number: N/A
Sampling equipment: N/A
Sample containers: 1 L amber, ~~6 VOAs~~ 3 VOAs
Sample analyses: TPH-g,d, no 8015, VOCs 8260
Decontamination method: disposable tubing
Comments: Began purging @ 1337
water has slight odor

Sample Time: 1410
Duplicate Sample Time: N/A
VOA attachment: N/A
Laboratory: CET
Rinsate disposal: —

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

GROUNDWATER SAMPLING

Well No.: **MW-10**

Project No.	4656016	Recorded by: CD	Date: 6/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	Overcast, cool	TOC elevation, NAVD 88 (feet):	15.65
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	4.86
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.79	Time: 8360
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): —	Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ = 2.29 gallons in one casing volume

well depth - water level x (well radius)² x π x gal/ft³ = 5.94 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	see MW-2 for calibration details						
After Purging:							

FIELD MEASUREMENTS:

Purge rate 750 ml/min

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
1015	18.9	7.17	8.64		3.60	10	[redacted]
1020	19.1	7.13	8.66	-177	3.59	10/12	0.99
1023	19.0	7.13	8.64	-109	3.57	10/48	1.58
1030	19.2	7.14	8.73		3.57	10	2.18
1030	19.0	7.13	8.77	-117	3.52	10/20	2.97
1037	19.3	7.10	8.78	-95	3.48	10/20	4.36
1045							5.94

Purge method: Geopump — Sample Time: 1045

Duplicate/blank number: N/A — Duplicate Sample Time: N/A

Sampling equipment: N/A — VOA attachment: N/A

Sample containers: 1 L amber, 6 VOAs

Sample analyses: TPH-g, d, mo 8015, VOCs 8260 — Laboratory: CAT

Decontamination method: disposable tubing — Rinsate disposal: —

Comments:

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

Note: turbidity meter calibrated to 0.85, not 0

GROUNDWATER SAMPLING

Well No.: **MW-11**

Project No.	4656016	Recorded by:	CO Date: 6/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	overcast, cool	TOC elevation, NAVD 88 (feet):	15.47
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	5.07
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 10.46	Time: 905
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): —	Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ = 2.36 ~~4.0~~ gallons in one casing volume

well depth - water level x (well radius)² x π x gal/ft³ = 3.77 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:	Same as MW-2; see sheet for details						
Before Purging:							
After Purging:	[illegible]	[illegible]	7.84	8.24	958	5.67	10

FIELD MEASUREMENTS:

Purge rate: 500 mL/min = 0.32 gal/min

350 mL/min ← slowed pump

cont'd on reverse →

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
916	19.8	7.83	8.15		5.71	2.67	
921	19.8	7.86	8.06		5.69	2.42	0.66
923	19.8	7.85	8.01		5.68	2.42	0.92
925	20.0	7.83	8.15		5.68	1.37	1.19
928	20.0	7.83	8.19		5.69	16	1.58
930	19.9	7.82	8.23		5.70	10	1.85
932	20.0	7.83	8.27		5.68	130	2.11
936	19.8	7.84	8.25		5.68	< 10	2.48
939	19.9	7.83	8.22		5.66	< 10	2.75
941	19.7	7.85	8.21		5.66	< 10	2.94

Purge method: geopump — Sample Time: 950

Duplicate/blank number: N/A — Duplicate Sample Time: N/A

Sampling equipment: N/A — VOA attachment: N/A

Sample containers: 1 L amber, 6 VOAs

Sample analyses: TPH-g, d, mo 8015, VOCs 8260 — Laboratory: CET

Decontamination method: disposable tubing — Rinsate disposal: —

Comments: Resampled 6/19/09

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

MW-11
6/17/09

Time	Temp	pH	DO	EC	Turbidity	ORP	Cum. c
944	20.0	7.85	8.20	5.64	<10		3.21
946	19.8	783	8.22	5.61	<10/17		3.40
949	19.7	7.84	8.27	5.67	10	-95	3.67

GROUNDWATER SAMPLING

Well No.: **MW-11**

Project No. 4656016
Project Name: Harbor Facilities Center
Location: Port of Oakland
651 Maritime Street, Oakland, California
Weather: sunny, warm
Precip. in past 5 days (in.): 0
Source: Oakland Fire Services Agency "ONO"
Water level instrument: Dual-phase interface probe (Solinst)

Recorded by: CO Date: 6/19/09
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): [illegible]5.15
Water level from TOC (feet): 10.32 Time: 1427
Product level from TOC (feet): — Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

2.38 ~~4.8~~ gallons in one casing volume
4.5 total gallons removed

CALIBRATION:

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

FIELD MEASUREMENTS:

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumulative Gallons Removed
14:35	21.03	7.96	-0.01	-149.9	5694	n.c.	1.0
14:38	21.02	7.89	-0.01	-152.0	5690		
14:40	20.95	7.82	-0.01	-152.9	5679		
14:42	20.92	7.85	0.01	-153.9	5671		
14:44	20.89	7.91	0.01	-154.2	5657		2.5
14:46	20.87	8.17	0.01	-155.3	5654		
14:48	20.85	8.30	0.01	-155.9	5652		
14:50	20.85	8.28	0.01	-156.4	5645		3.5
14:52	20.85	8.32	0.01	-156.8	5646		
14:53	20.85	8.32	0.01	-157.1	5644	↓	4.5

Purge method: geopump
Sample Time: 14:55
Duplicate/blank number: N/A
Duplicate Sample Time: N/A
Sampling equipment: N/A
VOA attachment: N/A
Sample containers: 1 L amber, & 3 VOAs
Sample analyses: TPH-g,d,mo 8015, VOCs 8260
Laboratory: CET
Decontamination method: disposable tubing
Rinsate disposal: —
Comments: Began purging @ 1428

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

GROUNDWATER SAMPLING

Well No.: **MW-12**

Project No.	4656016	Recorded by:	CO Date: 6/17/09
Project Name:	Harbor Facilities Center	Depth of well from TOC (feet):	25
Location:	Port of Oakland	Well diameter (inches):	2
	651 Maritime Street, Oakland, California	Screened interval from TOC (feet):	15 - 25
Weather:	overcast, cool	TOC elevation, NAVD 88 (feet):	16.79
Precip. in past 5 days (in.):	0	Groundwater elevation, NAVD 88 (feet):	4.96
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet): 11.83	Time: 947
Water level instrument:	Dual-phase interface probe (Solinst)	Product level from TOC (feet): —	Time: —

CALCULATION OF WELL VOLUME:

(25.00 ft - 0.00 ft) x (0.083 ft)² x π x 7.48 gal/ft³ =
well depth - water level x (well radius)² x π x gal/ft³ =

2.13 gallons in one casing volume
4.27 total gallons removed

CALIBRATION:

	Time	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)
Calibration Standard:							
Before Purging:	Same as MW-2; see sheet for details						
After Purging:							

FIELD MEASUREMENTS:

purge rate: 600 mL/min

Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)		Turbidity (NTU)		Cumulative Gallons Removed
118	18.7	7.38	6.77	-282	1.97		10/14		
123	18.7	7.31	6.68		1.97		10/6.8		0.80
126	18.7	7.24	6.63	-295	1.97		10/3.3		1.27
130	18.5	7.25	6.666	~~-295~~	1.97		10/~~1.6~~		1.90
132	18.5	7.37	6.62	-280	1.98		10/1.6		2.22
135	18.4	7.28	6.68	-292	1.96		10/1.2		2.69
137	18.7	7.24	6.70	-302	1.96		10/1.2		3.01
139	18.7	7.23	6.66	-302	1.97		10/1.6		3.33
145									4.27

Purge method: geopump — Sample Time: 145
Duplicate/blank number: N/A — Duplicate Sample Time: 150
Sampling equipment: N/A — VOA attachment: N/A
Sample containers: 1 L amber, 6 VOAs
Sample analyses: TPH-g, d, mo 8015, VOCs 8260 — Laboratory: CLT
Decontamination method: disposable tubing — Rinsate disposal: —
Comments: ~1" standing water in well vault

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

EQUIPCO RENTALS

HORIBA U-10 RENTAL
CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: JET DATE: 6/16/09

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: _____

CALIBRATION INFORMATION

PARAMETERS:	CALIBRATION STANDARDS:	LOT#
1. CONDUCTIVITY ZERO	Fresh Air	N/A
2. CONDUCTIVITY SPAN	718uS/cm	—
	1000uS/cm	6888
	6,670uS/cm	—
	58,700uS/cm	—
3. pH ZERO	pH 7	180964
4. pH SLOPE	pH 4	171282
	pH 10 (high range)	171081 2
5. DISSOLED OXYGEN ZERO	Sodium Sulfite Solution	
6. DISSOLVED OXYGEN	"AIR CAL." Barometric pressure = 760mmHg	
7. TURBIDITY ZERO	0.0 NTU's	
8. TURBIDITY SLOPE	20 NTU's	6/16/09
	100 NTU's	—

2100 Meridian Park Boulevard, Concord, CA. 94520 Phone (888) 234-5678 Fax (925) 305-1301

EQUIPCO RENTALS

YSI 556MPS RENTAL
CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: JEA DATE: 6/18/09

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: YSI-556. 29
SERIAL#:
CUSTOMER.

CALIBRATION INFORMATION

PARAMETERS:	STANDARDS:	PASS ( )	LOT#
1. CONDUCTIVITY	1000 µMhos	X	6888
2. pH ZERO	pH 7	X	180964
3. pH SLOPE	pH 4	X	171282
pH SLOPE	pH 10	X	171012
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	X	N/A
5. REDOX (ORP)	231 mV (YSI Zobell solution)	X	4/15/10

2100 Meridian Park Boulevard, Concord, CA. 94520 Phone (925) 609-1088 Fax (925) 609-1080

Port of Oakland
530 Water Street • Oakland, CA 94607

Appendix B
PLS Surveys, Inc. Results

MALCOLM PIRNIE

MONITORING AND RECOVERY WELLS
651, 555 MARITIME STREET
OAKLAND

POINT NO.	NORTHING NAD83	EASTING NAD83	LATITUDE	LONGITUDE	ELEVATION CASING	ELEVATION VAULT	DESCRIPTION	GPS CODE	ACCURACY CENTIMETER	HORZ. CODE	COMPANY	EQUIP.	DATE	VERT. CODE	CLASS
1	2121388.72	6037683.15	37.8070060	-122.3139524	15.47	15.92	MW-11	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
2	2121478.76	6037661.18	37.8073429	-122.3139343	15.91	16.56	RW-8	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
4	2121623.94	6037691.56	37.8073762	-122.3139676	15.62	16.74	RW-7	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
6	2121581.48	6037690.22	37.8073647	-122.3139409	14.92	15.54	RW-4	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
8	2121668.22	6037644.79	37.8070057	-122.3139898	15.66	16.05	RW-3	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
10	2121603.92	6037683.23	37.8075949	-122.3139356	15.66	15.67	MW-3	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
12	2121521.37	6037639.86	37.8073699	-122.3140766	16.75	16.11	RW-6	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
13	2121482.76	6037609.36	37.8072973	-122.3134330	16.67	17.23	RW-9	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
15	2121537.47	6037633.83	37.8074215	-122.3133418	16.79	17.05	MW-12	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
16	2121544.62	6037578.92	37.8074274	-122.3142340	15.65	16.03	MW-10	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
17	2121670.62	6037581.57	37.8077728	-122.3142911	15.80	16.25	MW-1	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
18	2121660.85	6037571.36	37.8077485	-122.3142576	12.95	15.66	RW-1	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
19	2121669.08	6037589.42	37.8077704	-122.3141610	16.43	16.73	MW-2	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
23	2121720.51	6037421.49	37.8078021	-122.3147602	16.33	16.61	MW-8	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
24	2121699.86	6037320.39	37.8077577	-122.3151257	15.39	15.95	MW-5	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
26	2121641.89	6037602.67	37.8076869	-122.3141479	15.56	15.67	RW-2	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
27	2121697.30	6037577.29	37.8083135	-122.3142599	14.99	15.32	MW-6A	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
28	2121659.27	6037210.79	37.8082170	-122.3155174	15.91	16.36	MW-4	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
29	2121548.48	6037658.33	37.8074368	-122.3139489	14.79	15.32	RW-5	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW

VERTICAL CONTROL IS
PID-HT 0866 "D1203"
EL=16.37 FT NAVD 88

HORIZONTAL CONTROL POINT IS:H006
ROS 998 (BK 50 PG 08)
N=2123462.01
E=6038585.73
1988 EPOCH

Port of Oakland
530 Water Street • Oakland, CA 94607

Appendix C
Analytical Laboratory Reports

MALCOLM PIRNIE

QUALITY CONTROL CHECKLIST
FOR REVIEW OF LABORATORY REPORT

Job No.	Y5395-06	**Site:**	651 Maritime Street
Laboratory:	Curtis and Tompkins, Ltd.	**Laboratory Report No.:**	211082
Report Date:	04/20/2009	**BASELINE Reviewer:**	jgm

	Yes	No	NA
GENERAL QUESTIONS **(Describe "no" responses below in "comments" section. Contact the laboratory, as required, for further explanation or action on "no" responses; document discussion in comments section.)**			
1a. Does the report include a case narrative? *(A case narrative MUST be prepared by the lab for all analytical work requested by BASELINE)*	X		
1b. Is the number of pages for the lab report as indicated on the case narrative/lab transmittal consistent with the number of pages that are included in report?	X		
1c. Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor's name?			X
1d. Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of "hold" samples)?			X
1e. Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?			X
1f. Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable)?			X
2a. Is the laboratory report format consistent and legible throughout the report?	X		
2b. Are the sample and reported dates shown in the laboratory report correct?	X		
3a. Does the lab report include the original chain-of-custody form?	X		
3b. Were all samples appropriately analyzed as requested on the chain-of-custody form?	X		
4. Was the lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel? (Some lab reports have signature spaces for each page). (This requirement also applies to any analyses subcontracted out by the laboratory)	X		
5a. Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	X		
5b. If additional analytes were requested as part of the reporting of the data for an analytical method, were these included in the lab report?	X		
6. Are the units in the lab report provided for each analysis consistent throughout the report?	X		

***Quality Control Checklist** - continued*

	Yes	No	NA
7. Are the detection limits (DL) appropriate based on the intended use of the data (e.g., DL below applicable MCLs for water quality issues)?	X		
8a. Are detection limits appropriate based on the analysis performed (i.e., not elevated due to dilution effects)?	X		
8b. If no, is an explanation provided by the laboratory?			X
9a. Were the samples analyzed within the appropriate holding time (generally 2 weeks for volatiles, and up to 6 months for total metals)?	X		
9b. If no, was it flagged in the report?			X
10. If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?			X
11a. Do the chromatograms confirm quantitative laboratory results (petroleum hydrocarbons)?			X
11b. Is a standard chromatogram(s) included in the laboratory report?			X
11c. Do the chromatograms confirm laboratory notes, if present (e.g., sample exhibits lighter hydrocarbon than standard)?			X
12. Are the results consistent with previous analytical results from the site? *(If no, contact the lab and request review/reanalysis of data, as appropriate.)*			X
13a. REVISED LAB REPORTS ONLY. Is the revised lab report or revised pages to a lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel?			X
13b. REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			X
13c. REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) that triggered the need for a revision?			X
13d. REVISED LAB REPORTS ONLY. Are the data included in the revised report the same as the data reported in the original report, except where the report was revised to correct incorrectly reported data?			X
QA/QC Questions Field/Laboratory Quality Control - Groundwater Analyses			
14. Are field blanks reported as "ND" (groundwater samples)? *A field blank is a sample of DI water that is prepared in the field using the same collection and handling procedures as the other samples collected, and used to demonstrate that the sampling procedure has not contaminated the sample.*	X		
14a. Are rinsate blanks reported as "ND" (soil samples)? *A rinsate blank is a sample of DI water that is prepared in the field by collecting DI rinse water after it has been poured over decontaminated sampling equipment. The rinsate blank is collected to demonstrate that the decontamination procedure has removed all the contaminants from the sampling equipment and that the sampling equipment has not contaminated the sample.*			X

Quality Control Checklist *- continued*

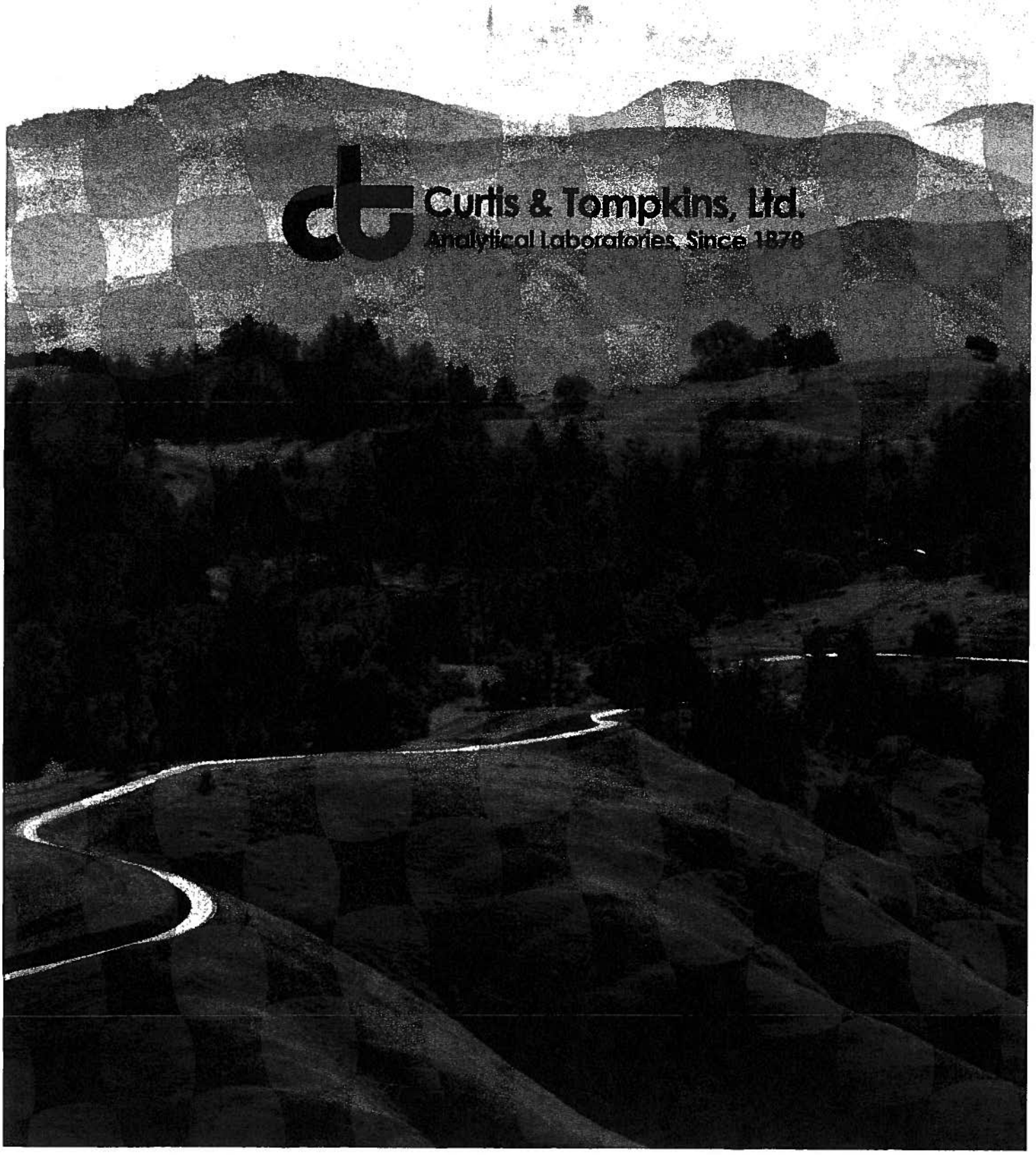
	Yes	No	NA
15. Are trip blanks reported as "ND" (groundwater samples/volatile analyses)? *A trip blank is a sample of contaminant free matrix placed in an appropriate container by the lab and transported with the field samples collected. Provides information regarding positive interference introduced during sample transport, storage, preservation, and analysis. The sample is NOT opened in the field.*	X		
16. Are duplicate sample results consistent with the original sample (groundwater samples)? *Field duplicates consist of two independent samples collected at the same sampling location during a single sampling event. Used to evaluate precision of the analytical data and sampling technique. (Differences between the duplicate and sample results may also be attributed to environmental variability.)*	X		
Batch Quality Control (Samples are batched together by matrix [soil, water] and analyses requested. A batch generally consists of 20 or fewer samples of the same matrix type, and is prepared using the same reagents, standards, procedures, and time frame as the samples. QC samples are run with each batch to assess performance of the entire measurement process.)			
17. Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	X		
18a. Are method blanks (MB) for the analytical method(s) below the laboratory reporting limits? *Used to assess lab contamination and prevent false positive results.*	X		
18b. If no, is an explanation provided in the case narrative to validate the data?			X
18c. Are analytes that may be considered laboratory contaminants reported below the laboratory reporting limit? *Common lab contaminants include acetone, methylene chloride, diethylhexyl phthalate, and di-n-octyl phthalate.*	X		
18d. If no, was the laboratory contacted to determine whether the reported analyte could be a potential laboratory contaminant and was an explanation included in the case narrative?			X
19. Are laboratory control samples (LCS) and LCS duplicate (LCSD) [a.k.a., Blank Spike (BS) and BS duplicates (BSD)] within laboratory reporting limits? Limits should be provided on the report. *LCS is a reagent blank spike with a representative selection of target analyte(s) and prepared in the same manner as the samples analyzed. The LCS should be spiked with the same analytes as the matrix spike (below). The LCS is free from interferences from the sample matrix and demonstrates the ability of the lab instruments to recover the target analytes. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between the LCS and LCSD is generally reported as the relative percent difference (RPD). LCS/LCSD can be run in addition to or in lieu of matrix QC data.*	X		
20a. Are the Matrix QC data (i.e., MS/MSD) within laboratory limits? Limits should be provided on the lab report. *The lab selects a sample from the batch and analyzes a spike and a spike duplicate of that sample. Matrix QC data is used to obtain precision and accuracy information and is reported in the same manner as LCS/LCSD. If the MS/MSD fails, the results may still be considered valid if the MB and either the LCS/LCSD or BS/BSD is within the lab's limits (failure is probably due to matrix interference).*		X	

Quality Control Checklist *- continued*

	Yes	No	NA
20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?	X		
Sample Quality Control			
21a. Are the surrogate spikes reported within the lab's acceptable recovery limits? *A surrogate is a non-target analyte, which is similar in chemical structure to the analyte(s) being analyzed for, and which is not commonly found in environmental samples. A known concentration of the surrogate is spiked into the sample or QA "sample" prior to extraction or sample preparation. Results are usually reported as % recovery of the spike. Failure to meet lab's limits for primary and secondary surrogates results in rebatching and reanalysis of the sample; failure of only the primary or the secondary surrogate may be acceptable under certain circumstances. Failure generally is due to coelution with the sample matrix.*		X	
21b. If no, is an explanation given in the case narrative to validate the data?	x		

Comments:
High surrogate recovery was observed for trifluorotoluene (FID) in MW-10 (lab # 211082-007); the corresponding bromofluorobenzene (FID) surrogate recovery was within limits.

Matrix spikes were not performed for this analysis in batch 149730 due to insufficient sample amount. QCTB (trip blank, lab # 211082-011) was analyzed with more than 1 mL of headspace in the VOA vial.


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 211082
ANALYTICAL REPORT

Baseline Environmental	Project : Y5395-06
5900 Hollis St.	Location : Harbor Facilities Center
Emeryville, CA 94608	Level : II

Sample ID	Lab ID
MW-2	211082-001
MW-4	211082-002
MW-4DUP	211082-003
MW-5	211082-004
MW-8A	211082-005
MW-9	211082-006
MW-10	211082-007
MW-11	211082-008
MW-12	211082-009
QCEB-040109	211082-010
QCTB	211082-011

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

Signature: _____ Date: 04/16/2009
Project Manager

Signature: _____ Date: 04/20/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**211082**
Client:	**Baseline Environmental**
Project:	**Y5395-06**
Location:	**Harbor Facilities Center**
Request Date:	**04/01/09**
Samples Received:	**04/01/09**

This data package contains sample and QC results for eleven water samples, requested for the above referenced project on 04/01/09. The samples were received on ice and intact, directly from the field.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
High surrogate recovery was observed for trifluorotoluene (FID) in MW-10 (lab # 211082-007); the corresponding bromofluorobenzene (FID) surrogate recovery was within limits. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
Matrix spikes were not performed for this analysis in batch 149730 due to insufficient sample amount. QCTB (lab # 211082-011) was analyzed with more than 1 mL of headspace in the VOA vial. No other analytical problems were encountered.

2/1082

BASELINE Environmental Consulting

5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

Turn-Around-Time Standard
Laboratory Curtis & Tompkins, Ltd.
BASELINE Contact Person Jim McCarty

Project Number Y5395-06
Project Name: Harbor Facilities Center
Samplers: (Signature) Reginald Ramirez / Matthew Clay

	Sample ID No. Station	Date	Time	Media	Containers: Type: No.	500 ml Poly	250 ml Poly	1-LAG	40 ml VOA	Preservative: Ice	HCL	HNO3	SO4	NaOH+ZnAc	TPH-g (EPA Method 8015B)	TEPH as diesel and motor oil with silica gel cleanup (EPA Method 8015B)	BTEX and MTBE (EPA Method 8260B)					Remarks/ Composite
1	MW-2	4/1/2009	9:10	W	8			2	6	X	X				X	X	X					
2	MW-4	4/1/2009	10:30	W	8			2	6	X	X				X	X	X					
3	MW-4dup	4/1/2009	10:35	W	8			2	6	X	X				X	X	X					
4	MW-5	4/1/2009	10:30	W	8			2	6	X	X				X	X	X					
5	MW-8A	4/1/2009	11:38	W	8			2	6	X	X				X	X	X					
6	MW-9	4/1/2009	12:25	W	8			2	6	X	X				X	X	X					
7	MW-10	4/1/2009	12:15	W	8			2	6	X	X				X	X	X					
8	MW-11	4/1/2009	9:10	W	8			2	6	X	X				X	X	X					
9	MW-12	4/1/2009	18:45	W	8			2	6	X	X				X	X	X					
10	QCEB-040109	4/1/2009	12:53	W	8			2	6	X	X				X	X	X					
11	QCTB	4/1/2009	7:00	W	2				2	X	X				X		X					

Relinquished by: (Signature)		Date/Time	Received by: (Signature)	Date/Time	
Reginald Ramirez		4/1 2:52	Matt Daughtry	4/1/09 2:50	Arrival at Laboratory:
Relinquished by: (Signature)		Date/Time	Received by: (Signature)		Remarks:
					Email contact: redgv@baseline-env.com jim@baseline-env.com
Relinquished by: (Signature)		Date/Time	Received by: (Signature)		

Received at laboratory with intact: YES NO

Comments:

Y5395-06.040109.coc

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # Z11082 Date Received 4/1/09 Number of coolers 2
Client BAGELINE Project HARBOR FACILITIES CENTER

Date Opened 4/1/09 By (print) M. VILLANUEVA (sign) [signature]
Date Logged in [signature] By (print) _____ (sign) _____

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) 9.5, 11.9

☐ 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

_____
_____
_____
_____
_____
_____
_____
_____

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	149662
Units:	ug/L	Sampled:	04/01/09
Diln Fac:	1.000	Received:	04/01/09

Field ID: MW-2 Lab ID: 211082-001
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	63-146
Bromofluorobenzene (FID)	105	70-140

Field ID: MW-4 Lab ID: 211082-002
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	63-146
Bromofluorobenzene (FID)	107	70-140

Field ID: MW-4DUP Lab ID: 211082-003
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	109	63-146
Bromofluorobenzene (FID)	104	70-140

Field ID: MW-5 Lab ID: 211082-004
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	63-146
Bromofluorobenzene (FID)	104	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	149662
Units:	ug/L	Sampled:	04/01/09
Diln Fac:	1.000	Received:	04/01/09

Field ID: MW-8A
Type: SAMPLE
Lab ID: 211082-005
Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	63-146
Bromofluorobenzene (FID)	105	70-140

Field ID: MW-9
Type: SAMPLE
Lab ID: 211082-006
Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	210 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	118	63-146
Bromofluorobenzene (FID)	106	70-140

Field ID: MW-10
Type: SAMPLE
Lab ID: 211082-007
Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	87 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	156 *	63-146
Bromofluorobenzene (FID)	107	70-140

Field ID: MW-11
Type: SAMPLE
Lab ID: 211082-008
Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	110	63-146
Bromofluorobenzene (FID)	106	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	149662
Units:	ug/L	Sampled:	04/01/09
Diln Fac:	1.000	Received:	04/01/09

Field ID: MW-12 Lab ID: 211082-009
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	71 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	63-146
Bromofluorobenzene (FID)	102	70-140

Field ID: QCEB-040109 Lab ID: 211082-010
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	63-146
Bromofluorobenzene (FID)	100	70-140

Field ID: QCTB Lab ID: 211082-011
Type: SAMPLE Analyzed: 04/07/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	63-146
Bromofluorobenzene (FID)	98	70-140

Type: BLANK Analyzed: 04/06/09
Lab ID: QC490574

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	63-146
Bromofluorobenzene (FID)	100	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC490575	Batch#:	149662
Matrix:	Water	Analyzed:	04/06/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	950.1	95	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	124	63-146
Bromofluorobenzene (FID)	103	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	149662
MSS Lab ID:	211111-004	Sampled:	03/31/09
Matrix:	Water	Received:	04/02/09
Units:	ug/L	Analyzed:	04/06/09
Diln Fac:	1.000		

Type: MS Lab ID: QC490576

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	18.90	2,000	1,749	87	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	63-146
Bromofluorobenzene (FID)	105	70-140

Type: MSD Lab ID: QC490577

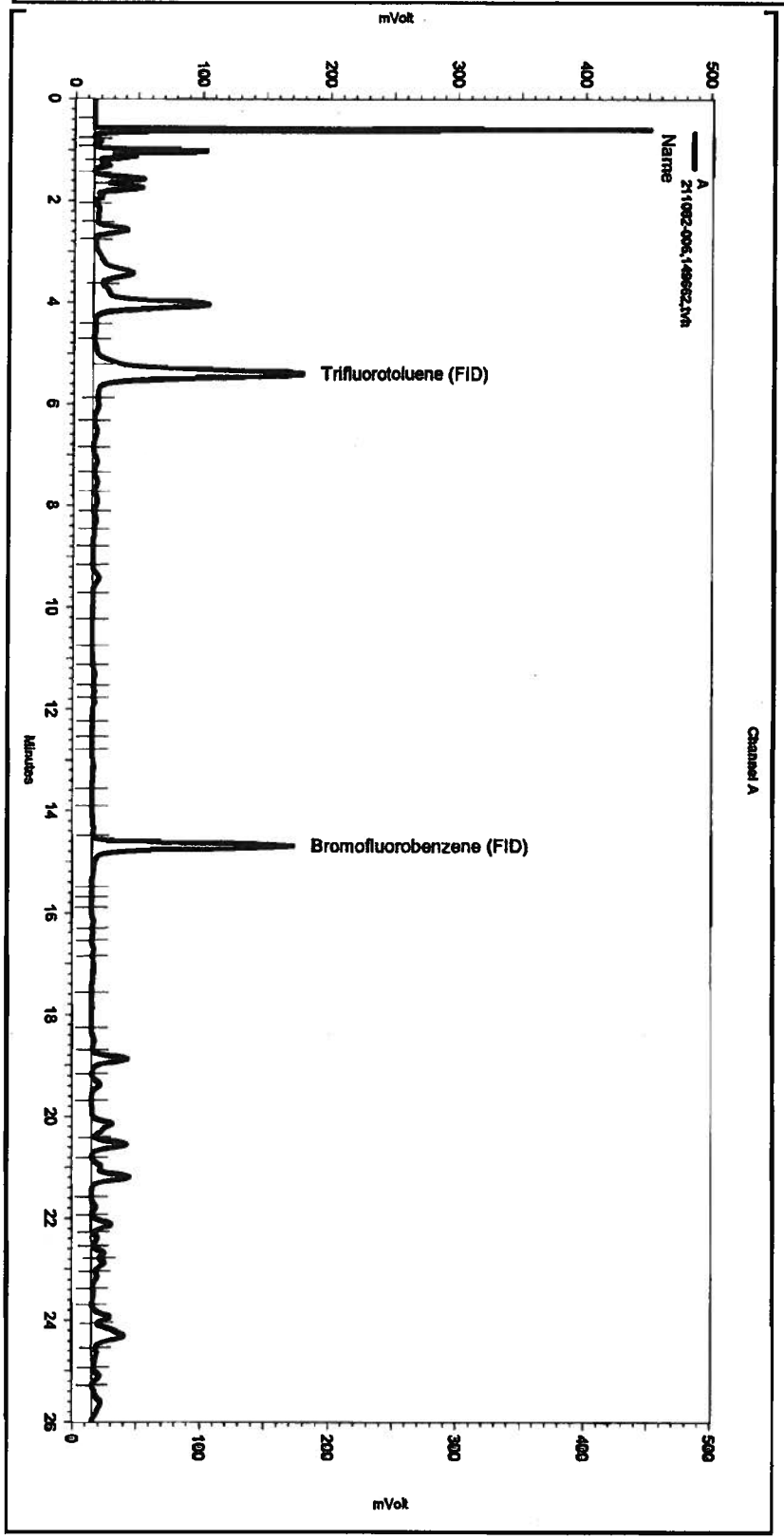
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,786	88	66-120	2	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	121	63-146
Bromofluorobenzene (FID)	105	70-140

RPD= Relative Percent Difference

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC07\Sequence\096.seq
Sample Name: 211082-006,149662,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_030
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxemtbesinglepoint078.met

Software Version 3.1.7
Run Date: 4/7/2009 5:52:56 AM
Analysis Date: 4/7/2009 1:31:54 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A1.3
HS<1mL



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Integration Events

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

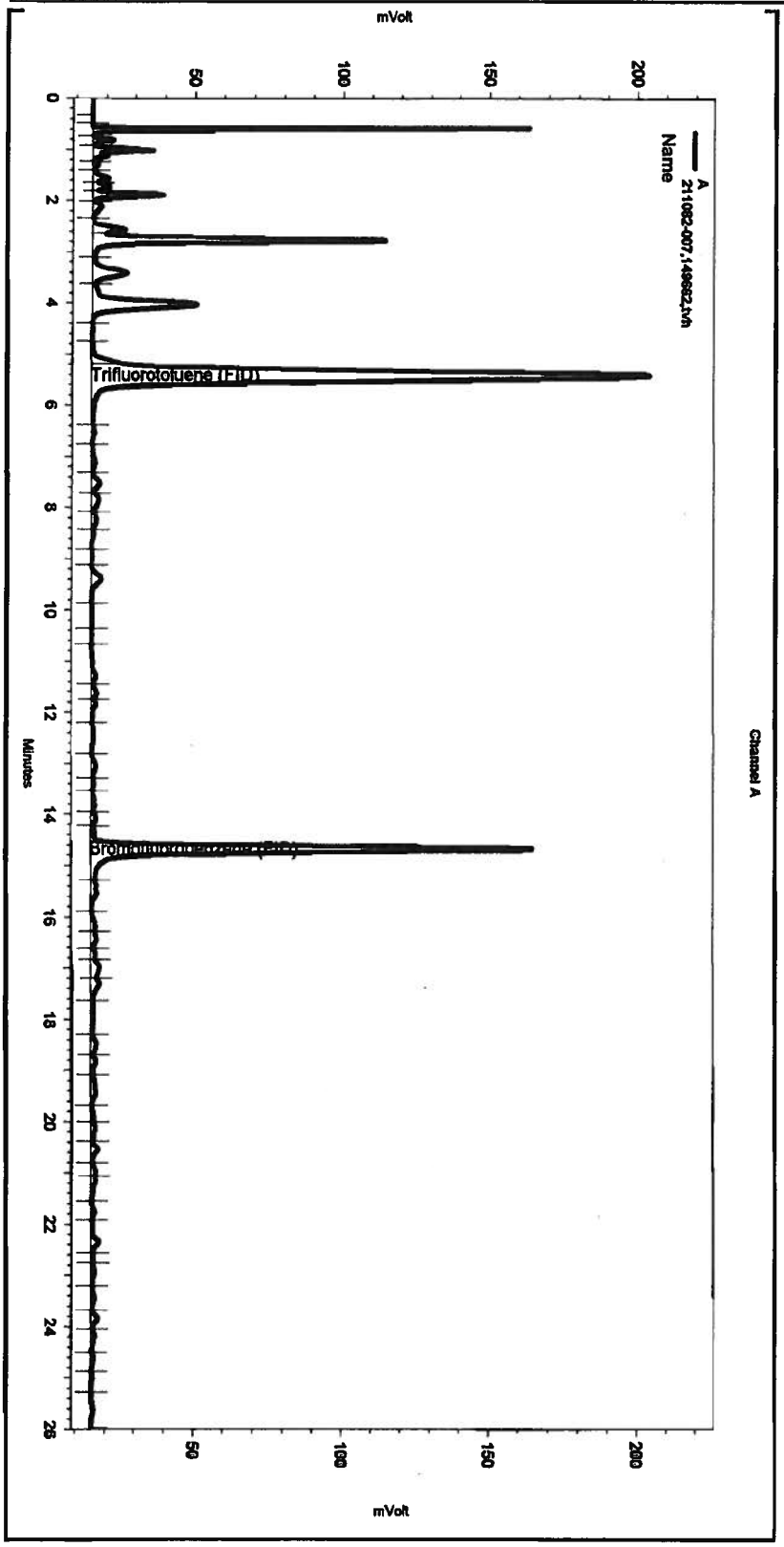
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_030

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.212	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC07\Sequence\096.seq
Sample Name: 211082-007,149662,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_034
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbbxemtbesinglepoint078.met

Software Version 3.1.7
Run Date: 4/7/2009 8:14:58 AM
Analysis Date: 4/7/2009 1:33:46 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A1.3



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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

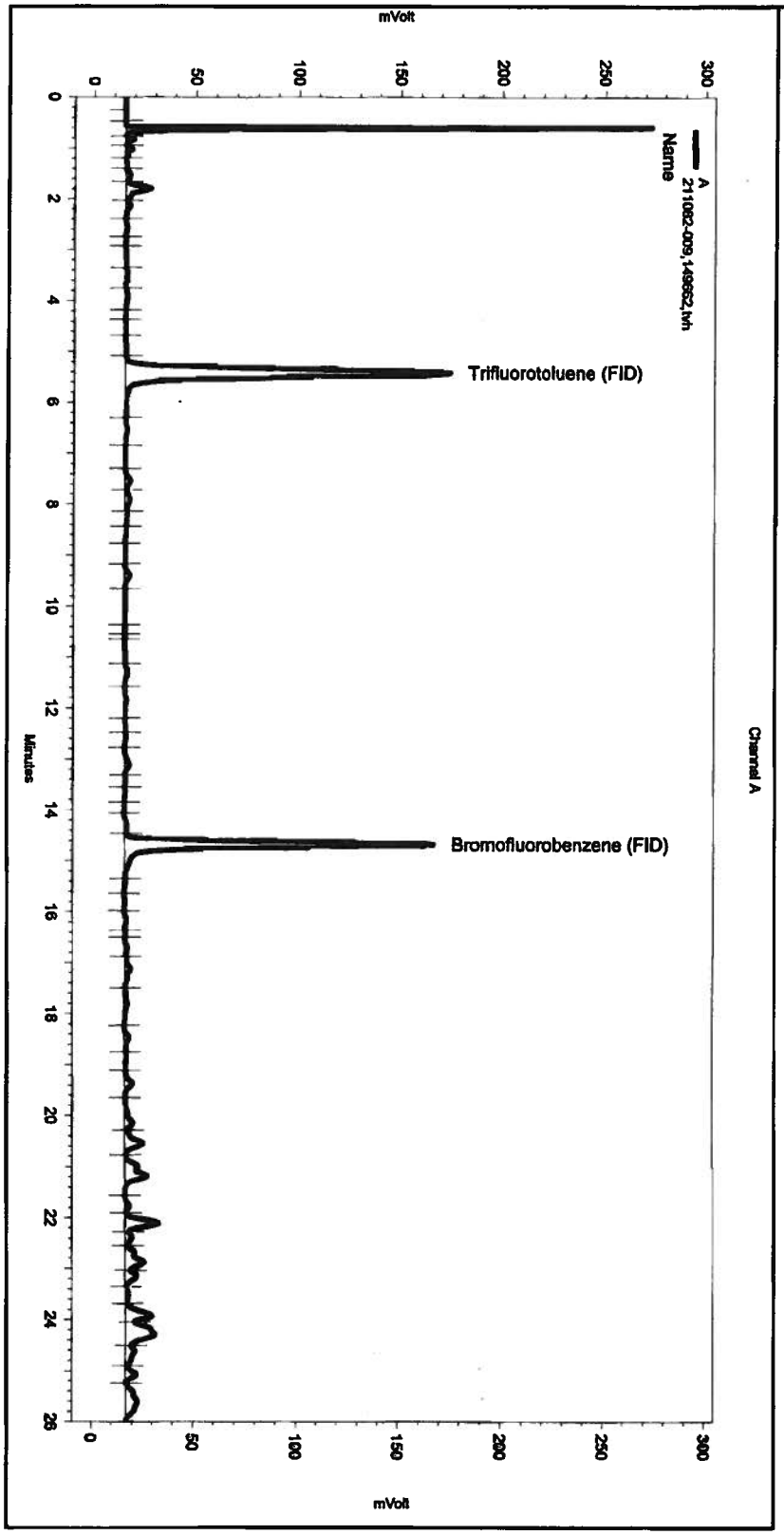
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_034

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.194	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC07\Sequence\096.seq
Sample Name: 211082-009,149662,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_036
Instrument: GC07 Vial: N/A Operator: lims2k3\tvh3
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxemtbesinglepoint078.met

Software Version 3.1.7
Run Date: 4/7/2009 9:25:36 AM
Analysis Date: 4/7/2009 9:54:19 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: A1.3



---< 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.10049\096_036_D26F.tmp

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

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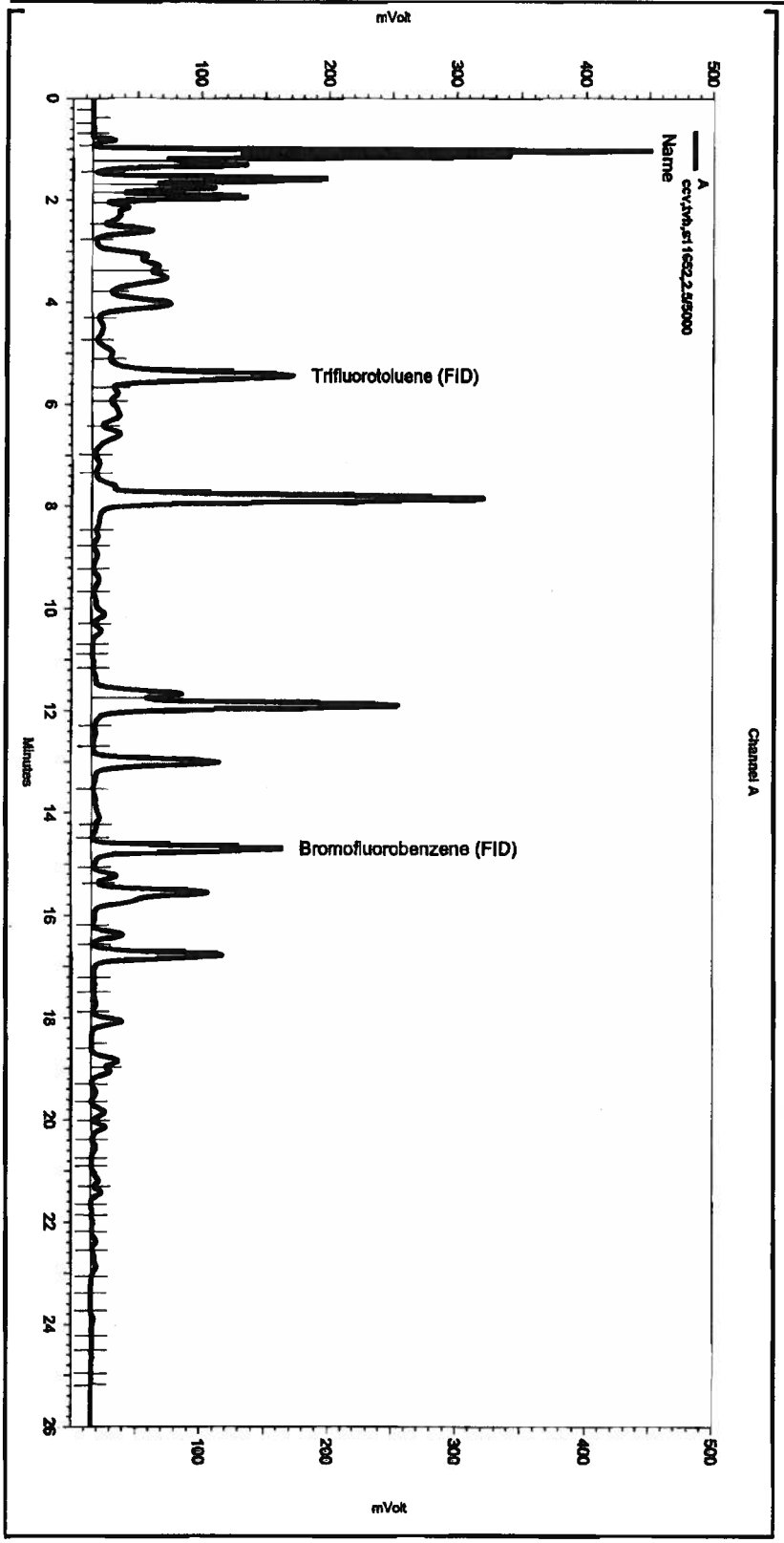
Sequence File: \\Lims\gdrive\ezchrom\Projects\GC07\Sequence\096.seq
Sample Name: ccv,tvh,s11652,2.5/5000
Data File: \\Lims\gdrive\ezchrom\Projects\GC07\Data\096_004
Instrument: GC07 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC07\Method\tvhbtxemtbesinglepoint078.met

Software Version 3.1.7
Run Date: 4/6/2009 12:21:59 PM
Analysis Date: 4/7/2009 12:43:19 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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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\GC07\Data\096_004

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	04/01/09
Units:	ug/L	Received:	04/01/09
Diln Fac:	1.000	Prepared:	04/03/09
Batch#:	149611		

Field ID: MW-2
Type: SAMPLE
Lab ID: 211082-001
Analyzed: 04/10/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	106	61-127

Field ID: MW-4
Type: SAMPLE
Lab ID: 211082-002
Analyzed: 04/10/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	95	61-127

Field ID: MW-4DUP
Type: SAMPLE
Lab ID: 211082-003
Analyzed: 04/10/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	92	61-127

Field ID: MW-5
Type: SAMPLE
Lab ID: 211082-004
Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	92	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	04/01/09
Units:	ug/L	Received:	04/01/09
Diln Fac:	1.000	Prepared:	04/03/09
Batch#:	149611		

Field ID: MW-8A
Type: SAMPLE
Lab ID: 211082-005

Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	83	61-127

Field ID: MW-9
Type: SAMPLE
Lab ID: 211082-006

Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	98	61-127

Field ID: MW-10
Type: SAMPLE
Lab ID: 211082-007

Analyzed: 04/09/09
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	100 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	93	61-127

Field ID: MW-11
Type: SAMPLE
Lab ID: 211082-008

Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	91	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	04/01/09
Units:	ug/L	Received:	04/01/09
Diln Fac:	1.000	Prepared:	04/03/09
Batch#:	149611		

Field ID: MW-12
Type: SAMPLE
Lab ID: 211082-009
Analyzed: 04/09/09
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	420 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	91	61-127

Field ID: QCEB-040109
Type: SAMPLE
Lab ID: 211082-010
Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	89	61-127

Type: BLANK
Lab ID: QC490361
Analyzed: 04/09/09
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	88	61-127

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC490362	Batch#:	149611
Matrix:	Water	Prepared:	04/03/09
Units:	ug/L	Analyzed:	04/10/09

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,811	72	50-120

Surrogate	%REC	Limits
o-Terphenyl	85	61-127

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	149611
MSS Lab ID:	211079-003	Sampled:	03/30/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Prepared:	04/03/09
Diln Fac:	1.000	Analyzed:	04/10/09

Type: MS Lab ID: QC490363

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	8.778	2,500	2,280	91	38-127

Surrogate	%REC	Limits
o-Terphenyl	104	61-127

Type: MSD Lab ID: QC490364

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,405	96	38-127	5	37

Surrogate	%REC	Limits
o-Terphenyl	111	61-127

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	149611
MSS Lab ID:	211111-004	Sampled:	03/31/09
Matrix:	Water	Received:	04/02/09
Units:	ug/L	Prepared:	04/03/09
Diln Fac:	1.000	Analyzed:	04/10/09

Type: MS Lab ID: QC490365

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	494.5	2,500	3,026	101	38-127

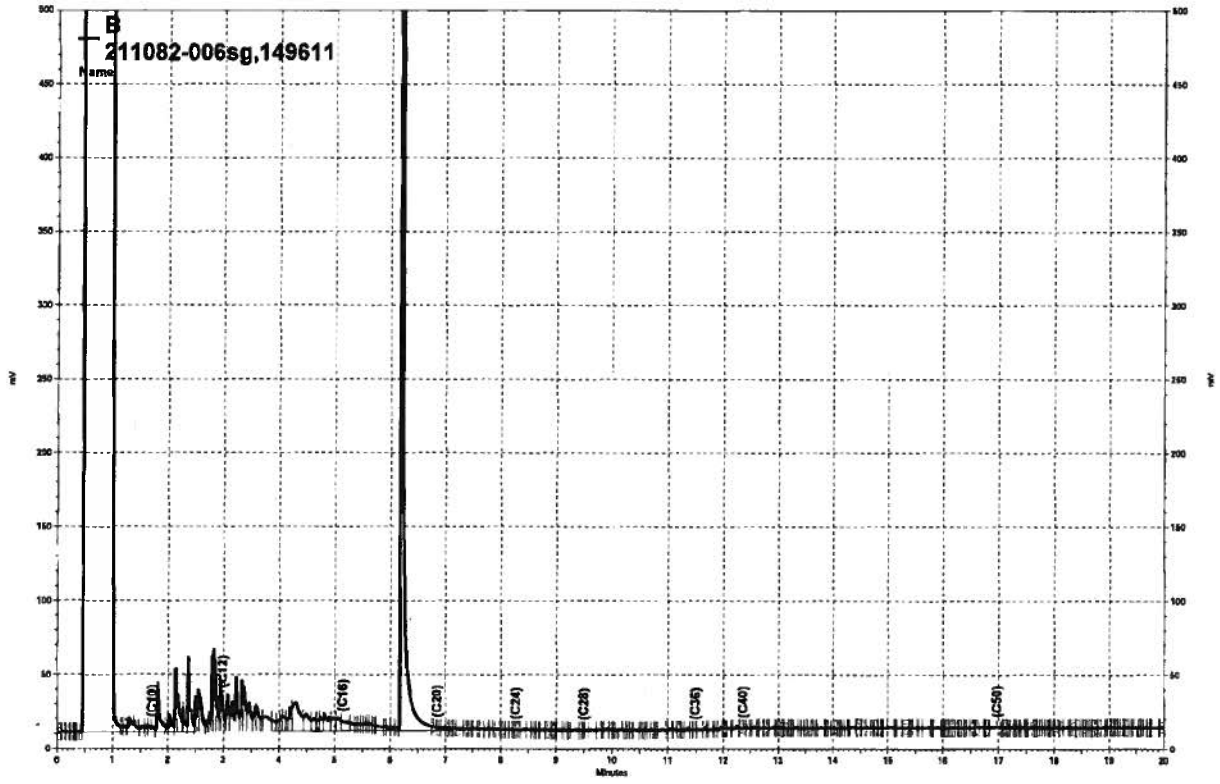
Surrogate	%REC	Limits
o-Terphenyl	114	61-127

Type: MSD Lab ID: QC490366

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,743	90	38-127	10	37

Surrogate	%REC	Limits
o-Terphenyl	106	61-127

RPD= Relative Percent Difference



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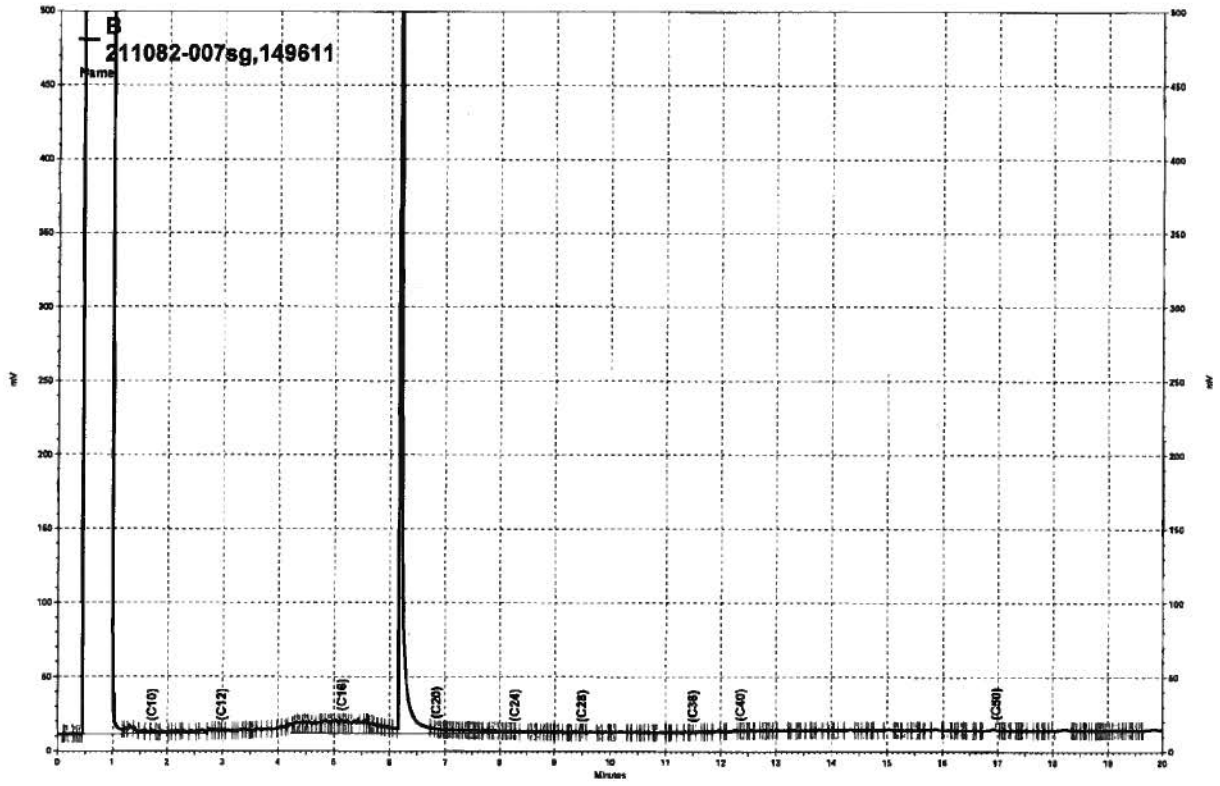
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211082-007sg,149611
Name
mV
(C10)
(C12)
(C16)
(C20)
(C24)
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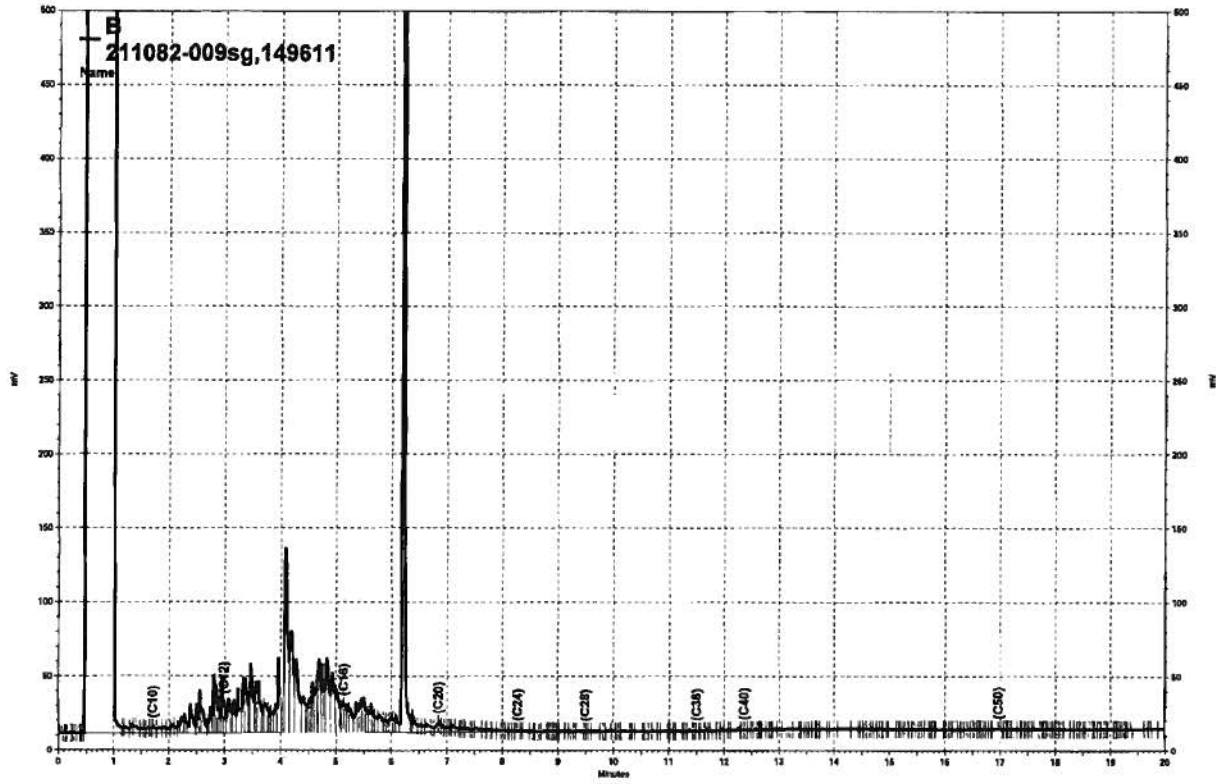

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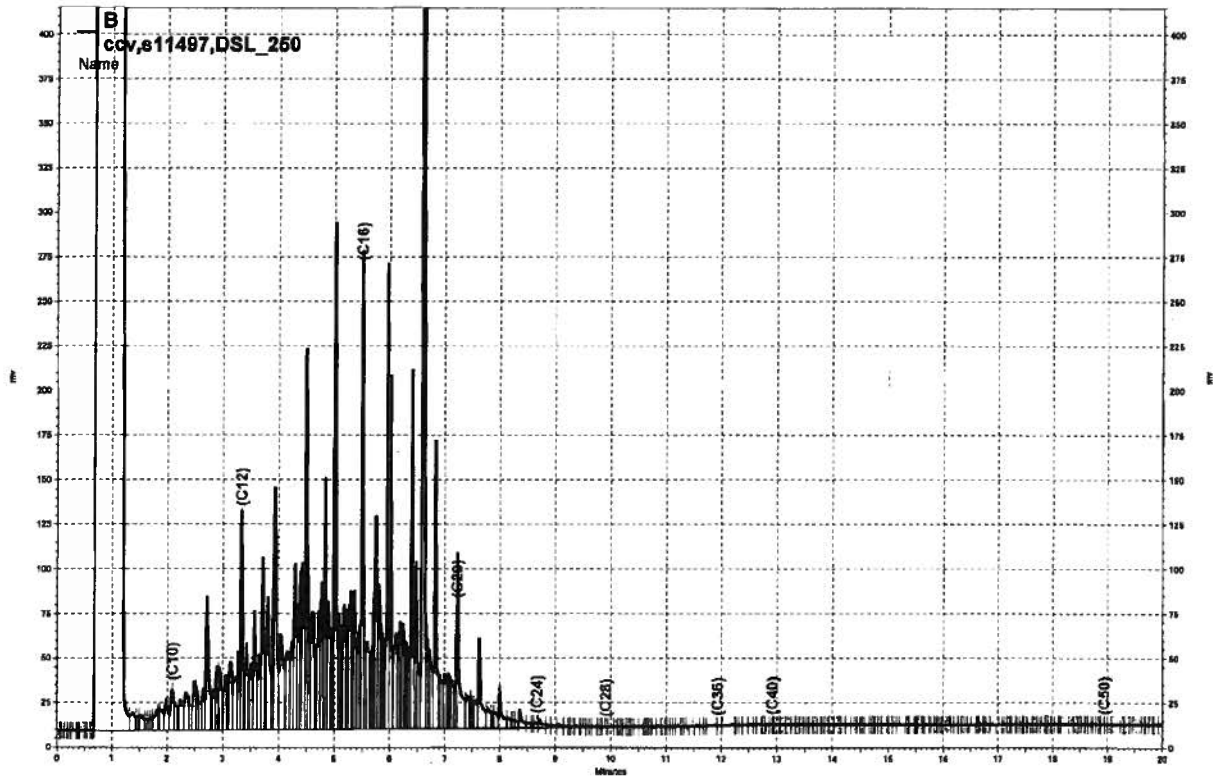

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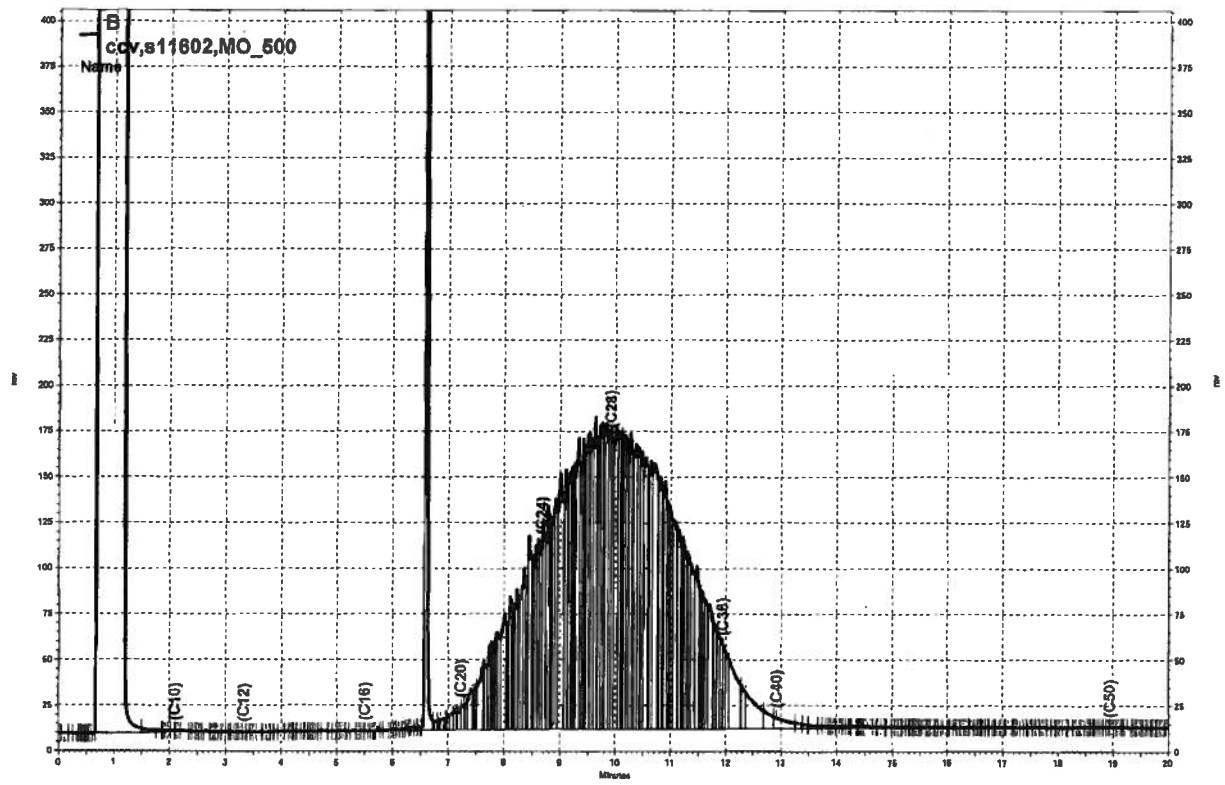

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Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	149730
Lab ID:	211082-001	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	120	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	149730
Lab ID:	211082-002	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	7.5	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	118	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	94	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-4DUP	Batch#:	149730
Lab ID:	211082-003	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	7.8	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	120	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	149730
Lab ID:	211082-004	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	119	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	94	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	149730
Lab ID:	211082-005	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	118	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-9	Batch#:	149730
Lab ID:	211082-006	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	36	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	118	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-10	Batch#:	149730
Lab ID:	211082-007	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	14	0.5
Toluene	ND	0.5
Ethylbenzene	0.5	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	119	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	149730
Lab ID:	211082-008	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	117	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-12	Batch#:	149730
Lab ID:	211082-009	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	5.8	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	117	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	QCEB-040109	Batch#:	149730
Lab ID:	211082-010	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	119	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	QCTB	Batch#:	149730
Lab ID:	211082-011	Sampled:	04/01/09
Matrix:	Water	Received:	04/01/09
Units:	ug/L	Analyzed:	04/08/09
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	117	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC490854	Batch#:	149730
Matrix:	Water	Analyzed:	04/08/09
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	114	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	211082	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	149730
Units:	ug/L	Analyzed:	04/08/09
Diln Fac:	1.000		

Type: BS Lab ID: QC490852

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	17.01	85	73-122
Benzene	20.00	20.30	101	80-120
Toluene	20.00	20.34	102	80-120
Ethylbenzene	20.00	21.10	105	80-121
m,p-Xylenes	40.00	41.72	104	80-122
o-Xylene	20.00	20.36	102	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	115	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	92	80-125

Type: BSD Lab ID: QC490853

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	17.57	88	73-122	3	20
Benzene	20.00	20.18	101	80-120	1	20
Toluene	20.00	20.24	101	80-120	1	20
Ethylbenzene	20.00	20.99	105	80-121	1	20
m,p-Xylenes	40.00	41.57	104	80-122	0	20
o-Xylene	20.00	20.47	102	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	92	80-125

RPD= Relative Percent Difference

QUALITY CONTROL CHECKLIST
FOR REVIEW OF LABORATORY REPORT

Job No.	Y5395-06	**Site:**	651 Maritime Street
Laboratory:	Curtis and Tompkins, Ltd.	**Laboratory Report No.:**	210447
Report Date:	03/16/2009	**BASELINE Reviewer:**	jgm

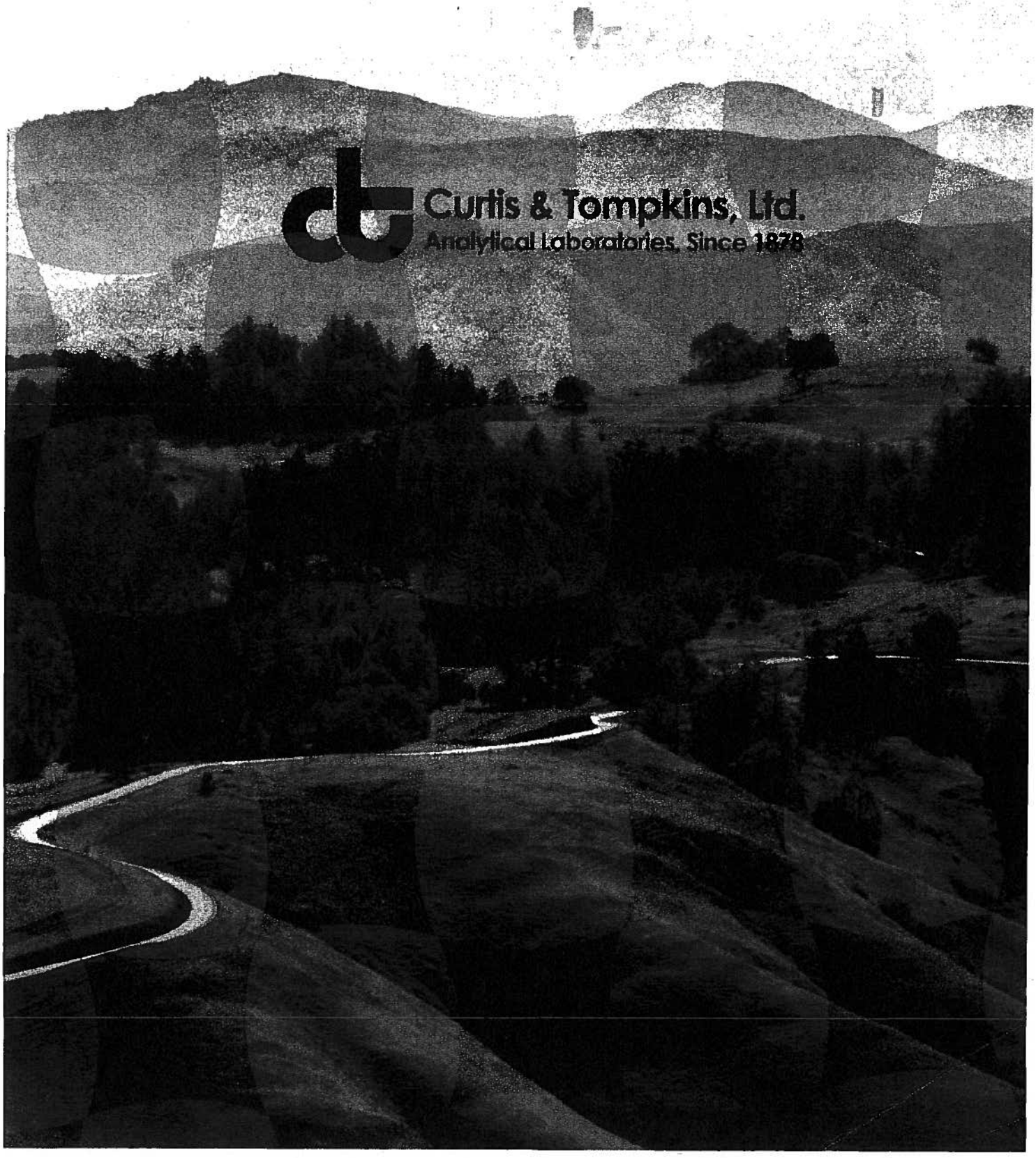
	Yes	No	NA
GENERAL QUESTIONS **(Describe "no" responses below in "comments" section. Contact the laboratory, as required, for further explanation or action on "no" responses; document discussion in comments section.)**			
1a. Does the report include a case narrative? *(A case narrative MUST be prepared by the lab for all analytical work requested by BASELINE)*	X		
1b. Is the number of pages for the lab report as indicated on the case narrative/lab transmittal consistent with the number of pages that are included in report?	X		
1c. Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor's name?			X
1d. Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of "hold" samples)?			X
1e. Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?			X
1f. Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable)?			X
2a. Is the laboratory report format consistent and legible throughout the report?	X		
2b. Are the sample and reported dates shown in the laboratory report correct?	X		
3a. Does the lab report include the original chain-of-custody form?	X		
3b. Were all samples appropriately analyzed as requested on the chain-of-custody form?	X		
4. Was the lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel? (Some lab reports have signature spaces for each page). (This requirement also applies to any analyses subcontracted out by the laboratory)	X		
5a. Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	X		
5b. If additional analytes were requested as part of the reporting of the data for an analytical method, were these included in the lab report?	X		
6. Are the units in the lab report provided for each analysis consistent throughout the report?	X		

Quality Control Checklist *- continued*

	Yes	No	NA
7. Are the detection limits (DL) appropriate based on the intended use of the data (e.g., DL below applicable MCLs for water quality issues)?	X		
8a. Are detection limits appropriate based on the analysis performed (i.e., not elevated due to dilution effects)?	X		
8b. If no, is an explanation provided by the laboratory?			X
9a. Were the samples analyzed within the appropriate holding time (generally 2 weeks for volatiles, and up to 6 months for total metals)?	X		
9b. If no, was it flagged in the report?			X
10. If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?			X
11a. Do the chromatograms confirm quantitative laboratory results (petroleum hydrocarbons)?			X
11b. Is a standard chromatogram(s) included in the laboratory report?			X
11c. Do the chromatograms confirm laboratory notes, if present (e.g., sample exhibits lighter hydrocarbon than standard)?			X
12. Are the results consistent with previous analytical results from the site? *(If no, contact the lab and request review/reanalysis of data, as appropriate.)*			X
13a. REVISED LAB REPORTS ONLY. Is the revised lab report or revised pages to a lab report signed and dated as being reviewed by the laboratory director, QA manager, or other appropriate personnel?			X
13b. REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			X
13c. REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) that triggered the need for a revision?			X
13d. REVISED LAB REPORTS ONLY. Are the data included in the revised report the same as the data reported in the original report, except where the report was revised to correct incorrectly reported data?			X
QA/QC Questions Field/Laboratory Quality Control - Groundwater Analyses			
14. Are field blanks reported as "ND" (groundwater samples)? *A field blank is a sample of DI water that is prepared in the field using the same collection and handling procedures as the other samples collected, and used to demonstrate that the sampling procedure has not contaminated the sample.*	X		
14a. Are rinsate blanks reported as "ND" (soil samples)? *A rinsate blank is a sample of DI water that is prepared in the field by collecting DI rinse water after it has been poured over decontaminated sampling equipment. The rinsate blank is collected to demonstrate that the decontamination procedure has removed all the contaminants from the sampling equipment and that the sampling equipment has not contaminated the sample.*			X

Quality Control Checklist *- continued*

	Yes	No	NA
15. Are trip blanks reported as "ND" (groundwater samples/volatile analyses)? *A trip blank is a sample of contaminant free matrix placed in an appropriate container by the lab and transported with the field samples collected. Provides information regarding positive interference introduced during sample transport, storage, preservation, and analysis. The sample is NOT opened in the field.*	X		
16. Are duplicate sample results consistent with the original sample (groundwater samples)? *Field duplicates consist of two independent samples collected at the same sampling location during a single sampling event. Used to evaluate precision of the analytical data and sampling technique. (Differences between the duplicate and sample results may also be attributed to environmental variability.)*	X		
Batch Quality Control (Samples are batched together by matrix [soil, water] and analyses requested. A batch generally consists of 20 or fewer samples of the same matrix type, and is prepared using the same reagents, standards, procedures, and time frame as the samples. QC samples are run with each batch to assess performance of the entire measurement process.)			
17. Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	X		
18a. Are method blanks (MB) for the analytical method(s) below the laboratory reporting limits? *Used to assess lab contamination and prevent false positive results.*	X		
18b. If no, is an explanation provided in the case narrative to validate the data?			X
18c. Are analytes that may be considered laboratory contaminants reported below the laboratory reporting limit? *Common lab contaminants include acetone, methylene chloride, diethylhexyl phthalate, and di-n-octyl phthalate.*	X		
18d. If no, was the laboratory contacted to determine whether the reported analyte could be a potential laboratory contaminant and was an explanation included in the case narrative?			X
19. Are laboratory control samples (LCS) and LCS duplicate (LCSD) [a.k.a., Blank Spike (BS) and BS duplicates (BSD)] within laboratory reporting limits? Limits should be provided on the report. *LCS is a reagent blank spike with a representative selection of target analyte(s) and prepared in the same manner as the samples analyzed. The LCS should be spiked with the same analytes as the matrix spike (below). The LCS is free from interferences from the sample matrix and demonstrates the ability of the lab instruments to recover the target analytes. Accuracy (recovery information) is generally reported as % spike recovery; precision (reproducibility of results) between the LCS and LCSD is generally reported as the relative percent difference (RPD). LCS/LCSD can be run in addition to or in lieu of matrix QC data.*	X		
20a. Are the Matrix QC data (i.e., MS/MSD) within laboratory limits? Limits should be provided on the lab report. *The lab selects a sample from the batch and analyzes a spike and a spike duplicate of that sample. Matrix QC data is used to obtain precision and accuracy information and is reported in the same manner as LCS/LCSD. If the MS/MSD fails, the results may still be considered valid if the MB and either the LCS/LCSD or BS/BSD is within the lab's limits (failure is probably due to matrix interference).*	X		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Analytical Laboratories. Since 1878

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

Laboratory Job Number 210447
ANALYTICAL REPORT

Baseline Environmental	Project : Y5395-06
5900 Hollis St.	Location : Harbor Facilities Center
Emeryville, CA 94608	Level : II

Sample ID	Lab ID
MW-2	210447-001
MW-4	210447-002
MW-4DUP	210447-003
MW-5	210447-004
MW-8A	210447-005
MW-9	210447-006
MW-10	210447-007
MW-11	210447-008
MW-12	210447-009
QCEB-030409	210447-010
QCTB	210447-011

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

Signature: Lisa Brooker Date: 03/13/2009
Project Manager

Signature: Date: 03/16/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**210447**
Client:	**Baseline Environmental**
Project:	**Y5395-06**
Location:	**Harbor Facilities Center**
Request Date:	**03/04/09**
Samples Received:	**03/04/09**

This data package contains sample and QC results for eleven water samples, requested for the above referenced project on 03/04/09. The samples were received on ice and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
High surrogate recovery was observed for trifluorotoluene (FID) in MW-10 (lab # 210447-007); the corresponding bromofluorobenzene (FID) surrogate recovery was within limits. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

BASELINE Environmental Consulting
5900 Hollis Street, Suite D
Emeryville, CA 94608
Tel: (510) 420-8686 Fax: (510) 420-1707

CHAIN OF CUSTODY RECORD

21044?

Turn-Around-Time Standard
Laboratory Curtis & Tompkins, Ltd.
BASELINE Contact Person Jim McCarty

Project Number Y5395-04-06
Project Name: Harbor Facilities Center
Samplers: (Signature) William Kaldveer / Reginald Kenney

	Sample ID No. Station	Date	Time	Media	Containers: Type: No.	500 ml Poly	250 ml Poly	1-LAG	40 ml VOA	Preservative: Ice	HCL	HNO3	SO4	NaOH+ZnAc	TPH-g (EPA Method 8015B)	TEPH as diesel and motor oil with silica gel cleanup (EPA Method 8015B)	BTEX and MTBE (EPA Method 8260B)					Remarks/ Composite
1	MW-2	3/4/2009	9:00	W	8			2	6	X	X				X	X	X					
2	MW-4	3/4/2009	11:05	W	8			2	6	X	X				X	X	X					
3	MW-4dup	3/4/2009	11:10	W	8			2	6	X	X				X	X	X					
4	MW-5	3/4/2009	10:30	W	8			2	6	X	X				X	X	X					
5	MW-8A	3/4/2009	8:40	W	8			2	6	X	X				X	X	X					
6	MW-9	3/4/2009	10:10	W	8			2	6	X	X				X	X	X					
7	MW-10	3/4/2009	9:30	W	8			2	6	X	X				X	X	X					
8	MW-11	3/4/2009	12:35	W	8			2	6	X	X				X	X	X					
9	MW-12	3/4/2009	12:40	W	8			2	6	X	X				X	X	X					
10	QCEB-030409	3/4/2009	13:18	W	8			2	6	X	X				X	X	X					
11	QCTB	3/4/2009	7:00	W	2				2	X	X				X							

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Reginald Kenney	3/4/09 16:62	[signature]	3/4/09 1552
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	

Received at laboratory with intact: (YES) NO
on ice
Comments:

Arrival at Laboratory:
Remarks:
Email contact:
redgv@baseline-env.com
jim@baseline-env.com

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 210447 Date Received 3/4/09 Number of coolers 2
Client Baseline Project Harbor Facilities Center

Date Opened 3/4/09 By (print) Phuong (sign) [signature]
Date Logged in 3/4/09 By (print) [signature] (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 (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? ____ Y-L YES NO
   If YES, Who was called? ____ By ____ Date: ____

COMMENTS
Sample #1 - sample ID did not have time / log in (QC time (9:00)
#8 -
#3 -
#1 -
#4 -
Sample #5 - S/C VOA w/ bubbles
" #7 - "

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000		

Field ID: MW-2 Batch#: 148678
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-001

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	104	63-146
Bromofluorobenzene (FID)	113	70-140

Field ID: MW-4 Batch#: 148678
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-002

Analyte	Result	RL
Gasoline C7-C12	60 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	99	63-146
Bromofluorobenzene (FID)	98	70-140

Field ID: MW-4DUP Batch#: 148678
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-003

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	63-146
Bromofluorobenzene (FID)	102	70-140

Field ID: MW-5 Batch#: 148678
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-004

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	63-146
Bromofluorobenzene (FID)	109	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000		

Field ID: MW-8A
Type: SAMPLE
Lab ID: 210447-005
Batch#: 148678
Analyzed: 03/10/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	101	63-146
Bromofluorobenzene (FID)	99	70-140

Field ID: MW-9
Type: SAMPLE
Lab ID: 210447-006
Batch#: 148678
Analyzed: 03/10/09

Analyte	Result	RL
Gasoline C7-C12	290 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	63-146
Bromofluorobenzene (FID)	107	70-140

Field ID: MW-10
Type: SAMPLE
Lab ID: 210447-007
Batch#: 148721
Analyzed: 03/10/09

Analyte	Result	RL
Gasoline C7-C12	96 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	186 *	63-146
Bromofluorobenzene (FID)	111	70-140

Field ID: MW-11
Type: SAMPLE
Lab ID: 210447-008
Batch#: 148721
Analyzed: 03/10/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	63-146
Bromofluorobenzene (FID)	109	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000		

Field ID: MW-12 Batch#: 148721
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-009

Analyte	Result	RL
Gasoline C7-C12	150 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	102	63-146
Bromofluorobenzene (FID)	113	70-140

Field ID: QCEB-030409 Batch#: 148721
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-010

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	108	63-146
Bromofluorobenzene (FID)	116	70-140

Field ID: QCTB Batch#: 148721
Type: SAMPLE Analyzed: 03/10/09
Lab ID: 210447-011

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	111	63-146
Bromofluorobenzene (FID)	113	70-140

Type: BLANK Batch#: 148678
Lab ID: QC486501 Analyzed: 03/09/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	63-146
Bromofluorobenzene (FID)	96	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000		

Type:	BLANK	Batch#:	148721
Lab ID:	QC486690	Analyzed:	03/10/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	105	63-146
Bromofluorobenzene (FID)	103	70-140

*= Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC486502	Batch#:	148678
Matrix:	Water	Analyzed:	03/09/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	951.7	95	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	136	63-146
Bromofluorobenzene (FID)	122	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	148678
MSS Lab ID:	210429-001	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/09/09
Diln Fac:	1.000		

Type: MS Lab ID: QC486503

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	25.63	2,000	1,709	84	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	113	63-146
Bromofluorobenzene (FID)	121	70-140

Type: MSD Lab ID: QC486504

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,939	96	66-120	13	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	131	63-146
Bromofluorobenzene (FID)	120	70-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC486691	Batch#:	148721
Matrix:	Water	Analyzed:	03/10/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	1,023	102	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	135	63-146
Bromofluorobenzene (FID)	126	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	148721
MSS Lab ID:	210442-013	Sampled:	03/04/09
Matrix:	Water	Received:	03/05/09
Units:	ug/L	Analyzed:	03/10/09
Diln Fac:	1.000		

Type: MS Lab ID: QC486692

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	27.81	2,000	1,522	75	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	119	63-146
Bromofluorobenzene (FID)	131	70-140

Type: MSD Lab ID: QC486693

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,700	84	66-120	11	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	63-146
Bromofluorobenzene (FID)	131	70-140

RPD= Relative Percent Difference

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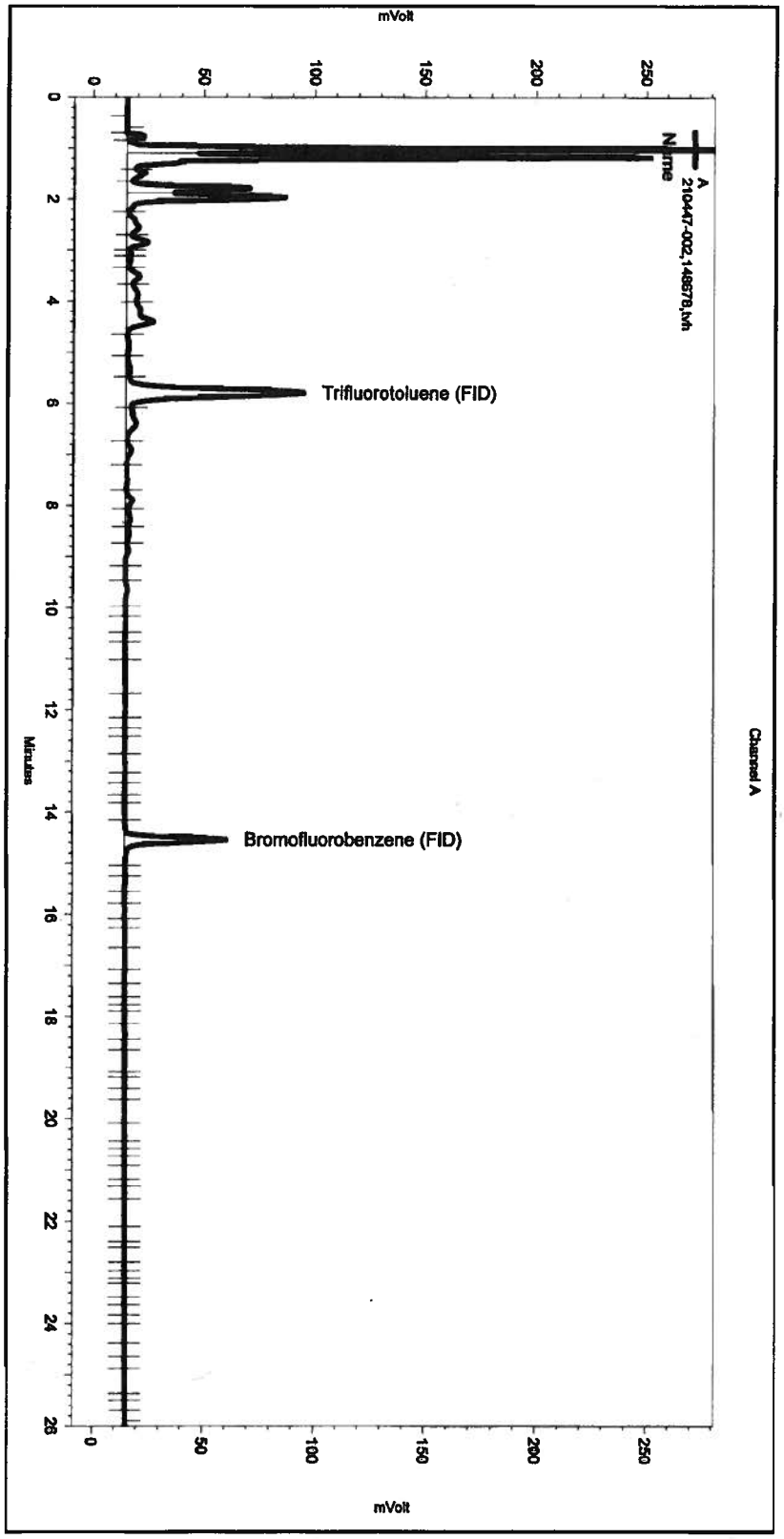
Sample Name: 210447-002,148678,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\068_030
Instrument: GC04 Vial: N/A Operator: lims2k3\tvh3
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe064.met

Software Version 3.1.7
Run Date: 3/10/2009 7:28:04 AM
Analysis Date: 3/10/2009 7:57:33 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3



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Integration Events

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

Manual Integration Fixes

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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

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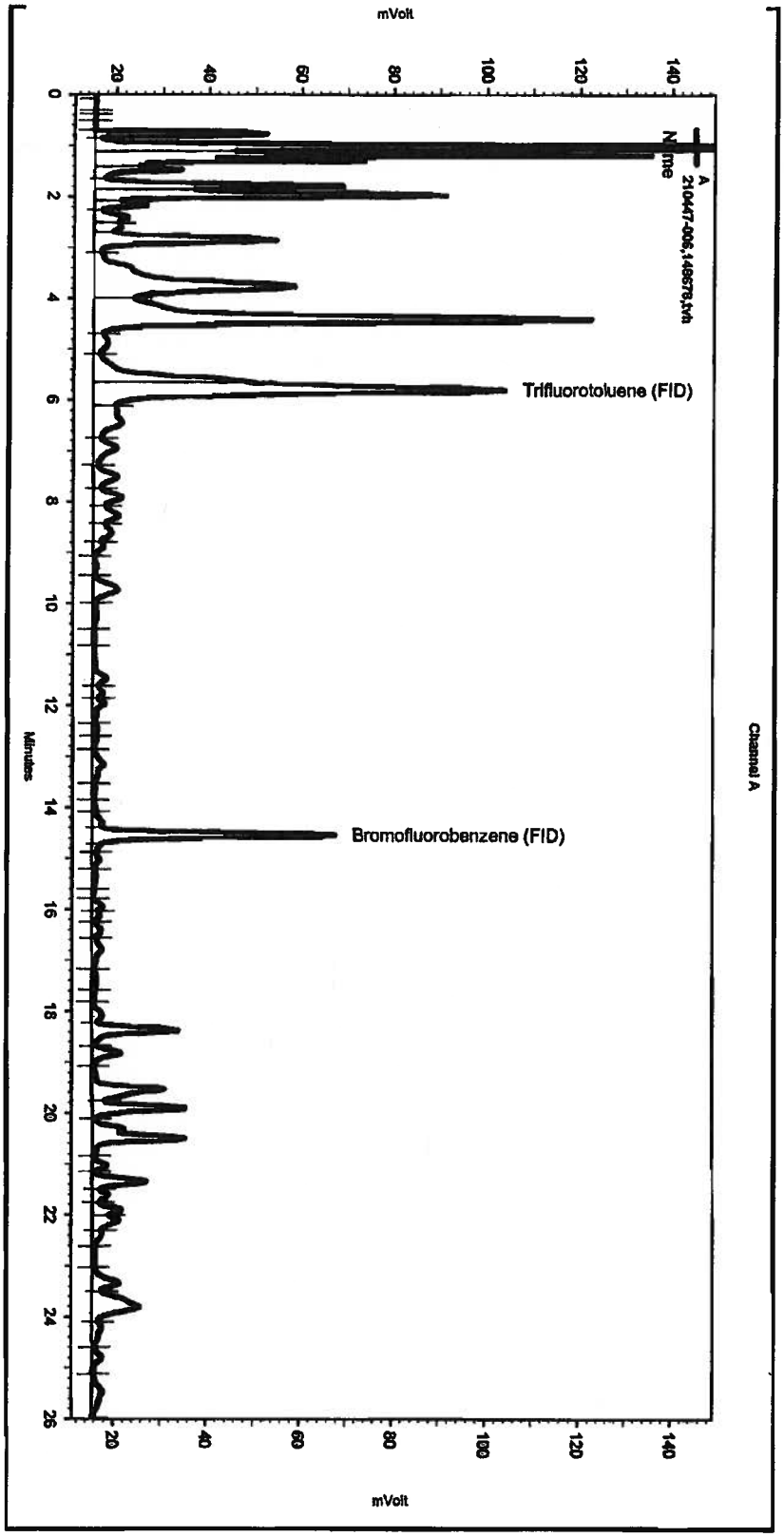
Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\068.seq
Sample Name: 210447-006,148678,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\068_034
Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe064.met

Software Version 3.1.7
Run Date: 3/10/2009 9:58:28 AM
Analysis Date: 3/10/2009 11:59:23 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: b1.3



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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\068_034

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.658	0	0
Yes	Split Peak	14.392	0	0
Yes	Split Peak	14.718	0	0

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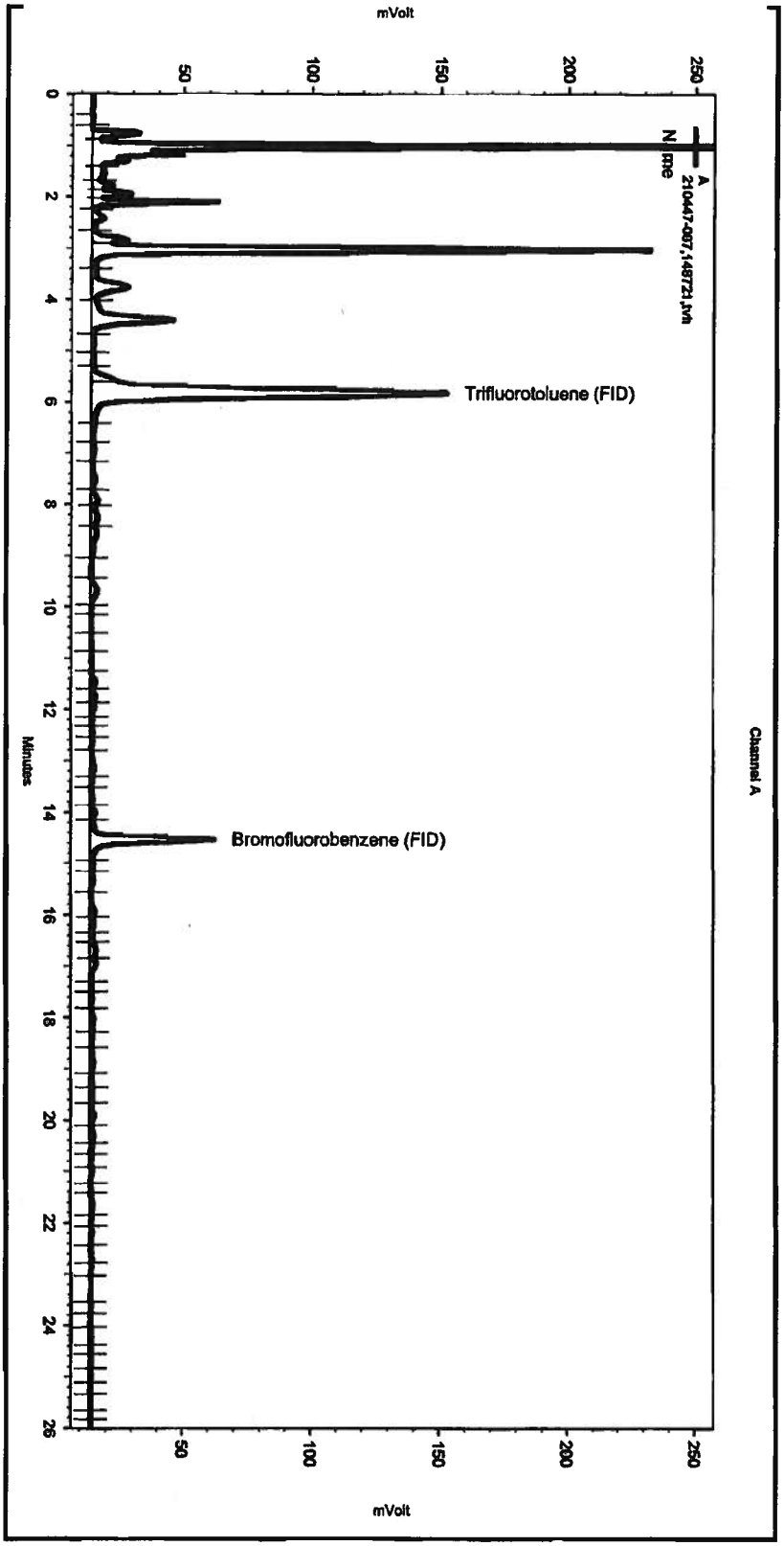
Sample Name: 210447-007,148721,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\069_015
Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe064.met

Software Version 3.1.7
Run Date: 3/10/2009 9:16:00 PM
Analysis Date: 3/11/2009 9:59:38 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: B1.3



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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\069_015

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.618	0	0

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\069.seq
Sample Name: 210447-009,148721,tvh
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\069_017
Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbbxe064.met

Software Version 3.1.7
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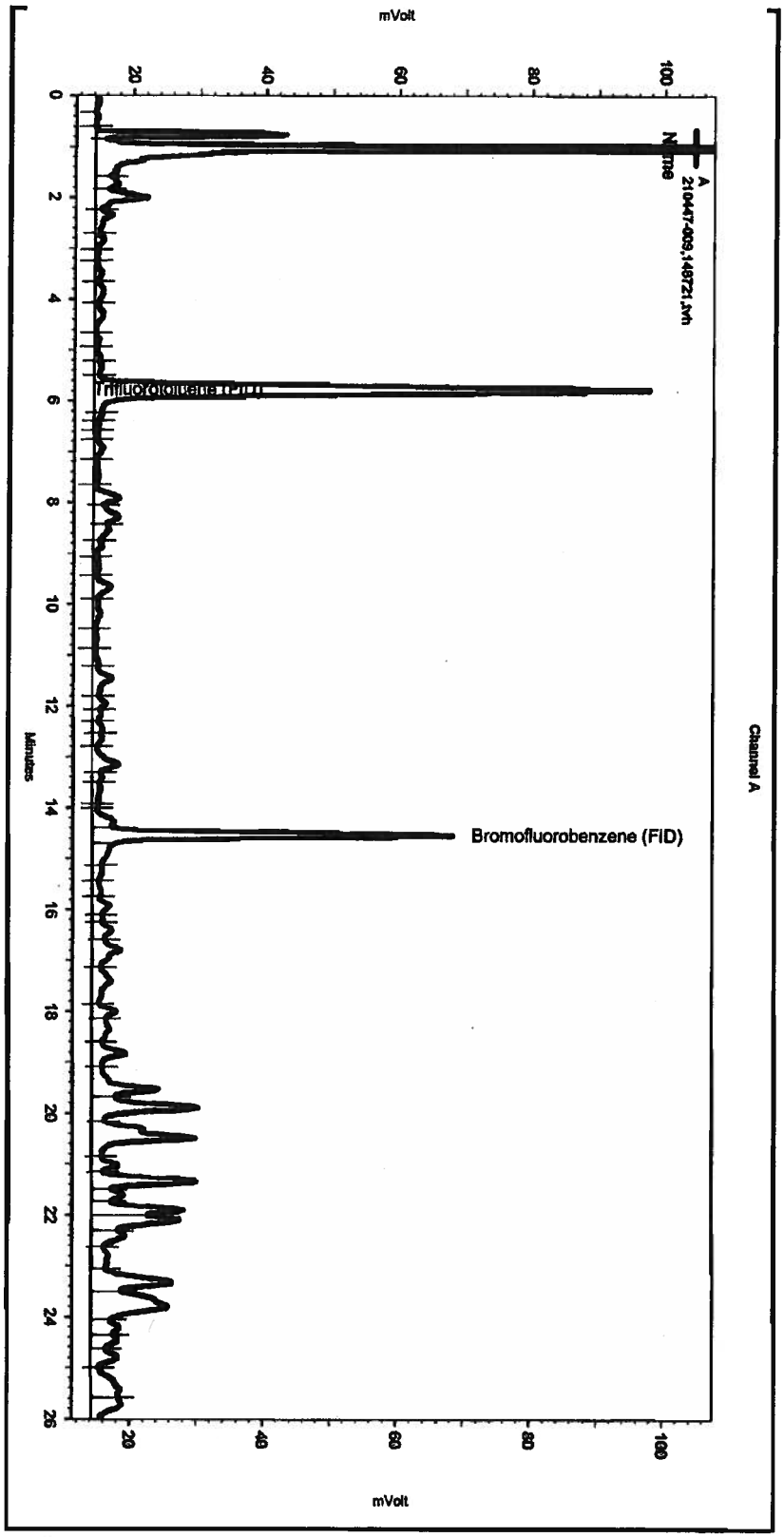
Analysis Date: 3/11/2009 10:01:08 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: B1.3



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\069_017

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Lowest Point Horizontal Baseli	0	26.017	0
Yes	Split Peak	14.703	0	0

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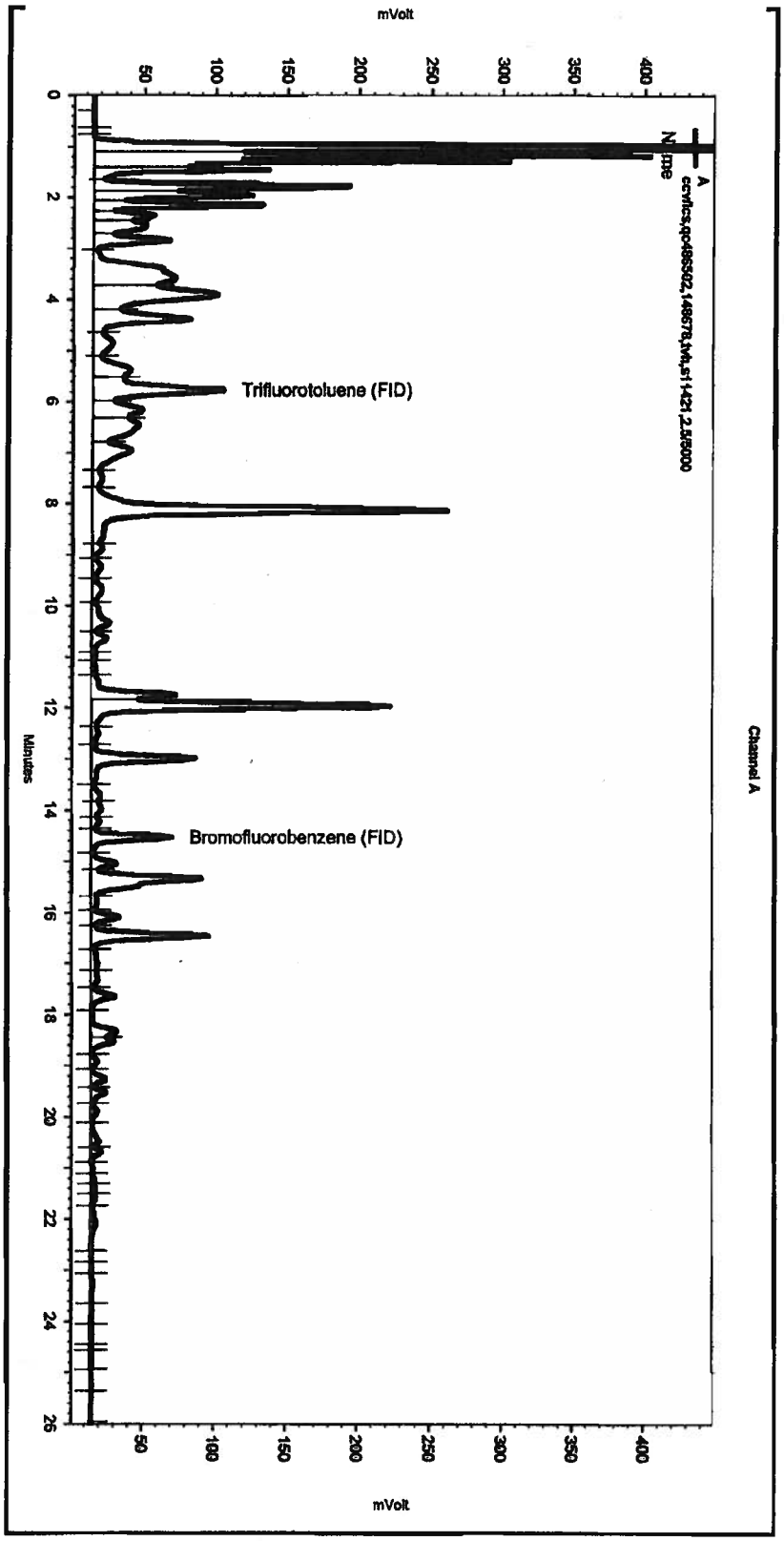
Sample Name: ccv/lcs,qc486502,148678,tvh,s11421,2.5/5000
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\068_004
Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe064.met

Software Version 3.1.7
Run Date: 3/9/2009 12:41:53 PM
Analysis Date: 3/10/2009 7:20:59 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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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\068_004

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000	Prepared:	03/06/09
Batch#:	148634	Analyzed:	03/10/09

Field ID: MW-2 Lab ID: 210447-001
Type: SAMPLE Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	90	61-127

Field ID: MW-4 Lab ID: 210447-002
Type: SAMPLE Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	74	61-127

Field ID: MW-4DUP Lab ID: 210447-003
Type: SAMPLE Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	86	61-127

Field ID: MW-5 Lab ID: 210447-004
Type: SAMPLE Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	96	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000	Prepared:	03/06/09
Batch#:	148634	Analyzed:	03/10/09

Field ID: MW-8A
Type: SAMPLE
Lab ID: 210447-005
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	51 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	91	61-127

Field ID: MW-9
Type: SAMPLE
Lab ID: 210447-006
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	310 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	94	61-127

Field ID: MW-10
Type: SAMPLE
Lab ID: 210447-007
Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	110 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	88	61-127

Field ID: MW-11
Type: SAMPLE
Lab ID: 210447-008
Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	77	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	03/04/09
Units:	ug/L	Received:	03/04/09
Diln Fac:	1.000	Prepared:	03/06/09
Batch#:	148634	Analyzed:	03/10/09

Field ID: MW-12 Lab ID: 210447-009
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	550 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	82	61-127

Field ID: QCEB-030409 Lab ID: 210447-010
Type: SAMPLE Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	88	61-127

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC486325

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

Surrogate	%REC	Limits
o-Terphenyl	106	61-127

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-06	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	148634
Units:	ug/L	Prepared:	03/06/09
Diln Fac:	1.000	Analyzed:	03/10/09

Type: BS
Lab ID: QC486326
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	1,911	76	50-120

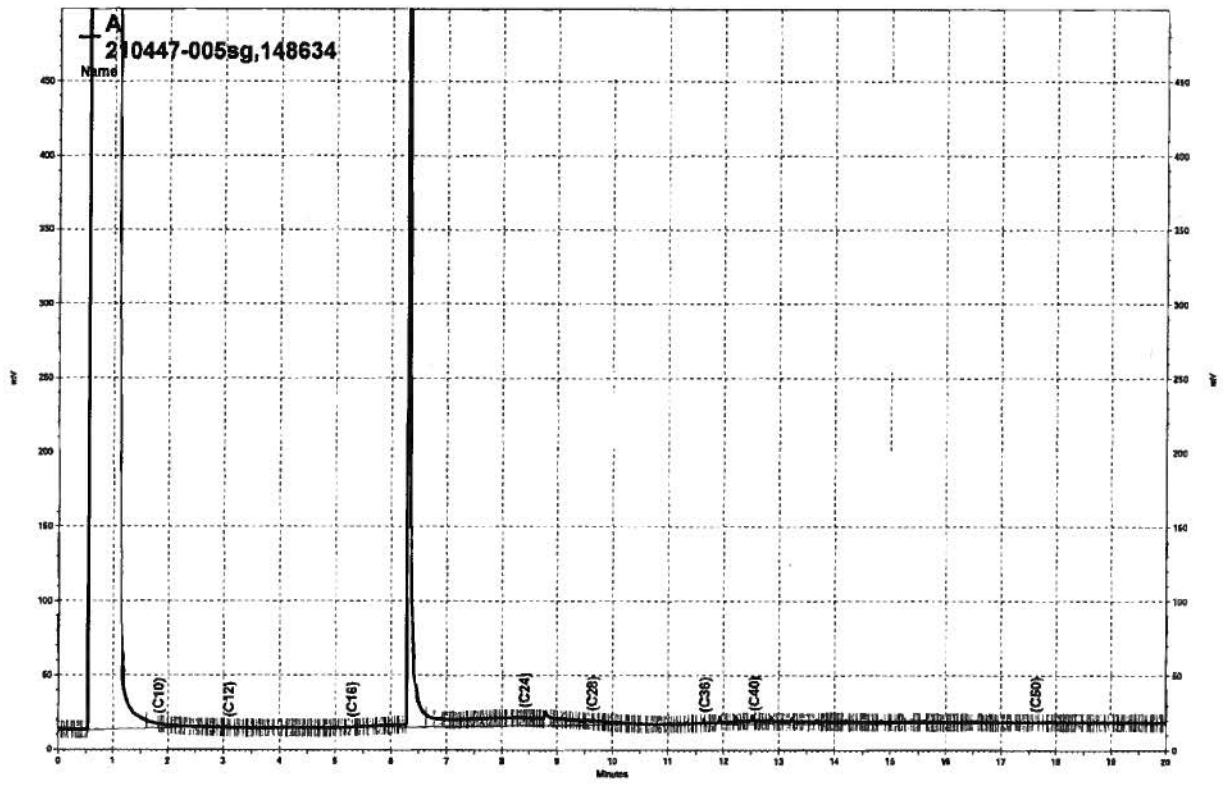
Surrogate	%REC	Limits
o-Terphenyl	98	61-127

Type: BSD
Lab ID: QC486327
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	1,867	75	50-120	2	37

Surrogate	%REC	Limits
o-Terphenyl	94	61-127

RPD= Relative Percent Difference



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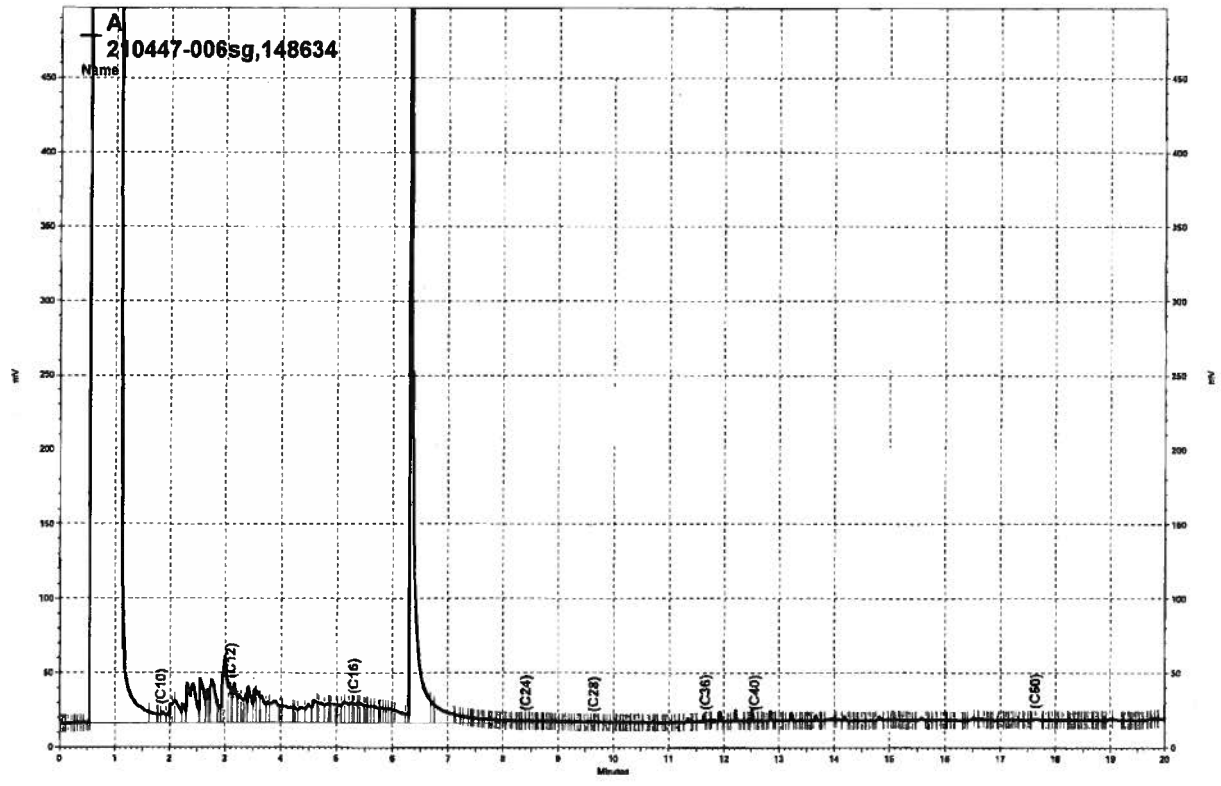

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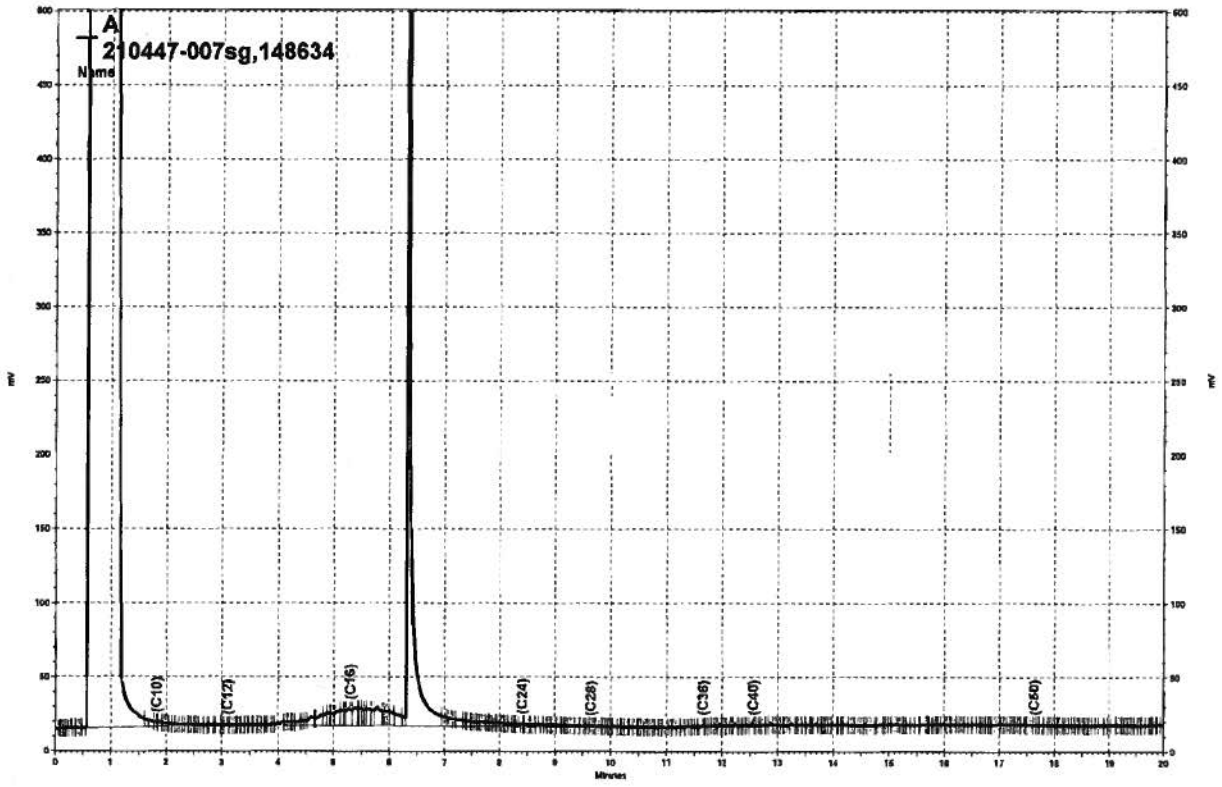

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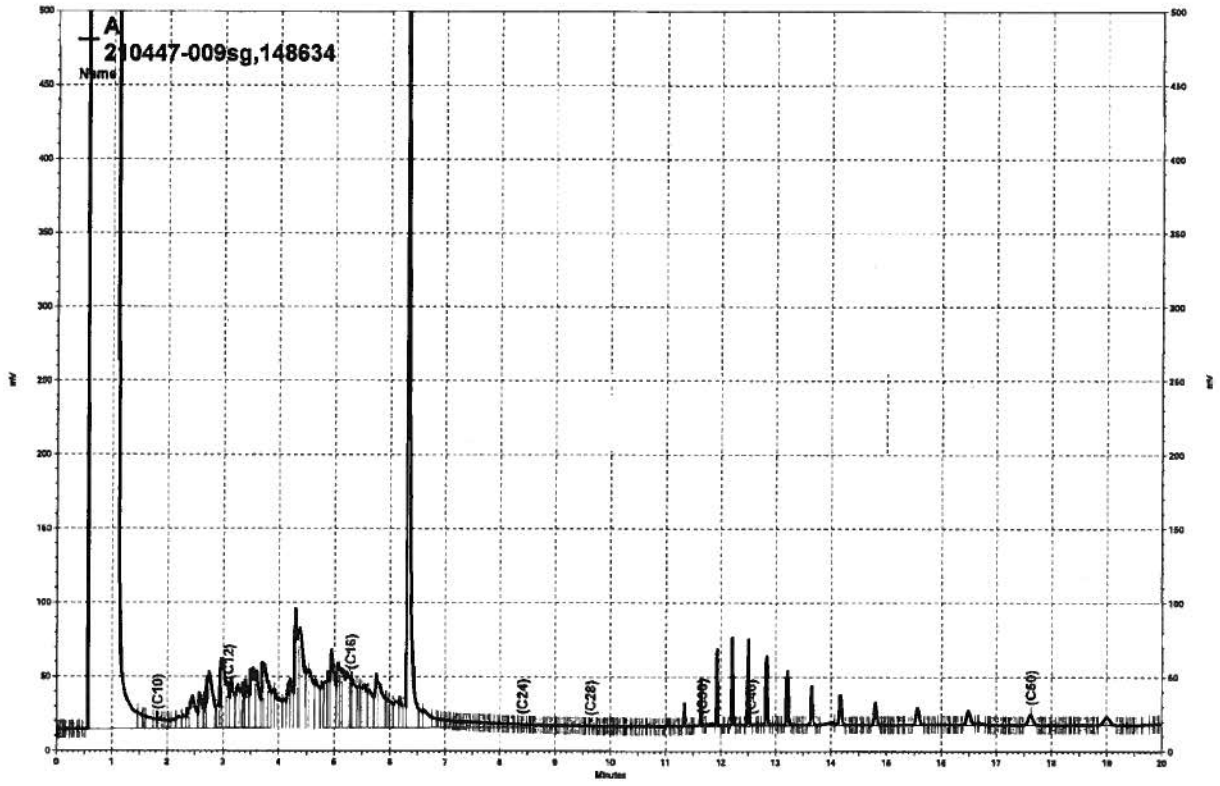

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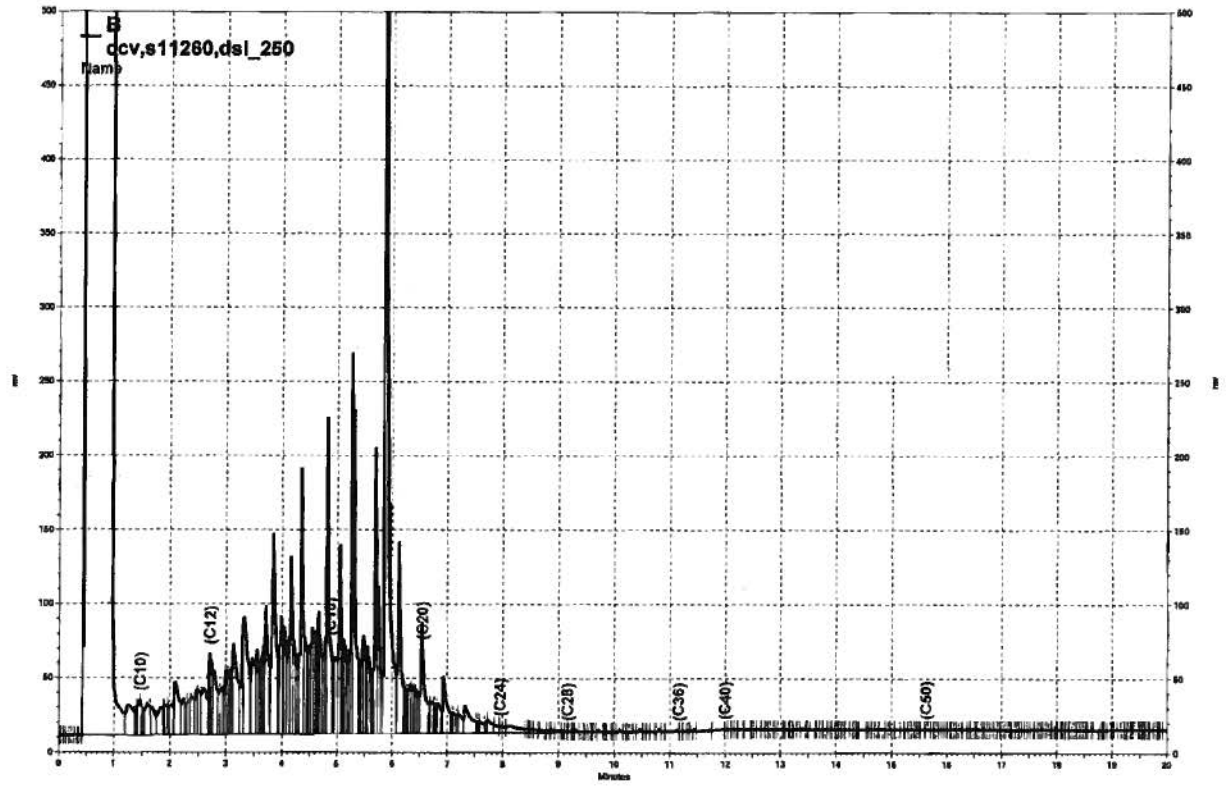

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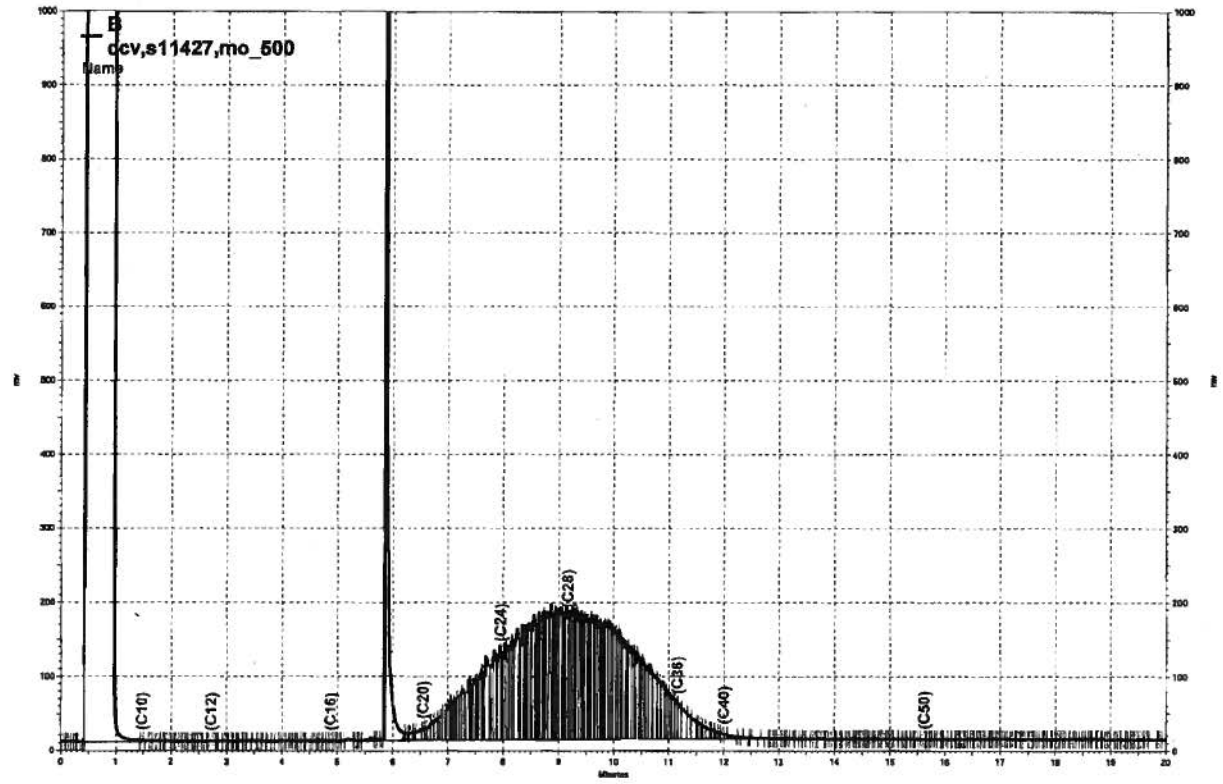

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Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	148752
Lab ID:	210447-001	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
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	104	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	115	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	148752
Lab ID:	210447-002	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	3.8	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	109	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	116	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-4DUP	Batch#:	148757
Lab ID:	210447-003	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	4.4	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	111	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	148757
Lab ID:	210447-004	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
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	112	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	98	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	148757
Lab ID:	210447-005	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
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	112	77-137
Toluene-d8	96	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-9	Batch#:	148798
Lab ID:	210447-006	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/12/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	44	0.5
Toluene	ND	0.5
Ethylbenzene	0.6	0.5
m,p-Xylenes	0.6	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	110	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-10	Batch#:	148798
Lab ID:	210447-007	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/12/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	11	0.5
Toluene	ND	0.5
Ethylbenzene	0.5	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	148757
Lab ID:	210447-008	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
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	111	77-137
Toluene-d8	96	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	MW-12	Batch#:	148757
Lab ID:	210447-009	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	4.8	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	112	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	95	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	QCEB-030409	Batch#:	148757
Lab ID:	210447-010	Sampled:	03/04/09
Matrix:	Water	Received:	03/04/09
Units:	ug/L	Analyzed:	03/11/09
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	111	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC486826	Batch#:	148752
Matrix:	Water	Analyzed:	03/11/09
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	106	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	118	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC486840	Batch#:	148752
Matrix:	Water	Analyzed:	03/11/09
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	97	77-137
Toluene-d8	105	80-120
Bromofluorobenzene	109	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC486843	Batch#:	148757
Matrix:	Water	Analyzed:	03/11/09
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	110	77-137
Toluene-d8	96	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC487007	Batch#:	148798
Matrix:	Water	Analyzed:	03/12/09
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	109	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	99	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	148752
Units:	ug/L	Analyzed:	03/11/09
Diln Fac:	1.000		

Type: BS Lab ID: QC486824

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	18.19	91	73-122
Benzene	20.00	19.17	96	80-120
Toluene	20.00	17.94	90	80-120
Ethylbenzene	20.00	21.36	107	80-121
m,p-Xylenes	40.00	40.18	100	80-122
o-Xylene	20.00	19.88	99	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	108	80-125

Type: BSD Lab ID: QC486825

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	18.03	90	73-122	1	20
Benzene	20.00	19.39	97	80-120	1	20
Toluene	20.00	17.92	90	80-120	0	20
Ethylbenzene	20.00	20.07	100	80-121	6	20
m,p-Xylenes	40.00	38.26	96	80-122	5	20
o-Xylene	20.00	19.59	98	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	105	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	107	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	148752
MSS Lab ID:	210468-005	Sampled:	03/05/09
Matrix:	Water	Received:	03/06/09
Units:	ug/L	Analyzed:	03/12/09
Diln Fac:	5.000		

Type: MS Lab ID: QC486877

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.5000	125.0	125.2	100	73-124
Benzene	<0.5000	125.0	125.2	100	80-122
Toluene	<0.5000	125.0	120.9	97	80-121
Ethylbenzene	<0.5000	125.0	136.6	109	80-121
m,p-Xylenes	<0.5473	250.0	256.7	103	80-120
o-Xylene	<0.5000	125.0	131.5	105	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	106	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	106	80-125

Type: MSD Lab ID: QC486878

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	125.0	122.6	98	73-124	2	20
Benzene	125.0	120.6	96	80-122	4	20
Toluene	125.0	118.1	94	80-121	2	20
Ethylbenzene	125.0	128.4	103	80-121	6	20
m,p-Xylenes	250.0	250.7	100	80-120	2	20
o-Xylene	125.0	129.8	104	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	104	80-120
Bromofluorobenzene	103	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	148757
Units:	ug/L	Analyzed:	03/11/09
Diln Fac:	1.000		

Type: BS Lab ID: QC486844

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	15.04	75	73-122
Benzene	20.00	20.31	102	80-120
Toluene	20.00	20.67	103	80-120
Ethylbenzene	20.00	22.11	111	80-121
m,p-Xylenes	40.00	44.94	112	80-122
o-Xylene	20.00	21.74	109	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	98	80-125

Type: BSD Lab ID: QC486845

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	15.08	75	73-122	0	20
Benzene	20.00	20.11	101	80-120	1	20
Toluene	20.00	20.35	102	80-120	2	20
Ethylbenzene	20.00	21.68	108	80-121	2	20
m,p-Xylenes	40.00	44.65	112	80-122	1	20
o-Xylene	20.00	21.31	107	80-120	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	148798
Units:	ug/L	Analyzed:	03/12/09
Diln Fac:	1.000		

Type: BS Lab ID: QC487005

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	16.39	82	73-122
Benzene	20.00	18.92	95	80-120
Toluene	20.00	18.53	93	80-120
Ethylbenzene	20.00	19.72	99	80-121
m,p-Xylenes	40.00	40.39	101	80-122
o-Xylene	20.00	19.64	98	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	97	80-125

Type: BSD Lab ID: QC487006

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	16.07	80	73-122	2	20
Benzene	20.00	18.16	91	80-120	4	20
Toluene	20.00	18.38	92	80-120	1	20
Ethylbenzene	20.00	19.55	98	80-121	1	20
m,p-Xylenes	40.00	39.84	100	80-122	1	20
o-Xylene	20.00	19.25	96	80-120	2	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	100	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	97	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC487020	Batch#:	148798
Matrix:	Water	Analyzed:	03/12/09
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	104	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	93	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	210447	Location:	Harbor Facilities Center
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-06	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	148798
MSS Lab ID:	210442-013	Sampled:	03/04/09
Matrix:	Water	Received:	03/05/09
Units:	ug/L	Analyzed:	03/13/09
Diln Fac:	1.000		

Type: MS Lab ID: QC487021

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.1000	25.00	21.36	85	73-124
Benzene	<0.1000	25.00	23.85	95	80-122
Toluene	<0.1000	25.00	23.74	95	80-121
Ethylbenzene	<0.1000	25.00	25.51	102	80-121
m,p-Xylenes	<0.1595	50.00	50.05	100	80-120
o-Xylene	<0.1000	25.00	24.77	99	80-120

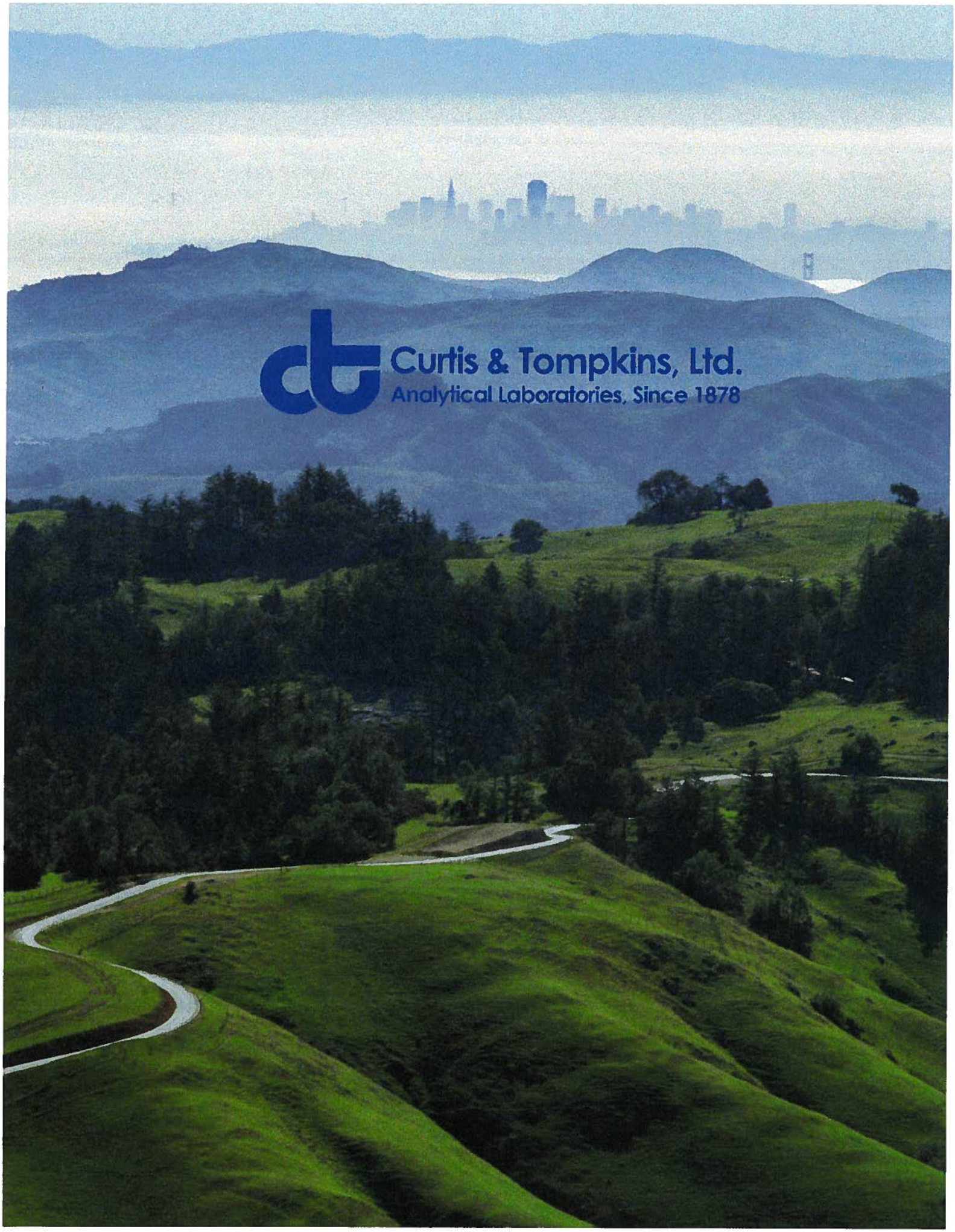
Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	94	80-125

Type: MSD Lab ID: QC487022

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	21.86	87	73-124	2	20
Benzene	25.00	24.01	96	80-122	1	20
Toluene	25.00	24.26	97	80-121	2	20
Ethylbenzene	25.00	25.03	100	80-121	2	20
m,p-Xylenes	50.00	50.54	101	80-120	1	20
o-Xylene	25.00	24.96	100	80-120	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	94	80-125

RPD= Relative Percent Difference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2323 Fifth Street, Berkeley, CA 94710. Phone (510) 486-0900

Laboratory Job Number 212970
ANALYTICAL REPORT

Malcolm Pirnie,Inc.	Project : 4656016
2000 Powell St.	Location : Port Of Oakland - HFC
Emeryville, CA 94608	Level : II

Sample ID	Lab ID
MW-2	212970-001
MW-11	212970-002
MW-10	212970-003
MW-9	212970-004
MW-5	212970-005
MW-4	212970-006
MW-8A	212970-007
MW-12	212970-008
FD-061709	212970-009
TRIP BLANK	212970-010

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

Signature: _____ Date: 06/25/2009
Project Manager

Signature: _____ Date: 06/26/2009
Senior Program Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**212970**
Client:	**Malcolm Pirnie,Inc.**
Project:	**4656016**
Location:	**Port Of Oakland - HFC**
Request Date:	**06/18/09, 06/19/09**
Samples Received:	**06/18/09, 06/19/09**

This data package contains sample and QC results for ten water samples, requested for the above referenced project on 06/18/09 and 06/19/09. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
TRIP BLANK (lab # 212970-010) was analyzed with more than 1 mL of headspace in the VOA vial. No other analytical problems were encountered.

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

CHAIN OF CUSTODY

C & T LOGIN #: 212470

Sampler: Lyda Haker/Caroline Orsi

Project No.: 4652.016 Report To: Todd Miller/Lyda Haker

Project Name: Port of Oakland-HFC Company: Malcolm Pirnie

Project P.O.: Telephone: 510.596.3060

Turnaround Time: Std Fax: 510.596.8855

Bill to: Port of Oakland Attn Jess Rubin

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO_4	HNO_3	ICE	Analysis: TPH-g 8015	TPH-d/mo 8015 w/silica gel	BTEX+MTBE 8260
1	MW-2*	6/17/09 8:50		X		7	X			X	X	X	X
*	MW-11 Arrived broken	6/17/09 9:30											
3	MW-10*	6/17/09 10:45											
*	MW-9	6/17/09 11:00											
*	MW-5	6/17/09 11:50											
*	MW-4	6/17/09 12:00											
7	MW-8A*	6/17/09 12:55											
8	MW-12*	6/17/09 13:45											
9	FD-06170901*	6/17/09 13:45											
10	TRIP BLANK	6/17/09											X

Added TPH-d

Notes: SAMPLES SITTING in H_2O 2 labels fell off Ambers. AG

SAMPLE RECEIPT: ☒ Intact ☐ Cold ☒ On Ice ☐ Ambient

Preservative Correct? ☐ Yes ☐ No ☐ N/A

RELINQUISHED BY: 06/18/09 930 DATE / TIME

DATE / TIME

DATE / TIME

SIGNATURE

RECEIVED BY: 6/18/09 931 DATE / TIME

DATE / TIME

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 #: 212470

Project No.: 41656.016
Project Name: Port-HFC resample
Project P.O.:
Turnaround Time: std

Sampler: L Haker/C Orsi
Report To: Todd Miller
Company: MalcolmPirnie
Telephone: 510.596.3060
Fax: 510.596.8855

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO_4	HNO_3	ICE	Analysis: TPH-d/mo 8015 silica gel	TPH-g +BTEX +MTBE 8015/8260
6	MW-4	6/19/09 1130		X		4	X			X	X	X
5	MW-5	6/19/09 1305		X		4	X			X	X	X
4	MW-9	6/19/09 1410		X		4	X			X	X	X
2	MW-11	6/19/09 1455		X		4	X			X	X	X
11	Trip Blank-061909	6/19/09 1500		X		1				X		X

Notes:

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

RELINQUISHED BY: 06/19/09 1547 DATE / TIME

RECEIVED BY: 06/19/09 1547 DATE / TIME

DATE / TIME

DATE / TIME

DATE / TIME

DATE / TIME

SIGNATURE

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 212970 Date Received 6-19-9 Number of coolers 1
Client MALCOM PIRNIE Project PORT HFL

Date Opened 6-19-9 By (print) S EVANS (sign)
Date Logged in J By (print) J (sign) J

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) 1.5

☐ 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

THIS RECEIPT IS FOR THE SAMPLES ON COC # 2 THAT WERE RESAMPLED.

Analyze the trip blank for MBTEX only. (Not TPH)

SOP Volume: Client Services
Section: 1.1.2
Page: 1 of 1

Rev. 6 Number 1 of 3
Effective: 23 July 2008
Z:\qc\forms\checklists\Cooler Receipt Checklist_rv6.doc

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 212970 Date Received 6-18-9 Number of coolers 1
Client MALCOLM PERRIE Project HFC PORT OF OAK

Date Opened 6-18-9 By (print) TRACY B. (sign)
Date Logged in 6/19/9 By (print) S. EVANS (sign)

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) melted ice at bottom of cooler in 1

☐ 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) 2 temp blanks in 1 cooler 14.0°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 (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? Todd Miller By Tracy B. Date: 6-18-09

COMMENTS

MW-11 1L arrived broken, 1L amber unlabeled
2-1L ambers not filled up. 2 labels floating in melted ice = MW-5 & MW-9. No sample or label for MW-4

Client will resample MW-11, MW-9, MW-5 & MW-4

SOP Volume: Client Services
Section: 1.1.2
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Effective: 23 July 2008
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Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Batch#:	152198

Field ID:	MW-2	Sampled:	06/17/09
Type:	SAMPLE	Received:	06/18/09
Lab ID:	212970-001	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	82	63-146
Bromofluorobenzene (FID)	82	70-140

Field ID:	MW-11	Sampled:	06/19/09
Type:	SAMPLE	Received:	06/19/09
Lab ID:	212970-002	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	81	63-146
Bromofluorobenzene (FID)	84	70-140

Field ID:	MW-10	Sampled:	06/17/09
Type:	SAMPLE	Received:	06/18/09
Lab ID:	212970-003	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	90 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	63-146
Bromofluorobenzene (FID)	96	70-140

Field ID:	MW-9	Sampled:	06/19/09
Type:	SAMPLE	Received:	06/19/09
Lab ID:	212970-004	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	240 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	93	63-146
Bromofluorobenzene (FID)	97	70-140

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

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Batch#:	152198

Field ID:	MW-5	Sampled:	06/19/09
Type:	SAMPLE	Received:	06/19/09
Lab ID:	212970-005	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	81	63-146
Bromofluorobenzene (FID)	87	70-140

Field ID:	MW-4	Sampled:	06/19/09
Type:	SAMPLE	Received:	06/19/09
Lab ID:	212970-006	Analyzed:	06/20/09

Analyte	Result	RL
Gasoline C7-C12	69 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	85	63-146
Bromofluorobenzene (FID)	89	70-140

Field ID:	MW-8A	Sampled:	06/17/09
Type:	SAMPLE	Received:	06/18/09
Lab ID:	212970-007	Analyzed:	06/21/09

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	79	63-146
Bromofluorobenzene (FID)	87	70-140

Field ID:	MW-12	Sampled:	06/17/09
Type:	SAMPLE	Received:	06/18/09
Lab ID:	212970-008	Analyzed:	06/21/09

Analyte	Result	RL
Gasoline C7-C12	64 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	82	63-146
Bromofluorobenzene (FID)	97	70-140

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

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Diln Fac:	1.000
Units:	ug/L	Batch#:	152198

Field ID:	FD-061709	Sampled:	06/17/09
Type:	SAMPLE	Received:	06/18/09
Lab ID:	212970-009	Analyzed:	06/21/09

Analyte	Result	RL
Gasoline C7-C12	67 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	82	63-146
Bromofluorobenzene (FID)	100	70-140

Type:	BLANK	Analyzed:	06/20/09
Lab ID:	QC500848		

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	84	63-146
Bromofluorobenzene (FID)	81	70-140

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC500851	Batch#:	152198
Matrix:	Water	Analyzed:	06/20/09
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	859.5	86	76-121

Surrogate	%REC	Limits
Trifluorotoluene (FID)	114	63-146
Bromofluorobenzene (FID)	102	70-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8015B
Field ID:	MW-2	Batch#:	152198
MSS Lab ID:	212970-001	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/20/09
Diln Fac:	1.000		

Type: MS Lab ID: QC500852

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	26.35	2,000	1,505	74	66-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	132	63-146
Bromofluorobenzene (FID)	114	70-140

Type: MSD Lab ID: QC500853

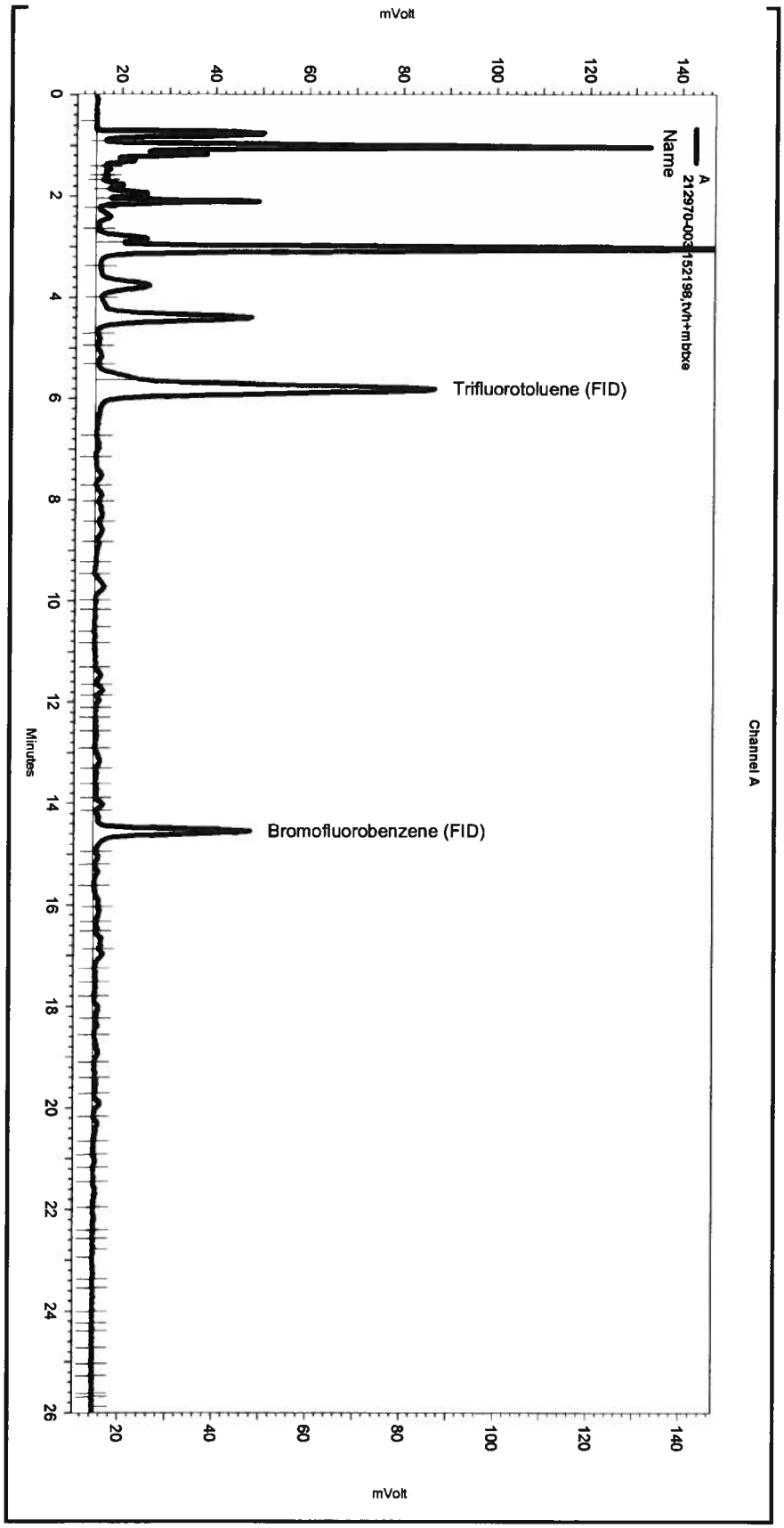
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	1,500	74	66-120	0	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	136	63-146
Bromofluorobenzene (FID)	120	70-140

RPD= Relative Percent Difference

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq**
Sample Name: **212970-003,152198,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC04\Data\171_022**
Instrument: GC04 (Offline) Vial: N/A Operator: Weldon Hall (lims2k3\weldon)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
Run Date: 6/20/2009 9:20:25 PM
Analysis Date: 6/22/2009 10:44:02 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3,HS<1ml



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Integration Events

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

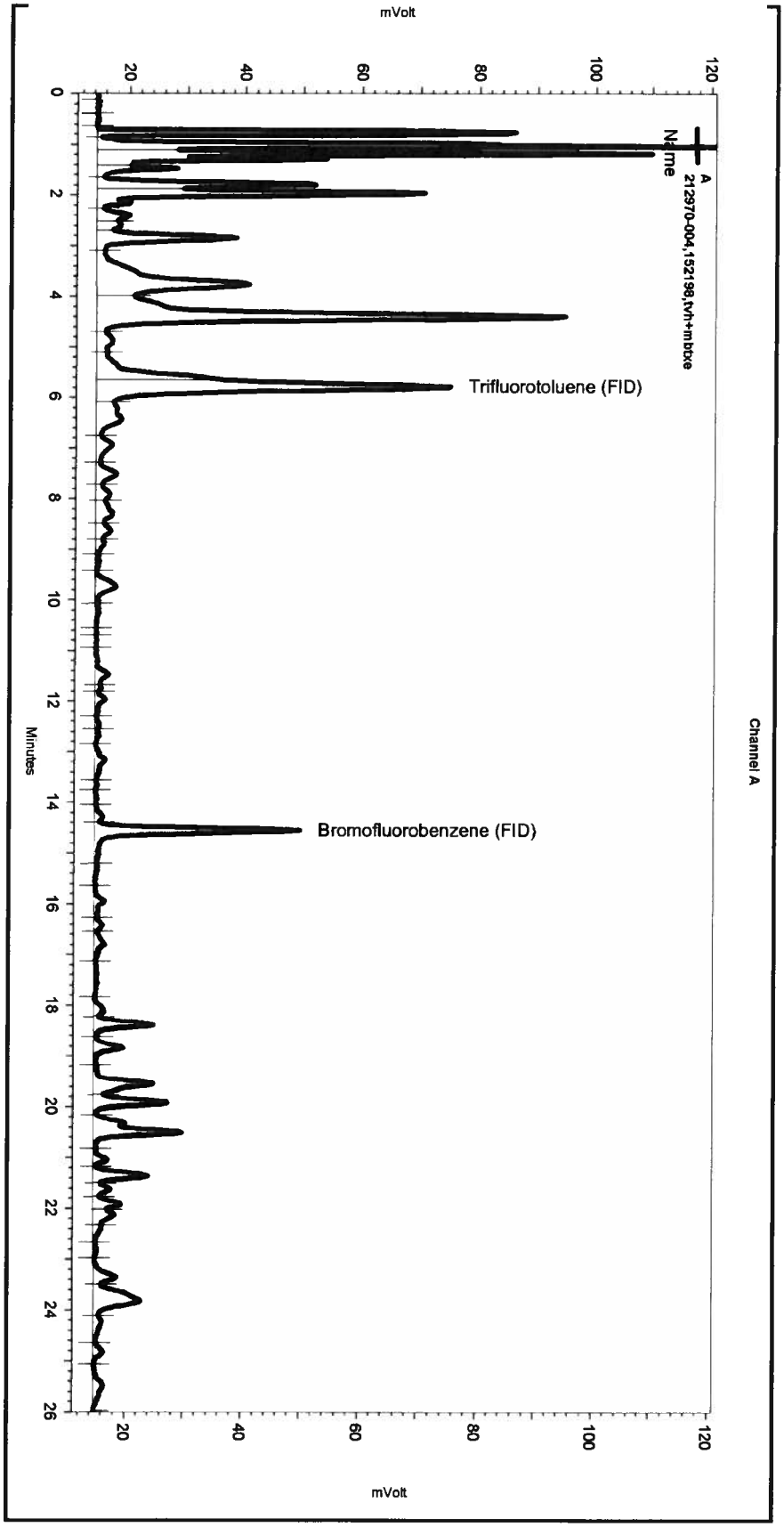
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\171_022

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.635	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq**
Sample Name: **212970-004,152198,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC04\Data\171_023**
Instrument: GC04 (Offline) Vial: N/A Operator: Weldon Hall (lims2k3\weldon)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
Run Date: 6/20/2009 9:58:02 PM
Analysis Date: 6/22/2009 10:44:06 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3



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Integration Events

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

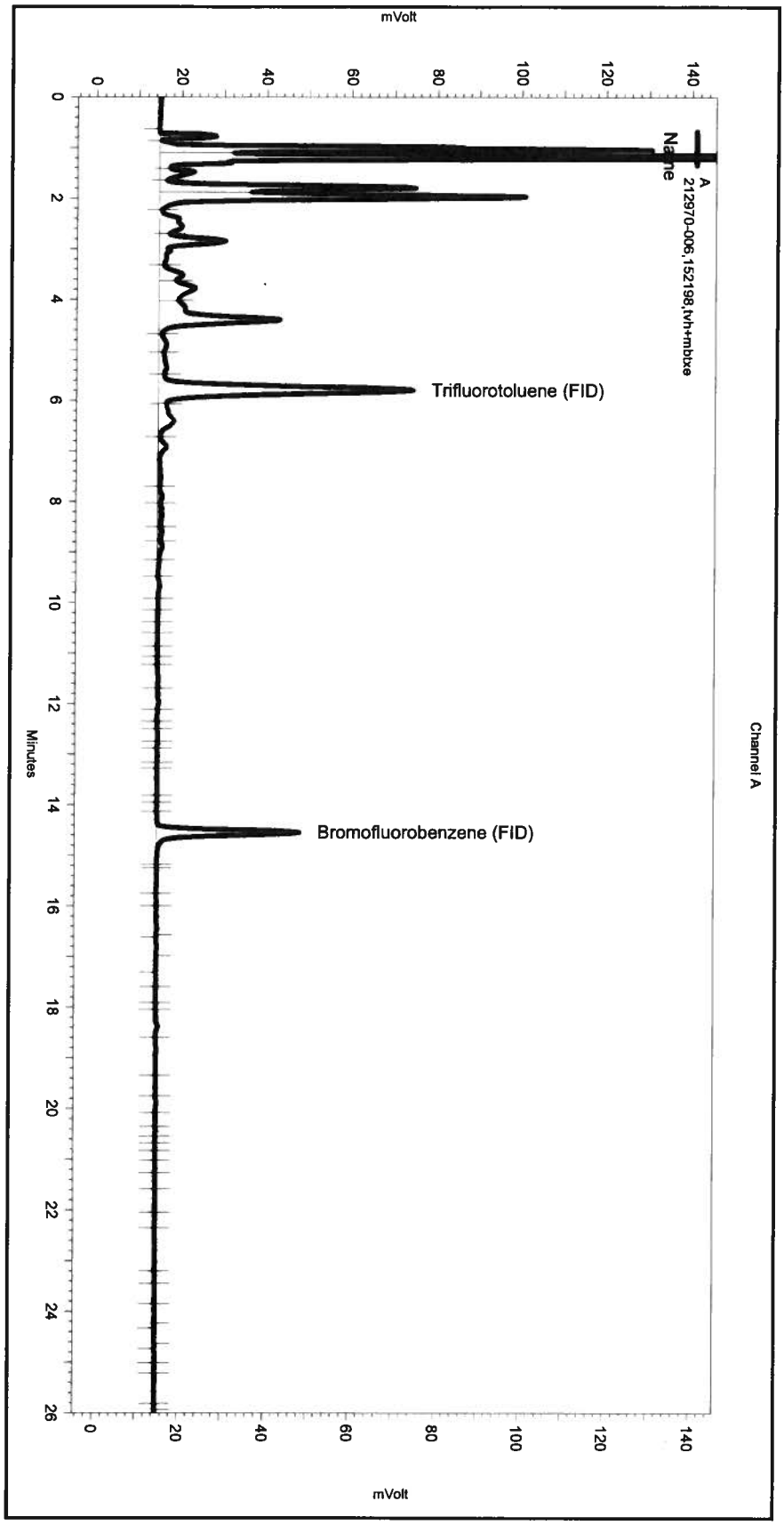
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\171_023

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.648	0	0

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq**
Sample Name: **212970-006,152198,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC04\Data\171_025**
Instrument: GC04 Vial: N/A Operator: lims2k3\tvh3
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
Run Date: 6/20/2009 11:13:10 PM
Analysis Date: 6/20/2009 11:42:38 PM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3



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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\171_025_05FD.tmp

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

Sequence File: **\\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq**
Sample Name: **212970-008,152198,tvh+mbtxe**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC04\Data\171_039**
Instrument: GC04 Vial: N/A Operator: lims2k3\tvh3
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
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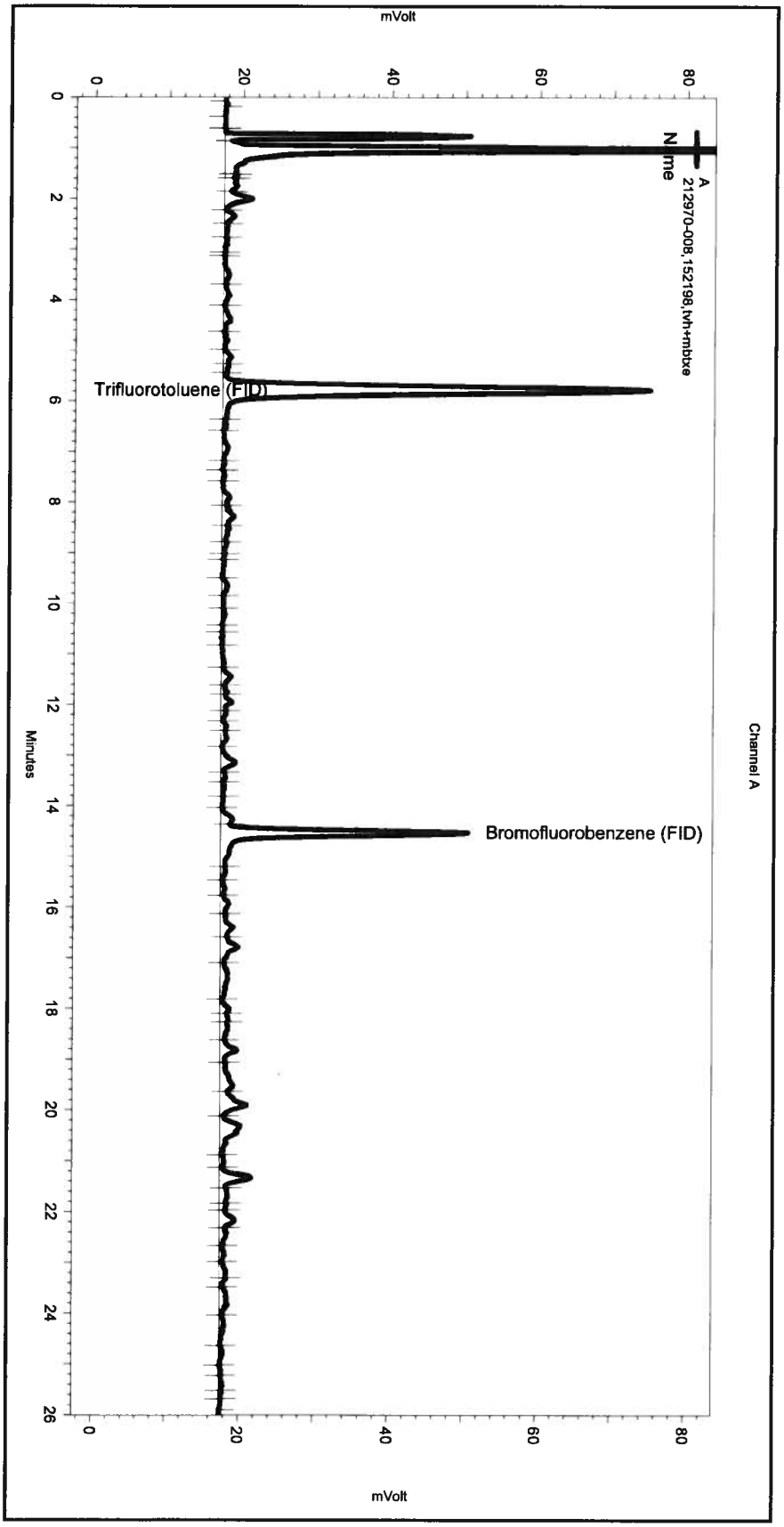
Analysis Date: 6/21/2009 8:28:52 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3,HS<1ml



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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

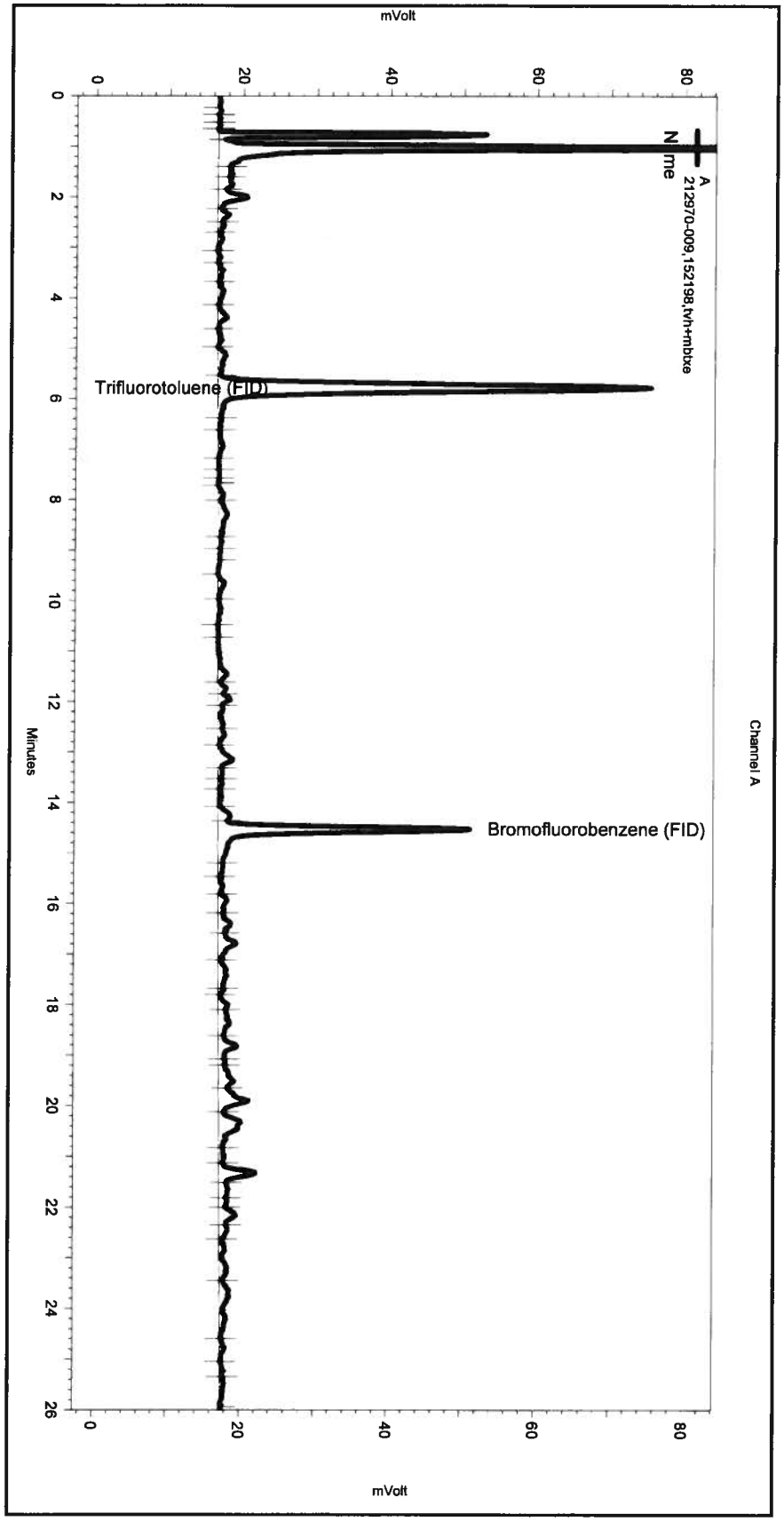
Manual Integration Fixes

Data File: C:\Documents and Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10047\171_039_060B.tmp

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

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq
Sample Name: **212970-009,152198,tvh+mbtxe**
Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\171_038
Instrument: GC04 Vial: N/A Operator: lims2k3\tvh3
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
Run Date: 6/21/2009 7:21:48 AM
Analysis Date: 6/21/2009 7:51:18 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: a1.3,HS<1ml



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Integration Events

Enebled	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 end Settings\All Users\Application Data\ChromatographySystem\Recovery Data\Instrument.10047\171_038_060A.tmp

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

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq
Sample Name: **ccv/lcs,qc500851,152198,tvh,s12128,2.5/5000**
Data File: **\\Lims\gdrive\ezchrom\Projects\GC04\Data\171_006**
Instrument: GC04 (Offline) Vial: N/A Operator: Weldon Hall (lims2k3\weldon)
Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\tvhbtxe162.met

Software Version 3.1.7
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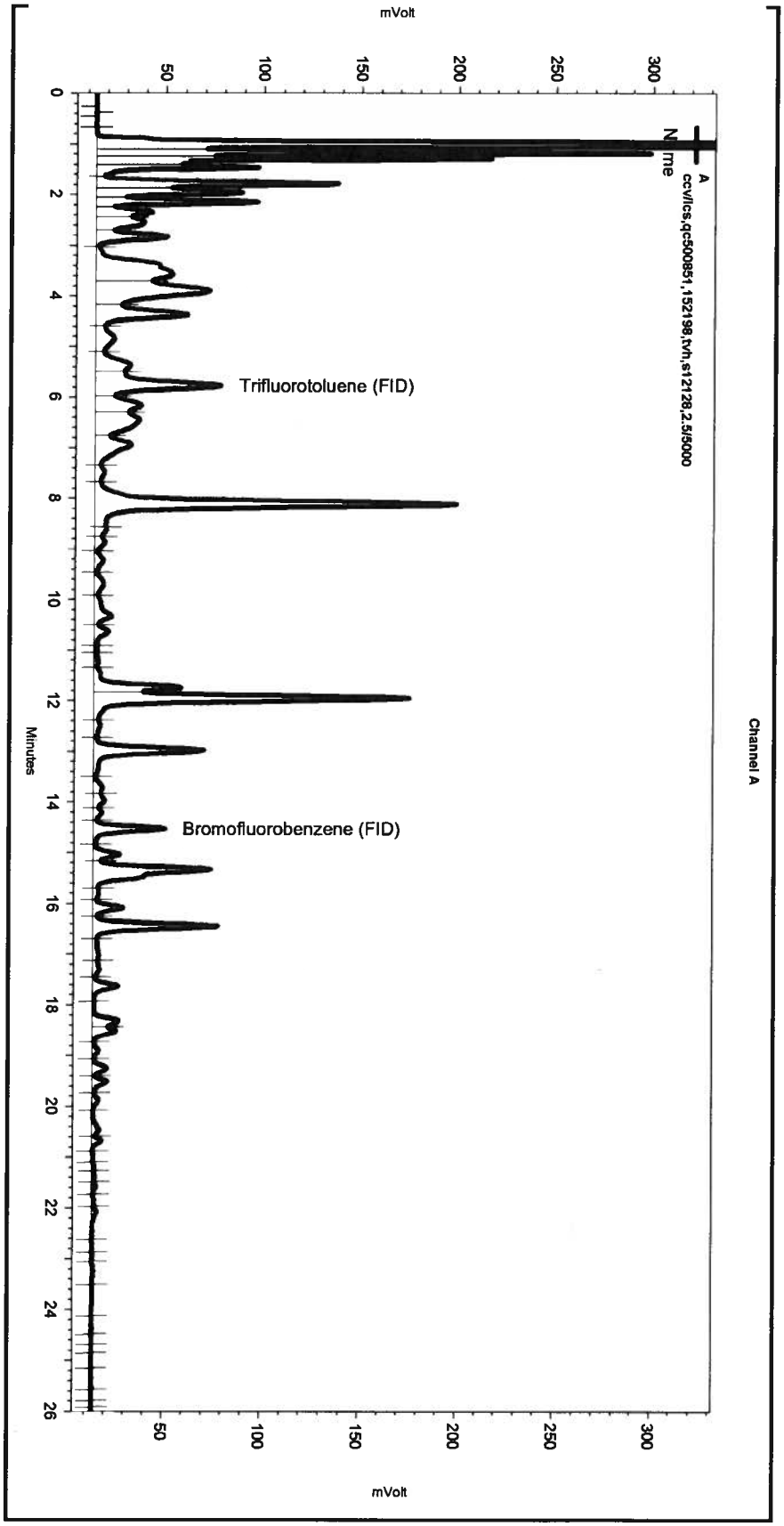
Analysis Date: 6/22/2009 10:19:26 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



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Integration Events

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

Manual Integration Fixes

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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value

None

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 3520C
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	152233
Units:	ug/L	Prepared:	06/22/09
Diln Fac:	1.000		

Field ID:	MW-2	Received:	06/18/09
Type:	SAMPLE	Analyzed:	06/24/09
Lab ID:	212970-001	Cleanup Method:	EPA 3630C
Sampled:	06/17/09		

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

Surrogate	%REC	Limits
o-Terphenyl	119	61-127

Field ID:	MW-11	Received:	06/19/09
Type:	SAMPLE	Analyzed:	06/24/09
Lab ID:	212970-002	Cleanup Method:	EPA 3630C
Sampled:	06/19/09		

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

Surrogate	%REC	Limits
o-Terphenyl	100	61-127

Field ID:	MW-10	Received:	06/18/09
Type:	SAMPLE	Analyzed:	06/24/09
Lab ID:	212970-003	Cleanup Method:	EPA 3630C
Sampled:	06/17/09		

Analyte	Result	RL
Diesel C10-C24	220 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	108	61-127

Field ID:	MW-9	Received:	06/19/09
Type:	SAMPLE	Analyzed:	06/24/09
Lab ID:	212970-004	Cleanup Method:	EPA 3630C
Sampled:	06/19/09		

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

Surrogate	%REC	Limits
o-Terphenyl	106	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 3520C
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	152233
Units:	ug/L	Prepared:	06/22/09
Diln Fac:	1.000		

Field ID:	MW-5	Received:	06/19/09
Type:	SAMPLE	Analyzed:	06/24/09
Lab ID:	212970-005	Cleanup Method:	EPA 3630C
Sampled:	06/19/09		

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

Surrogate	%REC	Limits
o-Terphenyl	108	61-127

Field ID:	MW-4	Received:	06/19/09
Type:	SAMPLE	Analyzed:	06/25/09
Lab ID:	212970-006	Cleanup Method:	EPA 3630C
Sampled:	06/19/09		

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

Surrogate	%REC	Limits
o-Terphenyl	108	61-127

Field ID:	MW-8A	Received:	06/18/09
Type:	SAMPLE	Analyzed:	06/25/09
Lab ID:	212970-007	Cleanup Method:	EPA 3630C
Sampled:	06/17/09		

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

Surrogate	%REC	Limits
o-Terphenyl	86	61-127

Field ID:	MW-12	Received:	06/18/09
Type:	SAMPLE	Analyzed:	06/25/09
Lab ID:	212970-008	Cleanup Method:	EPA 3630C
Sampled:	06/17/09		

Analyte	Result	RL
Diesel C10-C24	310 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	83	61-127

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

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 3520C
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	152233
Units:	ug/L	Prepared:	06/22/09
Diln Fac:	1.000		

Field ID:	FD-061709	Received:	06/18/09
Type:	SAMPLE	Analyzed:	06/25/09
Lab ID:	212970-009	Cleanup Method:	EPA 3630C
Sampled:	06/17/09		

Analyte	Result	RL
Diesel C10-C24	310 Y	50
Motor Oil C24-C36	ND	300

Surrogate	%REC	Limits
o-Terphenyl	85	61-127

Type:	BLANK	Analyzed:	06/24/09
Lab ID:	QC500987	Cleanup Method:	EPA 3630C

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

Surrogate	%REC	Limits
o-Terphenyl	110	61-127

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

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 3520C
Project#:	4656016	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	152233
Units:	ug/L	Prepared:	06/22/09
Diln Fac:	1.000	Analyzed:	06/24/09

Type: BS
Lab ID: QC500988
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,189	88	50-120

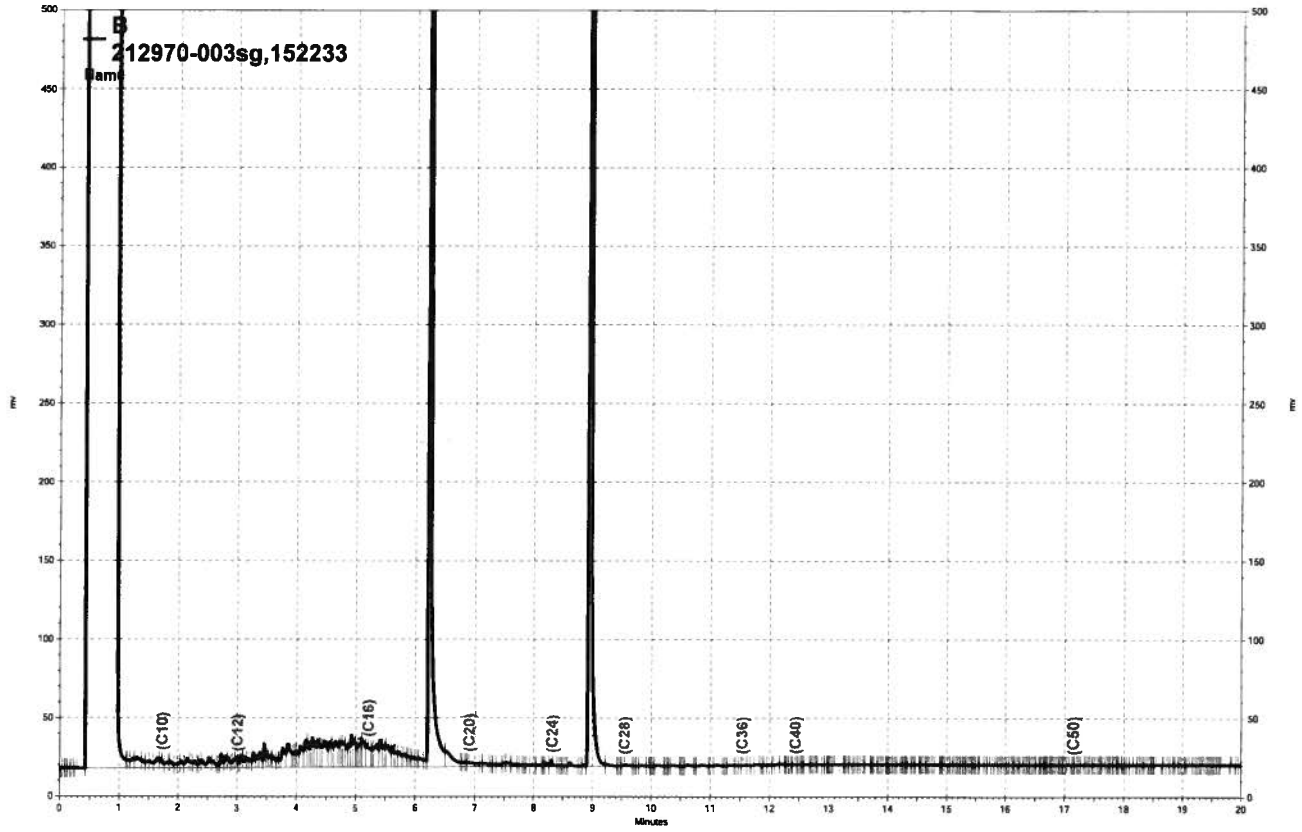
Surrogate	%REC	Limits
o-Terphenyl	103	61-127

Type: BSD
Lab ID: QC500989
Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,395	96	50-120	9	37

Surrogate	%REC	Limits
o-Terphenyl	113	61-127

RPD= Relative Percent Difference



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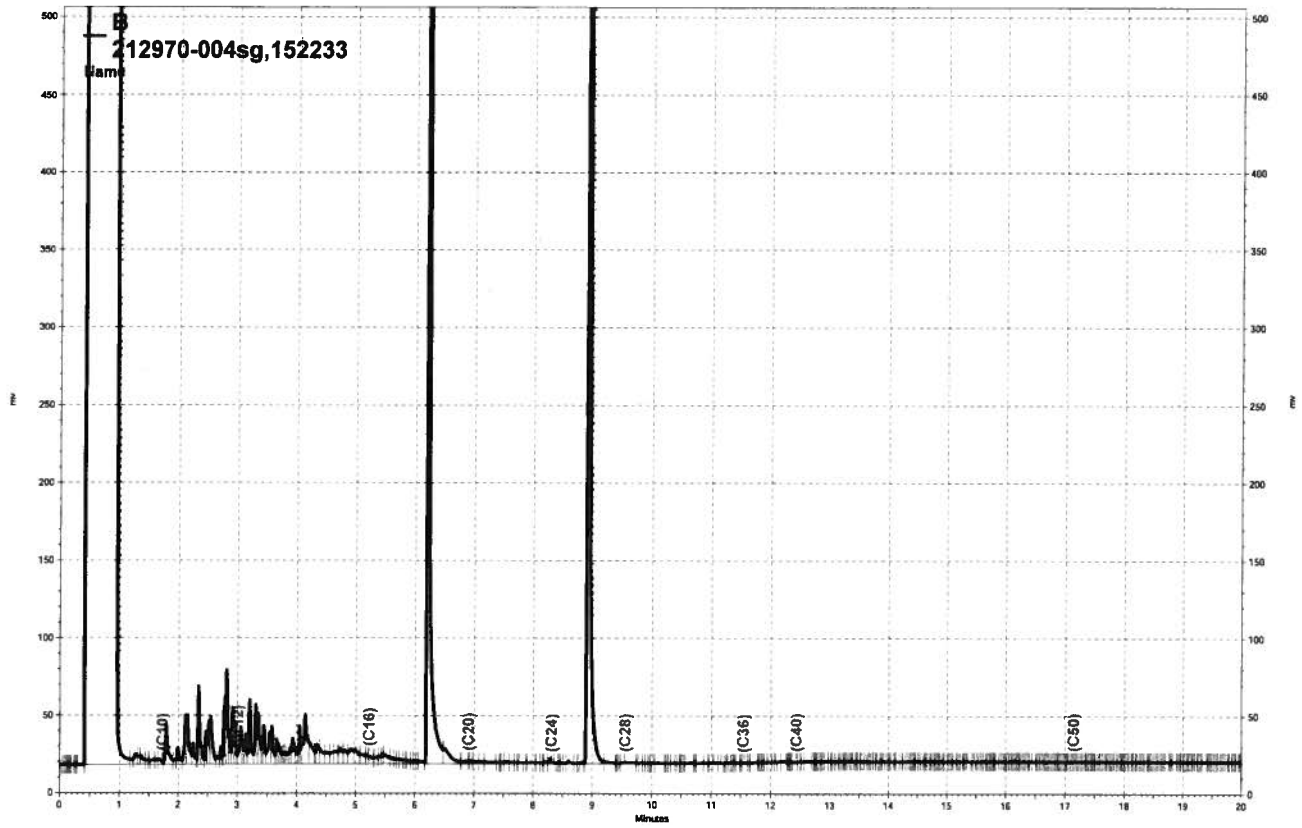

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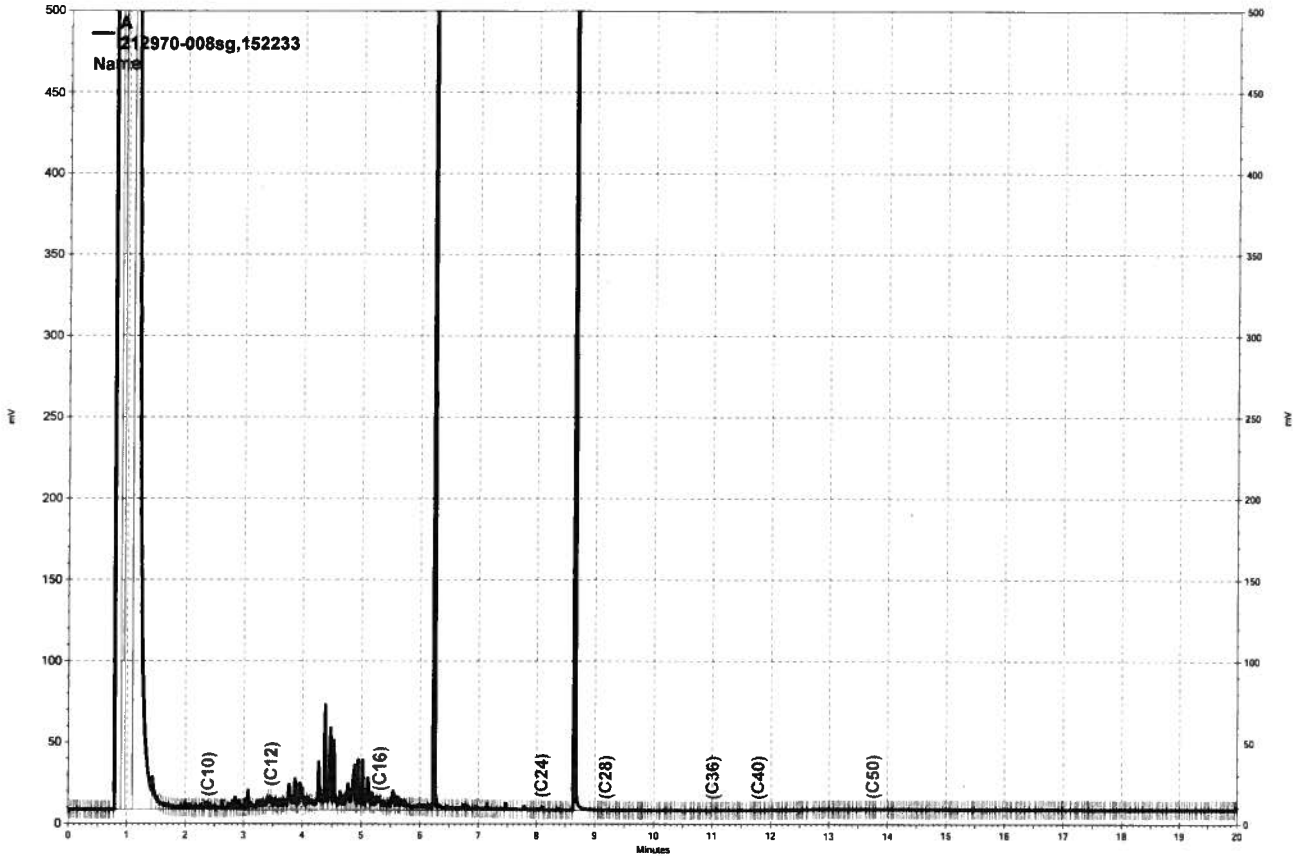

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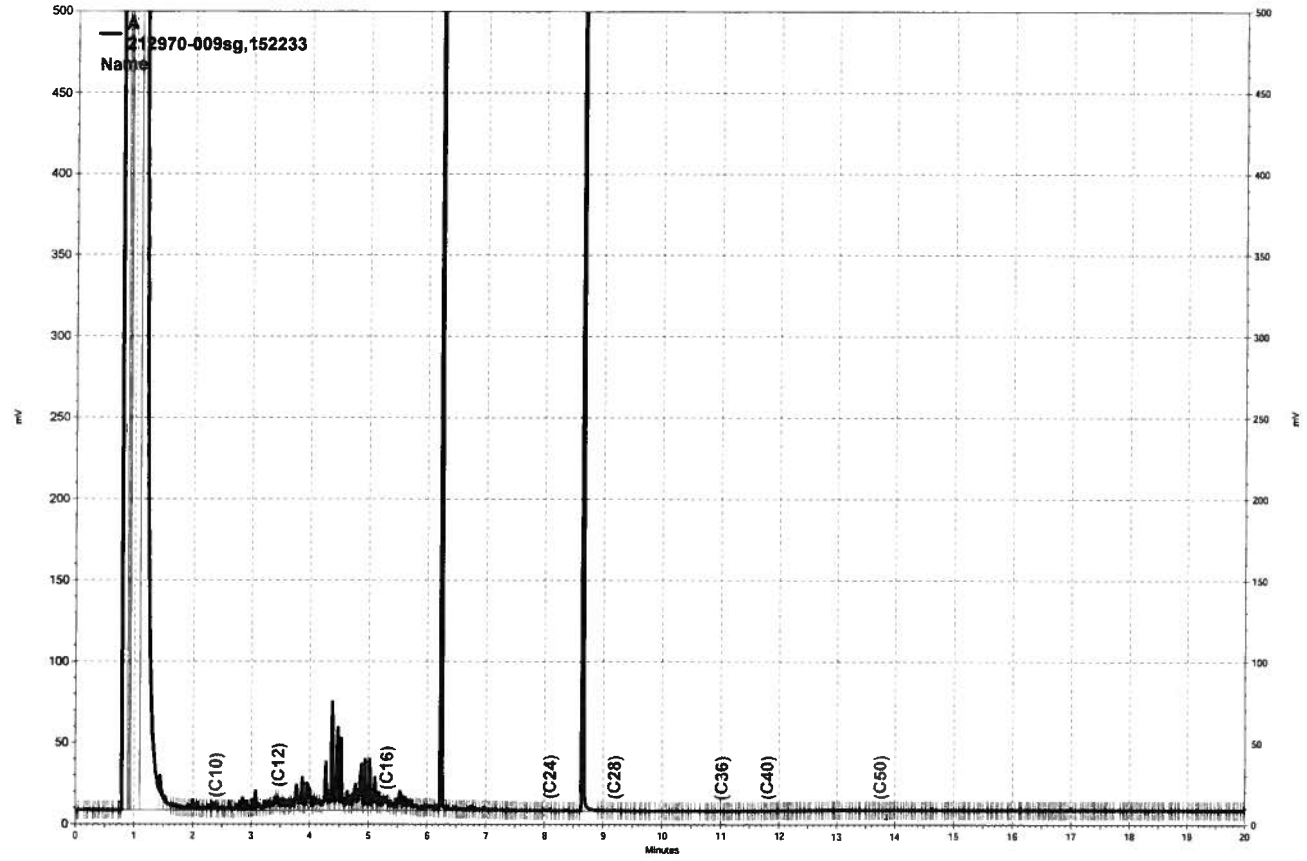

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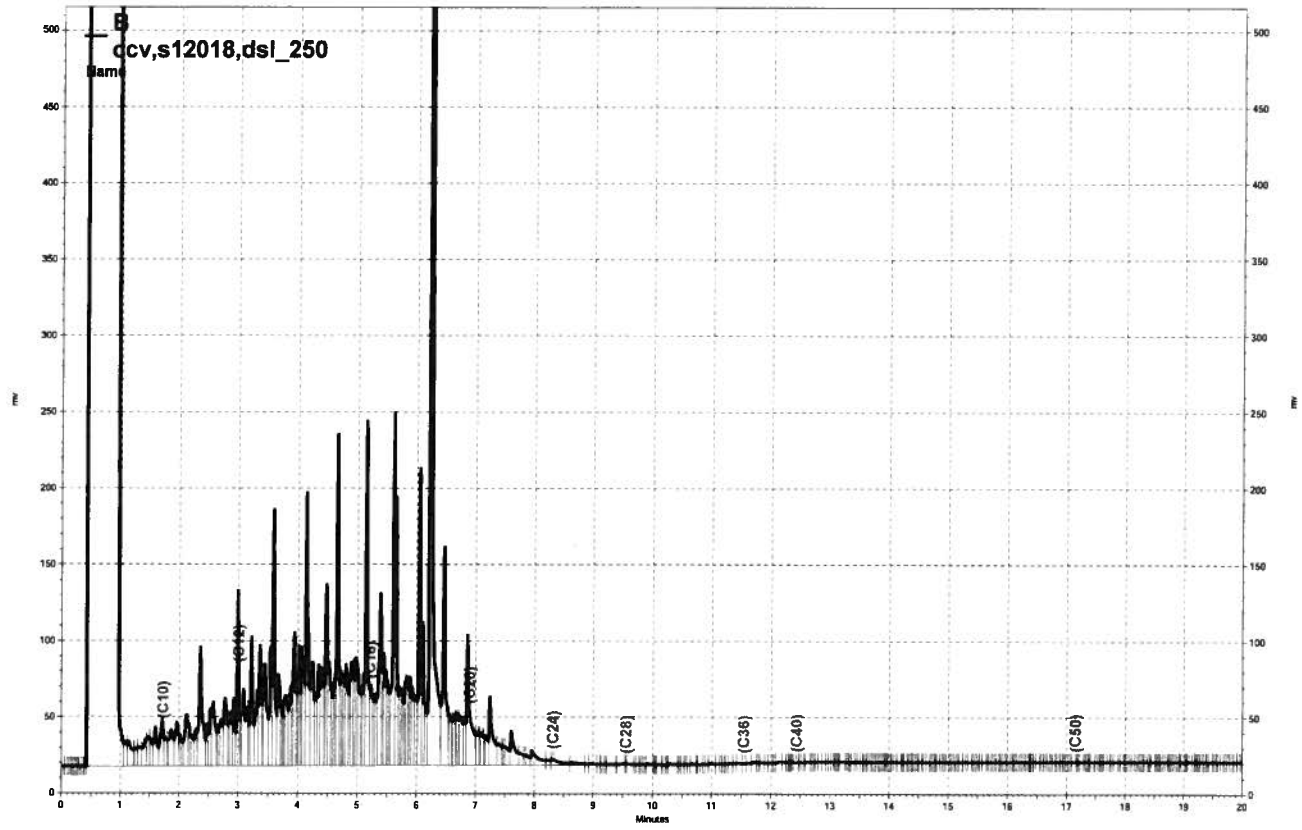

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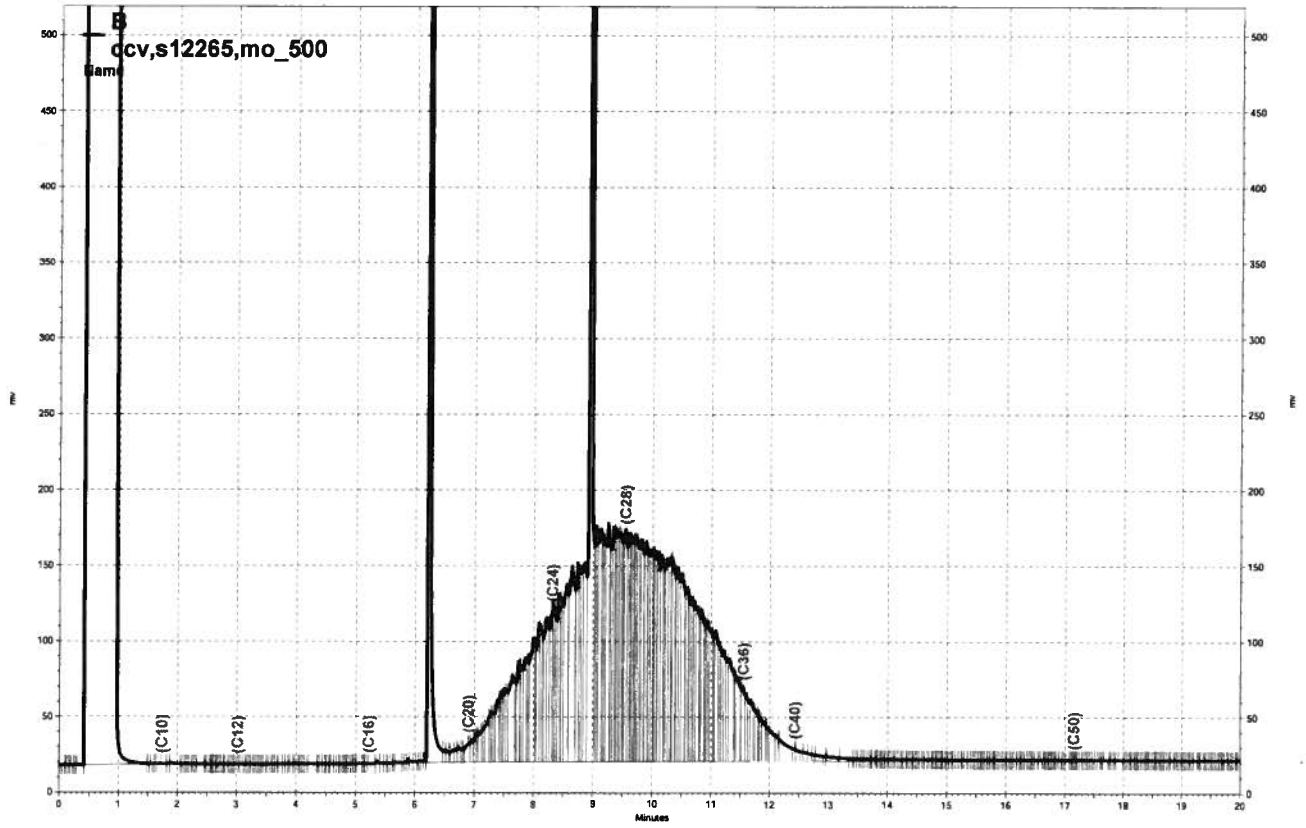

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Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	152249
Lab ID:	212970-001	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/23/09
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	80	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	96	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-11	Batch#:	152249
Lab ID:	212970-002	Sampled:	06/19/09
Matrix:	Water	Received:	06/19/09
Units:	ug/L	Analyzed:	06/23/09
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	82	77-137
Toluene-d8	100	80-120
Bromofluorobenzene	101	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-10	Batch#:	152249
Lab ID:	212970-003	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/23/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	19	0.5
Toluene	ND	0.5
Ethylbenzene	1.0	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	82	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-9	Batch#:	152249
Lab ID:	212970-004	Sampled:	06/19/09
Matrix:	Water	Received:	06/19/09
Units:	ug/L	Analyzed:	06/23/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	43	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	81	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	98	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	152249
Lab ID:	212970-005	Sampled:	06/19/09
Matrix:	Water	Received:	06/19/09
Units:	ug/L	Analyzed:	06/23/09
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	81	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	152249
Lab ID:	212970-006	Sampled:	06/19/09
Matrix:	Water	Received:	06/19/09
Units:	ug/L	Analyzed:	06/23/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	15	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	81	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

10.0

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	152249
Lab ID:	212970-007	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/23/09
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	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-125

ND= Not Detected
RL= Reporting Limit

11.0

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	MW-12	Batch#:	152249
Lab ID:	212970-008	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/24/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	5.7	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	81	77-137
Toluene-d8	98	80-120
Bromofluorobenzene	97	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	FD-061709	Batch#:	152249
Lab ID:	212970-009	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/24/09
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	5.4	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	83	77-137
Toluene-d8	102	80-120
Bromofluorobenzene	98	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Field ID:	TRIP BLANK	Batch#:	152249
Lab ID:	212970-010	Sampled:	06/17/09
Matrix:	Water	Received:	06/18/09
Units:	ug/L	Analyzed:	06/23/09
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	82	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	100	80-125

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	152249
Units:	ug/L	Analyzed:	06/23/09
Diln Fac:	1.000		

Type: BS Lab ID: QC501060

Analyte	Spiked	Result	%REC	Limits
MTBE	20.00	21.25	106	73-122
Benzene	20.00	21.48	107	80-120
Toluene	20.00	22.76	114	80-120
Ethylbenzene	20.00	21.56	108	80-121
m,p-Xylenes	40.00	44.08	110	80-122
o-Xylene	20.00	22.29	111	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	81	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	93	80-125

Type: BSD Lab ID: QC501061

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	20.00	20.92	105	73-122	2	20
Benzene	20.00	20.26	101	80-120	6	20
Toluene	20.00	22.45	112	80-120	1	20
Ethylbenzene	20.00	21.85	109	80-121	1	20
m,p-Xylenes	40.00	45.70	114	80-122	4	20
o-Xylene	20.00	22.95	115	80-120	3	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	80	77-137
Toluene-d8	97	80-120
Bromofluorobenzene	95	80-125

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Aromatics by GC/MS

Lab #:	212970	Location:	Port Of Oakland - HFC
Client:	Malcolm Pirnie,Inc.	Prep:	EPA 5030B
Project#:	4656016	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC501062	Batch#:	152249
Matrix:	Water	Analyzed:	06/23/09
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	82	77-137
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-125

ND= Not Detected
RL= Reporting Limit

Quality Control Checklist *- continued*

	Yes	No	NA
20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?			X
Sample Quality Control			
21a. Are the surrogate spikes reported within the lab's acceptable recovery limits? *A surrogate is a non-target analyte, which is similar in chemical structure to the analyte(s) being analyzed for, and which is not commonly found in environmental samples. A known concentration of the surrogate is spiked into the sample or QA "sample" prior to extraction or sample preparation. Results are usually reported as % recovery of the spike. Failure to meet lab's limits for primary and secondary surrogates results in rebatching and reanalysis of the sample; failure of only the primary or the secondary surrogate may be acceptable under certain circumstances. Failure generally is due to coelution with the sample matrix.*		X	
21b. If no, is an explanation given in the case narrative to validate the data?	X		

Comments:
High surrogate recovery was observed for trifluorotoluene (FID) in MW-10 (lab # 210447-007); the corresponding bromofluorobenzene (FID) surrogate recovery was within limits. No other analytical problems were encountered.