

#### **RECEIVED**

11:19 am, Aug 10, 2009

Alameda County
Environmental Health

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"). 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<sup>2</sup>, January 19, 2007<sup>3</sup>, and September 30, 2008.<sup>4</sup>

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

<sup>&</sup>lt;sup>1</sup> 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 R00000010).

<sup>&</sup>lt;sup>2</sup> 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.

<sup>&</sup>lt;sup>3</sup> 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.

<sup>&</sup>lt;sup>4</sup> 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)



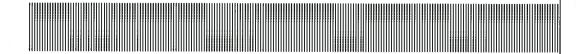
#### Port of Oakland

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.

2000 Powell Street, Suite 1180 Emeryville, CA 94608 (510) 596-3060





www.pirnie.com

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** 



#### 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.

2000 Powell Street, Suite 1180 Emeryville, CA 94608 (510) 596-3060

4656016



#### Contents

<u>1. Int</u>	roduction	1-1
2. Gr	oundwater Sampling Activities	2-1
2.1	March 2009 Groundwater Monitoring Activities	2-1
2.2	2. April 2009 Groundwater Monitoring Activities	2-2
2.3	3. June 2009 Semi-annual Groundwater Monitoring Activities	2-3
3. Re	sults	3-1
3.1	. Groundwater Flow Direction	3-1
3.2	Product Thickness	3-1
3.3	3. Analytical Results	
	3.3.2. BTEX and MTBE	3-2
	3.3.3. TPH-D and TPH-MO	
3.4	ORC Use	3-2
3.5	6. Quality Assurance / Quality Control	3-2
4. Fre	e Product Recovery System	4-1
<u>5. Co</u>	nclusions and Recommendations	5-1

#### **Figures**

Figure 1	Site Location Map
Figure 2	Harbor Facilities Complex Layout
Figure 3	Site Plan
Figure 4a	Groundwater Elevation Map, March 2009
Figure 4b	Groundwater Elevation Map, April 2009
Figure 4c	Groundwater Elevation Map, June 2009
Figure 5a	Analytical Results, March 2009
Figure 5b	Analytical Results, April 2009
Figuro 5c	Analytical Posuits, June 2000

#### **Tables**

Table 1	Historical Groundwater Elevation and Free Product Data
Table 2	Groundwater Analytical Results Summary
Table 3	Free Product Removal System Operation and Maintenance Records Summary

#### **Appendices**

Α	Groundwater Sampling Forms
В	PLS Surveys, Inc. Results
С	Laboratory Analytical Report



#### Acronyms Used in the Report

ACHCS Alameda County Health Care Services

amsl Above mean sea level

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 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





This 2009 First Semi-Annual Groundwater Monitoring and Remediation System Operation and Maintenance Report for 651 Maritime Street, Oakland, California (Site)<sup>1</sup> 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 R00000010.

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)

<sup>&</sup>lt;sup>1</sup> 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.





System Operation and Maintenance Report

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.<sup>2</sup>

#### 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.<sup>3</sup> 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.<sup>4</sup>

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

<sup>&</sup>lt;sup>4</sup> February 2009, Second Semi-Annual 2008 Groundwater Monitoring and Remediation System Operation and Maintenance Report.





<sup>&</sup>lt;sup>2</sup> Letter from ACHCS to Dongary Investments dated 26 July 1994.

<sup>&</sup>lt;sup>3</sup> Letter from ACHCS to Port of Oakland dated March 27, 2003.

semi-annually. The first semi-annual monitoring event occurred on July 28, 2006. The ACHCS also approved the use of Oxygen Releasing Compound<sup>TM</sup> (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.<sup>5</sup>

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. 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.

<sup>&</sup>lt;sup>6</sup> Letter from Mr. Steven Plunkett (ACHCS) to Mr. Jeffrey Rubin (Port of Oakland) dated September 30, 2008





<sup>&</sup>lt;sup>5</sup> Letter from ACHCS to Port of Oakland dated March 23, 2006.

### 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.

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 ( $\mu$ g/L) to 240  $\mu$ g/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  $\mu$ g/L), MW-9 (43  $\mu$ g/L), and MW-10 (19  $\mu$ g/L). Ethylbenzene was detected in the sample collected from well MW-10 at 1.0  $\mu$ g/L. MTBE was detected in the sample collected from well MW-12 at 5.4  $\mu$ g/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**





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			Depth to Product		Product	Groundwater
MW-1	Date Measured	Casing (feet)	(feet btc)	(feet bte)	Thickness (feet)	Elevation (feet)
14114	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

Report Tables - CO.xlsx - 7/21/09 1 of 8

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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet
MW-2 (cont)	06/13/02	13.87	NP	8.64	0.0	5.23
2 (6011)	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 NC
	03/08/02	13.73	7.80	8.00	0.20	NC NC
	04/03/02	13.73	7.60	7.70	0.10	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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater
MW-3 (cont)	04/25/02	13.73	7.90	8.80	0.90	NC
W W - 3 (COIII)	05/10/02	13.73	8.10	8.20	0.10	NC
	05/24/02	13.73	8.05	8.10	0.05	NC NC
	06/13/02	13.73	8.10	8.70	0.60	NC NC
	07/05/02	13.73	8.10	8.95	0.85	NC NC
	07/19/02	13.73	8.10	8.90		NC NC
	07/30/02	13.73	8.10		0.80	
	08/14/02	13.73		8.90	0.80	NC
	09/13/02	13.73	8.10 8.30	8.90	0.80	NC
				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

Report Tables - CO.xlsx - 7/21/09 3 of 8

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

Monitoring		Elevation <sup>1</sup> Top of				Groundwater
Well	Date Measured	Casing (feet)	(feet btc)	(feet btc)	Thickness (feet)	Elevation (feet)
MW-4	12/31/97	12.66	NP	7.00	0.0	5.57
	04/13/98	12.66	NP	7.09 7.71	0.0	5.57
	11/06/98	12.66	NP NP	8.69		4.95
	03/19/99	12.66	NP	8.00	0.0	3.97
	06/24/99	12.66	NP NP	8.45	0.0	4.66
	09/28/99	12.66	NP NP	8.73	0.0	4.21
	11/12/99	12.66	NP			3.93
			NP NP	8.83	0.0	3.83
	02/11/00	12.66		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	NPNP	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

Report Tables - CO.xlsx - 7/21/09 4 of 8

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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)		Groundwater Elevation <sup>1</sup> (feet)
MW-5		T Int				
	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 <sup>2</sup>	NA <sup>2</sup>	NA
	07/28/06	13.00	NP	6.08	0.0	6.92
	11/29/06	NA 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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet
MW-6	06/24/99	12.51	ND	9.61	0.0	4.00
		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			ing well was destro		5.80
MW-7						
242 44	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
THE LAND	12/18/02		Monitor	ing well was destro	ved	W. HOLDER OF THE PARTY OF

Report Tables - CO.xlsx - 7/21/09 6 of 8

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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet btc)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet
MW-8 <sup>3</sup>	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1		dia total			
	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	Mo	nitoring well was de	stroyed and replace	d with well MW-8/	4
MW-8A				" op. !		
	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
MU	04/01/09	14.99	NP	10.92	0.0	4.07
MW-9		The English of the second second second		, p		
	12/18/08	16.33	NP	12.88	0.0	3.45
	03/04/09	16.33	NP	11.04	0.0	5.29
) (IV 10	04/01/09	16.33	NP	11.51	0.0	4.82
MW-10			, i <sub>A</sub>			
	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	3 Vol. 1 Kaline		#	16 31 11 11 14 14	1 , , , , , , , , , , , , , , , , , , ,	the land
	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

7 of 8

#### 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 <sup>1</sup> Top of Casing (feet)	Depth to Product (feet bte)	Depth to Water (feet btc)	Product Thickness (feet)	Groundwater Elevation <sup>1</sup> (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 Groundwiter 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.

<sup>&</sup>lt;sup>1</sup>Wells were resurveyed on January 24, 2009. Elevation data is relative to North American Vertical Datum of 1988 (NAVD 88).

<sup>&</sup>lt;sup>2</sup> Well could not be measured due to abundant surface water covering well head.

<sup>&</sup>lt;sup>3</sup> 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

1007	Concentration (μg/L)											
Monitoring	Date Sampled											
Well		TPH-G	TPH-D	ТРП-МО	Benzene	Tolnene	benzene	Xylenes	MTBE			
MW-1	05/22/00	1 2 600	41,000	<2.000	100	13 8	20	2.06	3.2 8			
MW-2	05/22/00	3,600	41,000	<3,000	100	13	2.9	2.05	3.2			
14144-2	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 NA			
	09/06/95	<50	NA	NA NA	<0.4	<0.3	<0.3	<0.4	NA NA			
	01/08/96	<50	<50	1200	<0.4	<0.3	<0.3	<0.4	NA NA			
	04/04/96	<50	160	320	<0.5	<0.5	<0.5	<1.0	NA NA			
	07/10/96	<50	120	1400	<0.4	<0.3	<0.3	<0.4	NA NA			
	12/03/96	<50	230 1,2	<250	<0.5	<0.5	<0.5	<1.0	NA NA			
	03/28/97	<50	714	<250	<0.5	<0.5	<0.5	<1.0	NA NA			
	06/13/97	51	<50	<250	<0.5	<0.5	<0.5	<1.0	NA NA			
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1.0	NA NA			
	12/31/97	<50	<47	<280	1.4	<0.5	<0.5	<1.0	NA NA			
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	NA 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 <sup>2</sup>	<50	<500	1.8	<0.5	<0.5	<0.5	<5.0			
·	12/12/02	<50	<50	<300	0.98	<0.5	<0.5	<0.5	<2.0			
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0			
	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 <sup>6, 15</sup>	<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			
1	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

- 15 mm	S. Barri	Concentration (µg/L)									
Monitoring	Date Sampled					Ethyl-	Total				
Well		TPH-G	TPH-D	TPH-MO	Benzene	Tolnene	benzene	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 p	resence of	free-phase pr	oduct						
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 <sup>2</sup>	<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 <sup>2,3</sup>	<50	<300	520	2.9	<2.5	<5.0	NA		
4	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 <sup>3,5</sup>	63 3,5	<300	280	1.5	<1.0	<1.0	<4		
	11/12/99	330 <sup>3</sup>	840 <sup>2</sup>	<300	740	<2.5	<2.5	<2.5	42 9		
	02/11/00	200 <sup>2</sup>	<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 <sup>2,3</sup>	<50	<300	190	0.93	0.6	0.57	<0.5 10		
	12/19/00	960 3,11	70 <sup>5</sup>	<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 <sup>13</sup>	<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 <sup>2</sup>	<500	180	<2.5	<2.5	<2.5	<25		
	06/13/02	830 <sup>2</sup>	<50	<500	250	<5.0	<5.0	<5.0	<50		
Dup.	06/13/02	820 <sup>2</sup>	<56	<560	240	<5.0	<5.0	<5.0	<50		
	09/26/02	390 ²	57	<500	150	2.1	<1.0	<1.0	<10		
Dup.	09/26/02	500 <sup>2</sup>	<50 16	<500 <sup>16</sup>	200	1.5	<1.0	<1.0	<10		
	12/12/02	580	<50	<300	240	1.4	0.56	<0.5	<2.0		
Dup.	12/12/02	2,400	<50	<300	680	5.0	2.3	1.4	<2.0		
	03/17/03	130 15	<50	<300	320 <sup>17</sup>	<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 <sup>15</sup>	<300	320	0.91 17	<0.5	0.53	<2.0		
Dup.	11/26/03	120 15	<50	<300	210	0.66 17	<0.5	<0.5	<2.0		

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

	Concentration (µg/L)											
Monitoring	Date					45-12	Ethyl-	Total				
Well	Sampled	TPH-G	TPH-D	ТРП-МО	Benzene	Toluene	benzene	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 <sup>13</sup>	<50	<300	210	0.55 17	<0.5	<0.5	<2.0			
Dup.	06/02/04	400 <sup>13</sup>	<50	<300	130	<0.5	<0.5	<0.5	<2.0			
	09/03/04	780 <sup>13, 15</sup>	<50	<300	<0.5	1.0 17	<0.5	0.57	<2.0			
Dup.	09/03/04	370 <sup>13, 15</sup>	<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 <sup>13</sup>	<50	<300	140	0.57	<0.5	<0.5	<2.0			
Dup.	03/29/05	540 <sup>13</sup>	<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 <sup>18</sup>	59 <sup>20</sup>	<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 <sup>2</sup>	<300	160	<1.3	4.3	<1.3	<1.3			
Dup.	08/04/06	590	100 <sup>2</sup>	<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	10013, 15	<50	<300	10	<0.5	<0.5	<0.5	<0.5			
Dup.	06/01/07	10013, 15	<50	<300	11	<0.5	<0.5	<0.5	<0.5			
•	11/14/07	54 <sup>15</sup>	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5			
Dup.	11/14/07	51 <sup>15</sup>	<50	<300	2.1	<0.5	<0.5	<0.5	<0.5			
7	06/05/08	67 <sup>15</sup>	<50	<300	14	<0.5	<0.5	<0.5	<0.5			
Dup.	06/05/08	91 <sup>15</sup>	<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 <sup>2</sup>	850	<300	0.7	<0.5	0.6	<0.5	<0.5			
*	03/04/09	60 <sup>2</sup>	<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 <sup>2</sup>	<50	<300	15	<0.5	<0.5	<0.5	<0.5			
MW-5		<b>*</b>					1, 1, 1, 1					
	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 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			

Report Tables.xlsx - 7/16/09 3 of 7

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

Monitoring Well	BEATING.	Concentration (pg/L)										
	Date						I thyl-	Total				
	Sampled	TPH-G	TPH-D	ТРП-МО	Benzene	Tolnene	benzene	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 <sup>2,6</sup>	<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 <sup>19</sup>	<50 <sup>19</sup>	<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 <sup>2</sup>	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			是情色, 经									
	11/06/98	120	12,000	1,200	19	0.65	1.8	<0.5	<2			
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2			
	06/24/99	120	1,700 <sup>7</sup>	<300 <sup>7</sup>	18	<0.5	1.0	<0.5	54			
	09/28/99	130 <sup>3,5</sup>	820	<300	20	0.51	2.2	<0.5	<2			
	11/12/99	150	11,000 <sup>2,6</sup>	3,000 3,6	27	<0.5	2.2	<0.5	13 9			
	02/11/00	270 <sup>2</sup>	2,300	<300	23	0.51	2.7	<0.5	5.8			
	05/22/00	350	3,000	<300	18	0.51	<0.5	<0.5	7.7			
	09/06/00	190	610	<300	26	<0.5	1.7	<0.5	<0.5 10			
	12/19/00	130 3,11	620	<300	24	<0.5	1.6	<0.5	<2			
	02/21/01	12013	440	<300	21	<0.5	0.96	<0.5	<2			

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

	872	Concentration (µg/L)											
Monitoring	Date	Ethyl- Total											
Well	Sampled	TPH-G	TPH-D	трн-мо	Benzene	Tolnene	benzene	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 <sup>2</sup>	640 <sup>2</sup>	<500	30	<0.5	<0.5	<0.5	5.0 14				
	06/13/02	160 <sup>2</sup>	670 <sup>2</sup>	<500	34	<0.5	<0.5	<0.5	<5.0				
	09/26/02	230 <sup>2</sup>	1400 <sup>2</sup>	<500	40	0.64	0.8	<0.5	<5.0				
	12/12/02	53	110	<300	43	<0.5	<0.5	<0.5	<2.0				
	12/18/02			300		g well was de		10.0	2.0				
MW-7						75 THE TOTAL STATE							
	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 <sup>6</sup>	94 <sup>2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA NA				
	06/13/97	<50	100	<250	<0.5	<0.5	<0.5	<1.0	NA NA				
58	09/18/97	<50	240	<250	<0.5	<0.5	<0.5	<1.0	NA NA				
	12/31/97	<50	53 <sup>2,3</sup>	<280	<0.5	<0.5	<0.5	<1.0	NA NA				
	04/13/98	<50	<48	<290	<0.5	<0.5	<0.5	<1.0	NA NA				
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2				
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	5.3				
	06/24/99	73	<50	<300	<0.5	<0.5	<0.5	<0.5	12				
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	14				
	11/12/99	<50	600 <sup>2,6</sup>	420 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5	15 9				
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	51				
	05/22/00	110	53 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	75				
	09/06/00	50 <sup>6</sup>	<50	<300	<0.5	<0.5	<0.5	<0.5	40 10				
	12/19/00	54 11	51 <sup>5</sup>	<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 <sup>10</sup>				
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	60 <sup>10</sup>				
2-up.	07/10/01	<50	51 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	76 <sup>10</sup>				
Dup.	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>				
~~p.	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 <sup>14</sup>				
	03/08/02	52 <sup>2</sup>	<50	<500	<0.5	<0.5	<0.5	<0.5	24 14				
	06/13/02	87 <sup>2</sup>	54 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	51				
	09/26/02	83 2	84 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>				
,	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 <sup>14</sup>				
	12/12/02	-50	.50	500		g well was de		-0.0	Ju				
MW-8			V			, was de		1000					
	Not sampled	fue to the s	resence of f	ree_nhace n=	oduct								
MW-8A	or sumpicu	and to the p	Cocinc of I	ree-pinase pro	Junet								
I	12/12/01	68	720 11,15	<300	<0.5	<0.5	<0.5	<0.5	<2.0				
	03/08/02	<50	760 <sup>2</sup>	<570	<0.5	<0.5	<0.5	<0.5	<5.0				
Dup.	03/08/02	<50	350 <sup>2</sup>	<580	<0.5	<0.5	<0.5	<0.5	<5.0				
~ <del></del>	06/13/02	<50	570 <sup>2</sup>	<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								
	12/12/02	<b>\30</b>	100	√300	<b>~0.5</b>	<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	Concentration (µg/L)											
	Date						Ethyl-	Total				
Well	Sampled	TPH-G	TPH-D	три-мо	Benzene	Toluene	benzene	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 <sup>15</sup>	<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 <sup>15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0			
	09/03/04	<50	86 <sup>15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0			
	12/16/04	<50	160 <sup>6, 15</sup>	<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 <sup>19</sup>	150 15, 19	<250	<0.5	<0.5	<0.5	<0.5	<0.5			
	09/29/05	<50	66 <sup>21</sup>	<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 <sup>2</sup>	7,800	2,200 <sup>2</sup>	<0.5	<0.5	<0.5	<0.5	1.3			
	03/04/09	<50	51 <sup>2</sup>	<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	10/10/00	50.2		-200	.0.5							
	12/18/08	52 <sup>2</sup>	72 310 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	<0.5			
	03/04/09	290°	210 2	<300	44	<0.5	0.6	0.6	<0.5			
	04/01/09	240 <sup>2</sup>	240 <sup>2</sup>	<300	36	<0.5	<0.5	<0.5	<0.5			
MW-10	06/19/09	240	240	<300	43	<0.5	<0.5	<0.5	<0.5			
IVI W - 10	12/18/08	140 <sup>2</sup>	8,000	430 <sup>2</sup>	<0.5	<0.5	<0.5	<0.5	1.0			
	03/04/09	96 <sup>2</sup>	110 2	<300	11	<0.5	0.5	<0.5	<0.5			
	04/01/09	87 <sup>2</sup>	100 <sup>2</sup>	<300	14	<0.5	0.5	<0.5	<0.5			
	06/17/09	90 <sup>2</sup>	220 <sup>2</sup>	<300	10	<0.5	1.0	<0.5	<0.5			
MW-11							1.0	10.5				
	12/18/08	1,900 <sup>2</sup>	15,000	800 <sup>2</sup>	<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		2				, ,			Value			
	12/18/08	25,000 <sup>2</sup>	19,000	980 <sup>2</sup>	<0.5	<0.5	<0.5	<0.5	5.1			
	03/04/09	150 <sup>2</sup>	550 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	4.8			
	04/01/09	71 2	420 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	5.8			
	06/17/09	64 2	310 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	5.7			
Dup.	06/17/09	67 <sup>2</sup>	310 <sup>2</sup>	<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

					Conce	ntration (p	g/L)		
Monitoring	Date						Ethyl-	Total	
Well	Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Tolnette	benzene	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.

 $\mu g/L = micrograms per liter$ 

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

<sup>&</sup>lt;sup>1</sup> Analyte found in the associated blank as well as in the sample.

<sup>&</sup>lt;sup>2</sup> Hydrocarbons present do not match profile of laboratory standard.

<sup>&</sup>lt;sup>3</sup> Low boiling point/lighter hydrocarbons are present in the sample.

<sup>&</sup>lt;sup>4</sup> Chromatographic pattern matches known laboratory contaminant.

<sup>&</sup>lt;sup>5</sup> Hydrocarbons are present in the requested fuel quantification range, but do not resemble pattern of available fuel standard.

<sup>&</sup>lt;sup>6</sup> High boiling point/heavier hydrocarbons are present in sample.

<sup>&</sup>lt;sup>7</sup> Sample did not pass laboratory QA/QC and may be biased low.

<sup>&</sup>lt;sup>8</sup> Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two.

<sup>&</sup>lt;sup>9</sup> Trip blank contained MTBE at a concentration of 4.2 μg/L.

<sup>&</sup>lt;sup>10</sup> MTBE detections confirmed by EPA Test Method 8260; 8260 results displayed.

<sup>11</sup> Sample exhibits unknown single peak or peaks.

<sup>&</sup>lt;sup>12</sup> EPA Method 8260 confirmation analyzed past holding time.

<sup>&</sup>lt;sup>13</sup>Lighter hydrocarbons contributed to the quantitation.

<sup>&</sup>lt;sup>14</sup> MTBE results from EPA Test Method 8021B.

<sup>&</sup>lt;sup>15</sup> Sample exhibits fuel pattern that does not resemble standard.

<sup>&</sup>lt;sup>16</sup> Sample extracted out of hold time.

<sup>&</sup>lt;sup>17</sup> Presence confirmed, but Relative Percent Difference (RPD) between columns exceeds 40%.

<sup>&</sup>lt;sup>18</sup> Unmodified or weakly modified gasoline is significant.

<sup>&</sup>lt;sup>19</sup> Liquid sample contains greater than ~1 vol. % sediment.

<sup>&</sup>lt;sup>20</sup> Gasoline compounds are significant.

<sup>&</sup>lt;sup>21</sup> Diesel range compounds are significant; no recognizable pattern.

<sup>&</sup>lt;sup>22</sup> Heavier hydrocarbons contributed to the quantitation.

Site Visit Date:	01/08/09									
	Depth to	Depth to	Product	Depth of		-				
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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				2.41	ft					
Approximate total	l liquid volu	me recover	ed	79	gal					
Approximate proc	luct volume	recovered		63	gal					

Site Visit Date:	01/16/09		Williams Control					ALERSON THE	1000	
7	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	· Pump -	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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	t i		1.90	ft					
Depth to interface	e in Convau	lt ·		2.32	ft				· -	
Approximate tota			ed	149	gal					
Approximate pro-	duct volume	recovered		110	gal	•				
						<del></del>				

Report Tables.xisx - 7/16/09 1 of 12

Site Visit Date:	01/20/09					The Property America			Age-pet 18 W.S all	
	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump —	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start Time	(hr:min)	Comments
RW-1	11-				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		The state of the s
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	1	
Depth to product	in Convault			NM	ft					
Depth to interface				NM	ft					
Approximate tota			ed	NM	gal					
Approximate pro-				NM	gal					

ite Visit Date:	01/26/09									
	Depth to	Depth to	Product	Depth of				Ü		
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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				1.88	ft					Air Dehumidifier attached to the compressor leaking air.
Depth to interface	in Convau	lt		2.48	ft					
Approximate total	l liquid volu	ume recover	ed	154	gal					
Approximate pro	duct volume	recovered		157	gal					

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1				(13)	Off	Off	Dust Run	3/29/07 14:01	(14.11111)	Comments
RW-2				7	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 Depth to interface Approximate tota Approximate production	in Convau l liquid volu	lt ime recover	ed	1.84 2.48 165 168	ft ft gal gal					Ingersoll-Rand tech on-site to repair air dryer.

Site Visit Date:	02/10/09		<b>全身的一种的</b>							
	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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.
epth to product	in Convault			1.71	ft					Grease compressor fittings.
epth to interface	e in Convau	lt		2.37	ft					,
pproximate tota	l liquid volu	ıme recover	ed	199	gal					
pproximate pro	duct 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					Name (Navinstant)			NET THE WEST OF SERVICE	
	Depth to	Depth to	Product	Depth of						
-	Product	Water	Thickness	Pump	Vacuum	Cycles/Period	_		Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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				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				2.30	ft					
Approximate tota				228	gal					
Approximate pro	duct volume	e recovered		183	gal					

Site Visit Date:	02/25/09	na sala yie				And the second of the last				
	Depth to Product	Depth to Water	Product Thickness	Depth of Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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	<del></del>	, , , , , , , , , , , , , , , , , , , ,
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				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				2.25	ft					
Approximate tota			ed	230	gal					
Approximate pro	duct volume	recovered		173	gal					

Report Tables.xlsx - 7/16/09

Site Visit Date:	03/04/09		ani eri eran kultur.							
	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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		The state of the s
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		1.60	ft					
Depth to interface				2.31	ft					
Approximate tota			ed	228	gal					
Approximate pro	_			186	gal					

Site Visit Date:	03/13/09							All and the same a		
	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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 _		1.58	ft					System off.
Depth to interface				2.26	ft					JUNEAU CEE
Approximate tota			ed	233	gal					
Approximate pro	-			178	gal			<u> </u>		

Report Tables.xlsx - 7/16/09 5 of 12

Site Visit Date:	03/18/09						No. 18 19 Strain of	No. of the American Real	SEVE DE REPARTS	
	Depth to	Depth to	Product	Depth of	,			'		
_	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	:#I
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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 Convaul	t		1.56	ft					Restarted system and applied vacuum to RW-6, RW-7, and RW-8.
Depth to interfac	e in Convau	lt .		2.28	ft					, und it is
Approximate tota	al liquid vol	ume recover	ed	238	gal					
Approximate pro	duct volume	recovered	~	188	gal					

Site Visit Date:	03/26/09			<b>建一样的</b>						
***	Depth to	Depth to	Product	Depth of						
1-0-	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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	$12 \rightarrow 10$	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 Convau	lt -		2.28	ft				•	, = 5 totaling 10.02 mg 2.
Approximate tota	l liquid volı	ıme recover	ed	246	gal					
Approximate pro	duct volume	recovered		196	gal					

Site Visit Date:	04/01/09									
and the second second	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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	$2 \rightarrow 3$	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	e in Convau	lt		2.28	ft					Shut off vacuum system due to breakthrough above 10 ppm in first vessel
Approximate tota	l liquid volu	ıme recover	ed	249	gal					
Approximate pro-	duct volume	recovered		199	gal					

Site Visit Date:	04/22/09									
_	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start Time	(hr:min)	Comments
RW-1		11_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	7.2		1.51	ft					
Depth to interface	e in Convau	lt			ft					
Approximate tota	l liquid volu	ıme recover	ed	251	gal					
Approximate pro	duct volume	recovered			gal					

Report Tables.xlsx - 7/16/09 7 of 12

### 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

Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1					Off	Off		3/29/07 14:01		
RW-2	_	••			Off	Off		NA		
RW-3	10.82	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	1	
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.

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 <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1					Off	Off		3/29/07 14:01	1	
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 Depth to interface Approximate tota	in Convau	lt	ed.	1.46 2.19 264	ft ft					
Approximate pro				191	gal 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

ite 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 <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1					Off	Off		3/29/07 14:01	(	Comments
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 Convaul			1.43	ft					
Depth to interfac	in Convau	1t		2.17	ft					
Approximate tota	l liquid vol	ume recover	ed	272	gal					
Approximate pro	duct volume	recovered		194	gal					

Site Visit Date:	05/27/09									
	Depth to Product	Depth to Water	Product Thickness	Depth of Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start Time	(hr:min)	Comments
RW-1				= 118	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 Convaul			1.39	ft					
Depth to interface	e in Convau	lt		2.10	ft					
Approximate tota	l liquid vol	ime recover	ed	283	gal					
Approximate pro	duct volume	recovered		186	gal					

Site Visit Date:	06/03/09						Man Tolk St. March	MAN THE REPORT OF	MUTORIO EL COMP	
	Depth to Product	Depth to Water	Product Thickness	Depth of Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start Time	(hr:min)	Comments
RW-1					Off	Off		3/29/07 14:01		
RW-2		C			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	19: 0.4:	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	1447	NA	NA		NA	- The Libert	Removed 1 gallon of product.
Depth to product	in Convault	2		1.30	ft					
Depth to interface				2.07	ft					
Approximate tota	l liquid volt	ıme recover	red	306	gal					
Approximate pro	duct volume	recovered		202	gal					

ite Visit Date:	06/10/09 Depth to	Depth to	Product	Depth of			25 X 0   P. 2   EQUIPMENT AND			
Recovery Well	Product	Water (ft)	Thickness (ft)	Pump (ft)	Vacuum (in/H <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time (hr:min)	Comments
RW-1				(3-)	Off	Off	Dabt Hair	3/29/07 14:01	(111.11111)	Comments
RW-2		1		-11/2	Off	Off		NA 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	III-	NA	NA	711.11	NA		Removed 1 gallon of product.
epth to product	in Convault	(mren		1.29	ft					
epth to interface				2.06	ft					
pproximate tota	ıl liquid volu	ıme recover	ed	309	gal					
pproximate pro	duct volume	recovered		202	gal					

Report Tables.xlsx - 7/16/09 10 of 12

Site Visit Date:	06/17/09						Paris Dation Cristia			
Recovery Well	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth of Pump (ft)	Vacuum (in/H <sub>2</sub> O)	Cycles/Period and Duration	Last Run	Start Time	Total Time	
RW-1				(16)	Off	Off	Last Ruii	3/29/07 14:01	(111.11111)	Comments
RW-2					Off	Off		NA	<del> </del>	
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				1.25	ft					
Depth to interface				2.03	ft					
Approximate tota			ed	319	gal					
Approximate pro	duct volume	recovered		204	gal					

Site Visit Date:	06/24/09									
	Depth to	Depth to	Product	Depth of						
	Product	Water	Thickness	Pump	Vacuum	Cycles/Period			Total Time	
Recovery Well	(ft)	(ft)	(ft)	(ft)	(in/H <sub>2</sub> O)	and Duration	Last Run	Start 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			<b></b>	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				1.22	ft			·		
Depth to interface				2.03	ft					
Approximate tota			ed	327	gal					
Approximate pro	duct volume	recovered		212	gal					

Report Tables.xlsx - 7/16/09 11 of 12

Notes:

NP = no product

ft = ft

-- = not measured

gal = gallons

in/H2O = inches of water

hr:min = hours:minutes

Report Tables,xlsx - 7/16/09 12 of 12



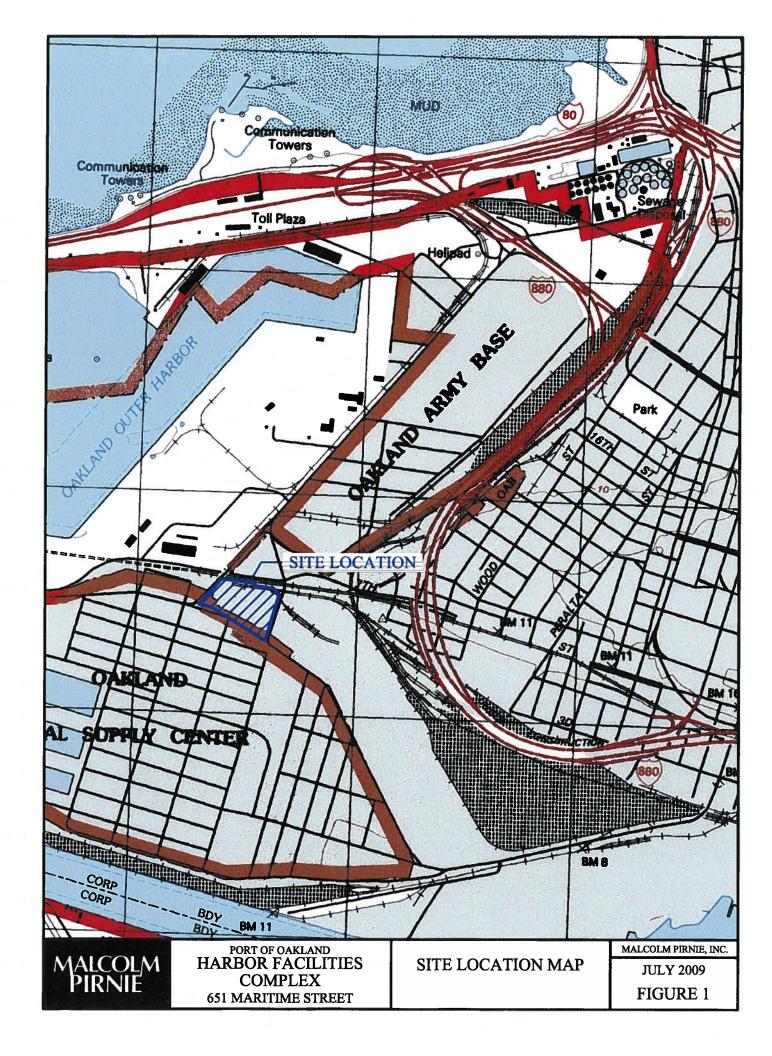
### **Port of Oakland**

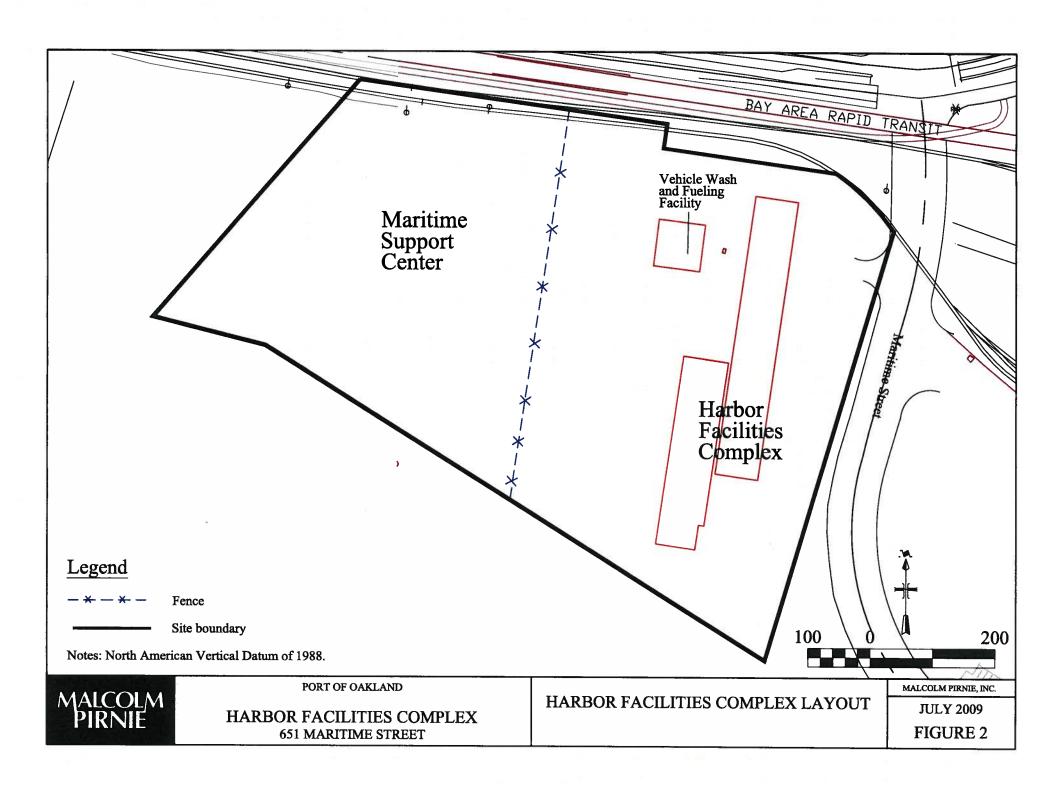
530 Water Street • Oakland, CA 94607

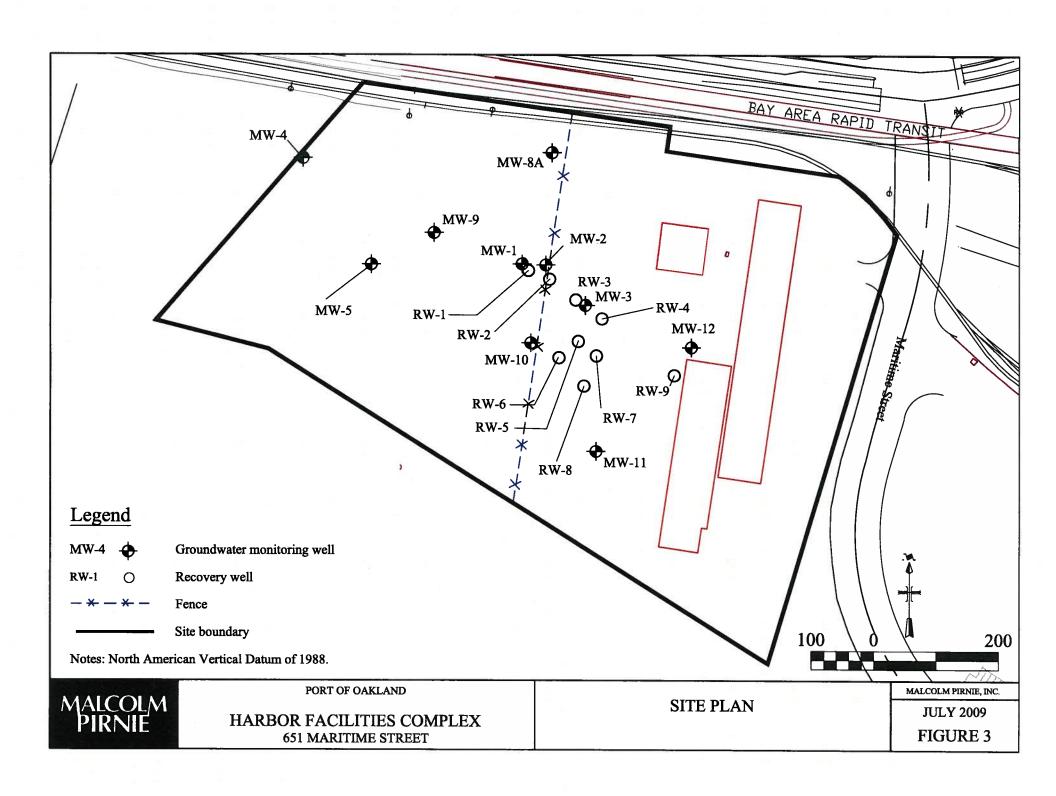
### **Figures**

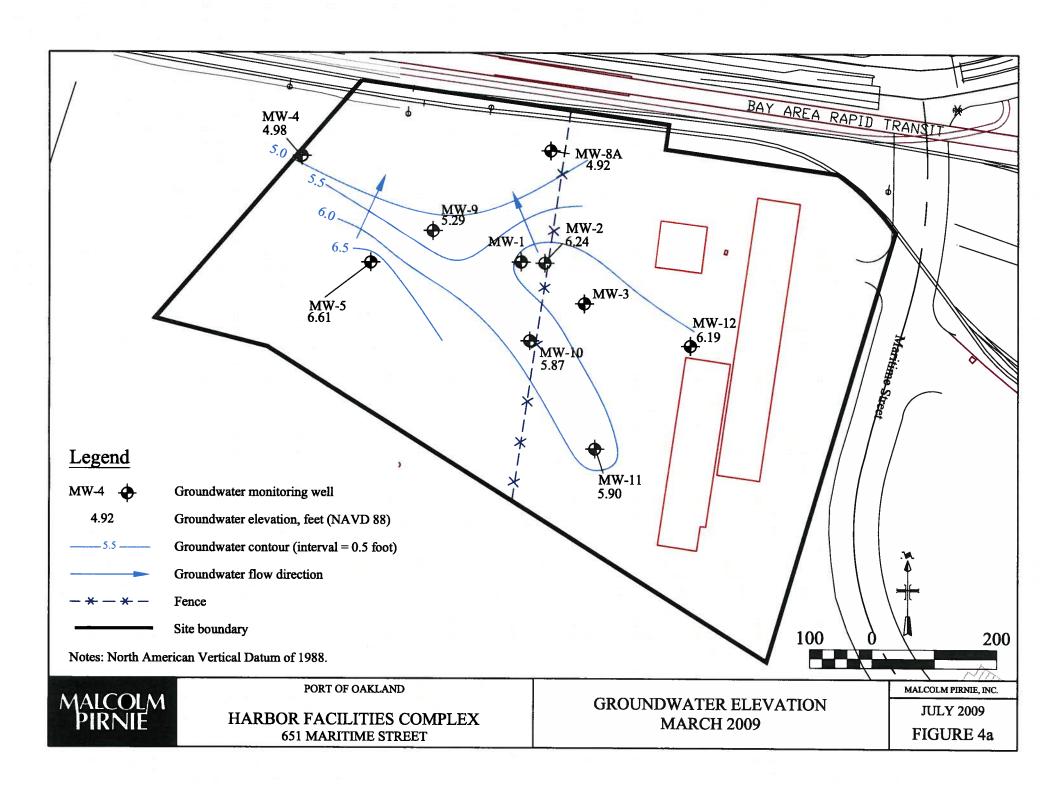


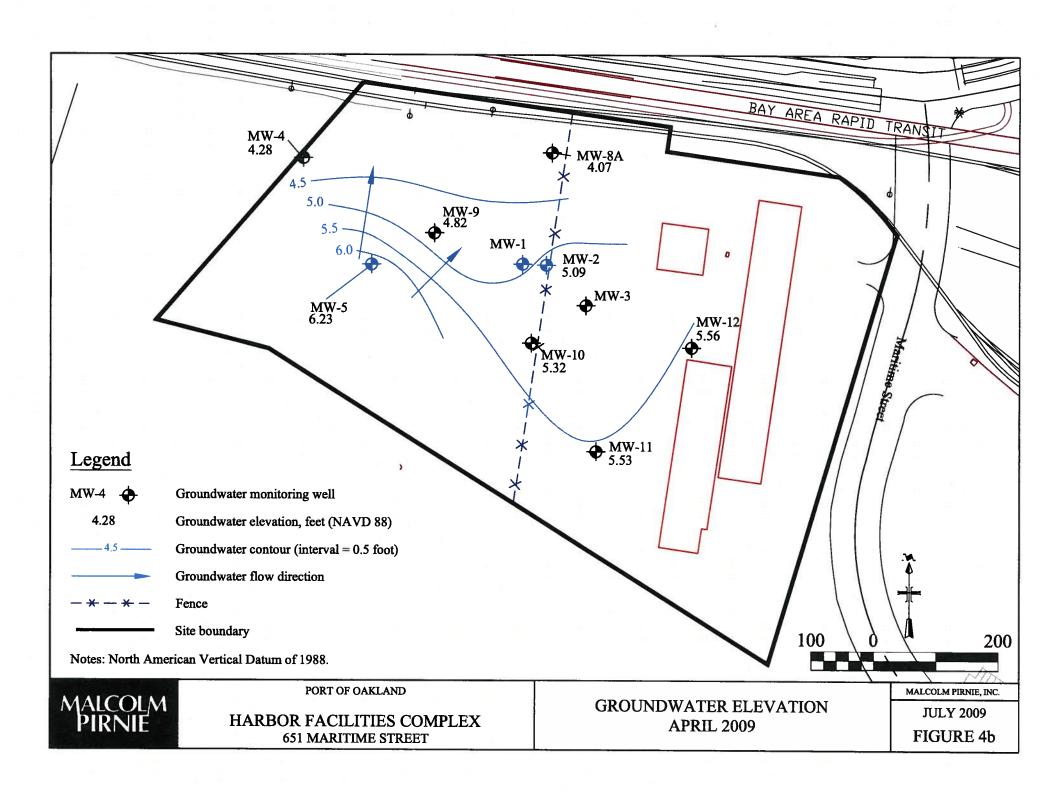


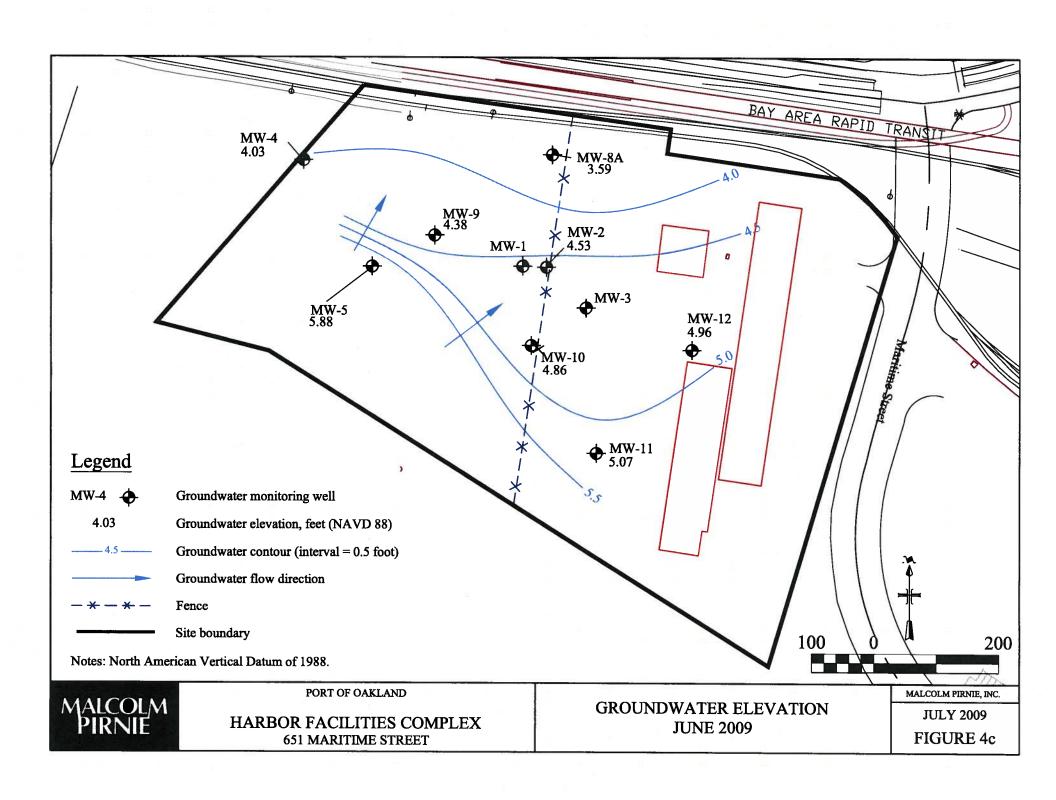


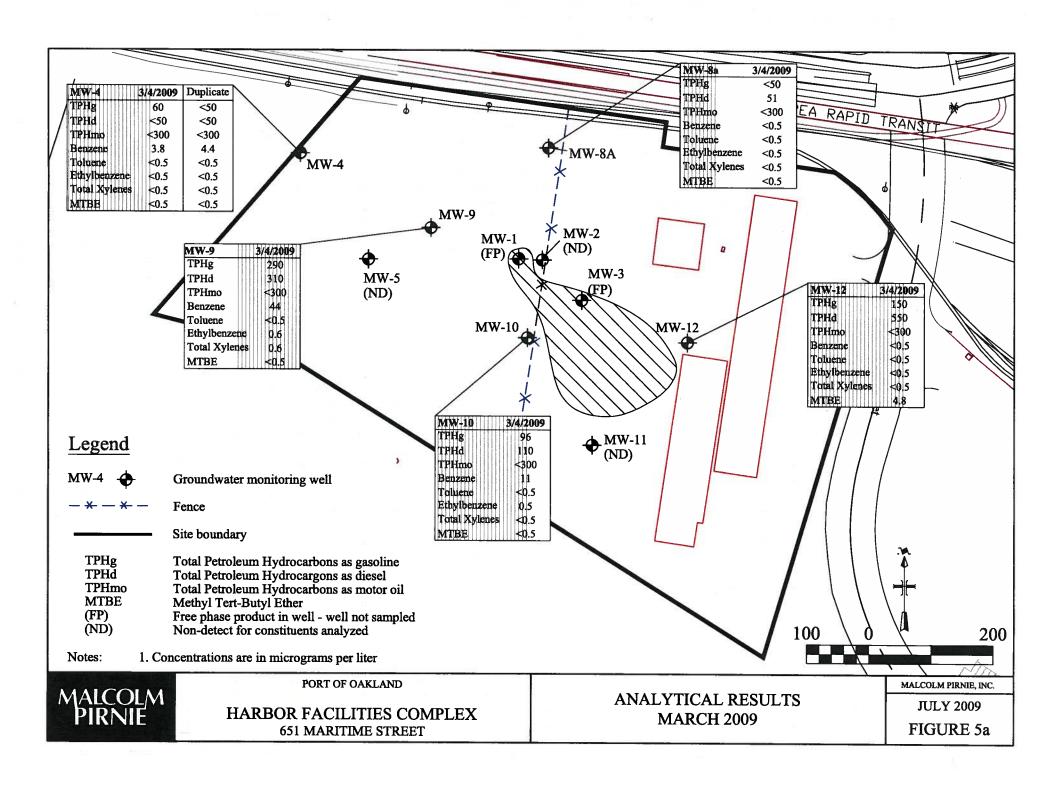


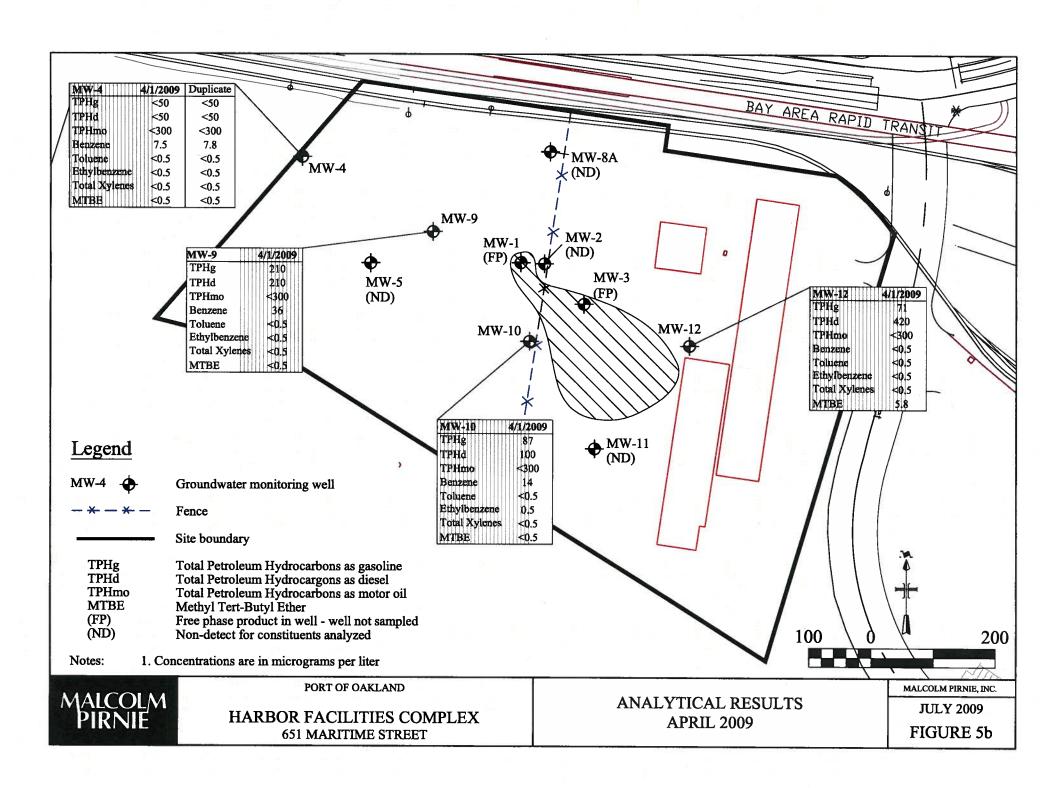


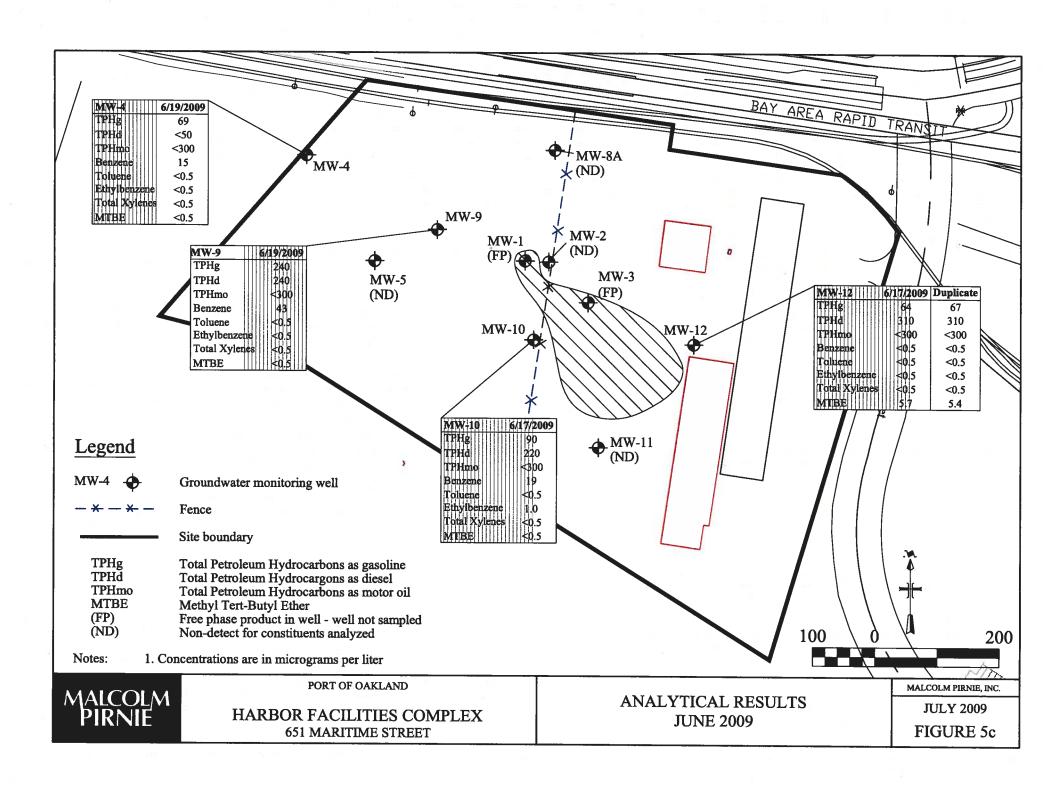














### Port of Oakland

530 Water Street • Oakland, CA 94607

# **Appendix A Groundwater Sampling Forms**





CROUNDWATER	CAMBLIN	0					Well No.:		<b>NA</b> / 4
GROUNDWATER		<u> </u>					vveii ivo	IVI	W-1
Project No. Y5395-0		_			Recor	·	VKS/RR	Date:	3/4/2009
Project Name: Harbor F		r			_	-	well from TO		
Location: Port of O							ell diameter (	´ <b>-</b>	2
		akland, Califor	nia			Screened inte		` ′=	
	al rain, clouds	<del></del>			<del>_</del>		ion, NAVD 8		
Precip. in past 5 days (in.						dwater elevat	-	8 (feet):_	6.28
Source:		e Services Age			Water level fro	` ,		Time:	8:06
Water level instrument:	Dual-phase	interface probe	(Solinst	)	Product level fro	m TOC (feet)	9.38	Time:	8:06
CALCULATION OF W	ELL VOLUM	IE:							
		x (0.083 ft) <sup>2</sup> x (well radius)			=	0	gallons in or total gallons	_	
CALIBRATION:									
		Temperature	pН	DO	ORP	EC	Turbidity		
1	<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm)	(NTU)		
Calibration Standard	:		7.00	100%	238 @ 20 <sup>0</sup> 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 MEASUREMEN	ITS:								
		Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
	<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cm)	(NTU)	Gallons	Removed
		d product level hase product.	only, no	groundw	rater sample collec	cted due to the	e presence		
Purge method:							Sample	e Time:	
Duplicate/blank number:						Dur	olicate Sampl	_	
Sampling equipment:					VO	A attachment:			

TOC = top of casing

Comments:

Sample containers: Sample analyses:

Decontamination method:

NAVD 88 = North American Vertical Datum of 1988.

BASELINE • 5900 Hollis Street, Suite D • Emeryville, CA 94608 (510) 420-8686 • (510) 420-1707

Laboratory:

Rinsate disposal:

GROUNDW	ATER S	SAMPLIN	G					Well No.:	М	W-2
Project No.	Y5395-06	V				Record	ed by: V	/KS/RR	Date:	3/4/2009
Project Name:	Harbor Fa	cilities Cente	r				Depth of w	ell from TO	C (feet):	18.06
Location:	Port of Oa	kland					We	ell diameter (	inches):	2
	651 Marit	ime Street, O	akland, Califor	nia		Sc	reened inter	val from TO	C (feet):	8.06-18.06
Weather:	Occasiona	l rain, clouds	, and sun				TOC elevation	on, NAVD 8	8 (feet):	16.43
Precip. in past 5	days (in.)			-		— Groundy	vater elevatio	on, NAVD 8	8 (feet):	6.24
Source:		Oakland Fire	e Services Ager	ncy "ONO		Water level from	m TOC (feet	): <u>10.19</u>	Time:	8:02
Water level instr	rument:	Dual-phase i	nterface probe	(Solinst)		Product level from	m TOC (feet	): None	Time:	8:02
CALCULATIO			E: x (0.083 ft) <sup>2</sup>	х π х 7 48	gal/ft <sup>3</sup> =		1.3	gallons in	one casi	ng volume
,			x (well radius)				4	total gallo		-
CALIBRATION	N:	<b></b>	Temperature	рН	DO	ORP	EC	Turbidity		
~	~	<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	( <u>mV)</u>	(µmho/cm)			
Calibration				7.00	100%	238@20°C	1,000	0/10		
	Purging:	7:21	13.9	7.00	100%	238@18.4 <sup>o</sup> C 234@15.3 <sup>o</sup> C	1,000	0.10/10		
Aite	r Purging:	12:41	18.7	7.08	95.8%	234@13.3 C	1,060	0.00/9.5		
FIELD MEASU	JREMEN	rs:								
		Time	Temperature (°C)	pH <u>(S.U.)</u>	DO (mg/L)	ORP <u>(mV)</u>	EC (µmho/cm)	Turbidity (NTU)		ulative 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: Duplicate/blank		Peristaltic pu	mp and disposa	able poly to	ubing		 	Sampl licate Sampl	e Time: _ e Time:	9:00
Sampling equipr	nent:	Peristaltic pu	mp and disposa	able poly to	ubing	VO	A attachmen	: none	_	
Sample containe	rs:	six 40-ml VC	As and two L.	AG		_				
Sample analyses	:	TPHg, TPHd	, BTEX, MTBI	E, and TPF	I-mo		Laboratory	: Curtis & T	`ompkins	
Decontamination	Decontamination method: Alconox and water, DI water rinse						sate disposa			
Comments:	mments: Well box was filled with water. Water was purged before							Port contra		emove.
<u> </u>	Well cap w	as tight. Pad	lock on cap wa	s not locke	ed.					

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER	SAMPLIN	G				V	Vell No.:	M	W-3
Project No. Y5395-0	6				Record	led by: WI	ζS/RR	Date:	3/4/2009
Project Name: Harbor F	acilities Cente	er				Depth of wel		C (feet):	17.47
Location: Port of O	akland				_	Well	diameter (	inches):	2
651 Mari	time Street, C	akland, Californ	nia		Sc	reened interva	l from TOC	(feet):	7.47-17.47
Weather: Occasion	al rain, clouds	s, and sun				TOC elevation	, NAVD 8	G (feet):	15.66
Precip. in past 5 days (in.	´					water elevation	•	(feet):	5.73
Source:		e Services Age	<del>L</del>	.060	Water level fro	, ,		Time:	13:15
Water level instrument:	Dual-phase	interface probe	(Solinst)	•	Product level fro	om TOC (feet):	9.31	Time:	13:15
	t - 9.93 ft)	x (0.083 ft) <sup>2</sup>				1.2	gallons in	one casi	ng volume
	h - water leve	l x (well radius)	) <sup>2</sup> x π x gal	l/ft³=		0	total gallo	ns remo	ved
CALIBRATION:		Temperature	-11	DO	ORP	EC	Turkidia.		
	<u>Time</u>	(°C)	pH <u>(S.U.)</u>	<u>(%)</u>	(mV)	EC (µmho/cm)	Turbidity (NTU)		
Calibration Standard	· · · · · · · · · · · · · · · · · · ·	<u></u>	7.00	100%	238@20°C	1,000	0/10		
Before Purging		13.9	7.00	100%	238@20 C 238@18.4 <sup>0</sup> C	1,000	0.10/10		
After Purging		18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASUREMEN	ITS:								
	<u>Time</u>	Temperature (°C)	pH (S.U.)	DO (mg/L)	ORP <u>(mV)</u>	EC (µmho/cm)	Turbidity (NTU)		ulative Removed
Measured	l product leve	l only, no groun	dwater sar	mple colle	cted due to the p	resence of free	e-phase pro	duct.	
Purge method:							Sample	Time:	

TOC = top of casing

Comments:

Sample containers: Sample analyses:

Duplicate/blank number: Sampling equipment:

Decontamination method:

NAVD 88 = North American Vertical Datum of 1988.

BASELINE • 5900 Hollis Street, Suite D • Emeryville, CA 94608 (510) 420-8686 • (510) 420-170

Duplicate Sample Time:

VOA attachment:

Laboratory:

Rinsate disposal:

GROUNDWA	AIEK (	SAMPLIN'	<u>ن</u>					Well No.:	M	W-4
Project No. Y	5395-06		,			Record	led by:V	VKS/RR	Date:	3/4/200
Project Name: <u>H</u>	arbor Fa	cilities Center	<u> </u>			_	Depth of w	ell from TO	C (feet):	22.05
Location: Po	ort of Oa	kland					We	ell diameter (	inches):	2
			kland, Califon	nia		Sc	reened inter	val from TOO	C (feet):	11.25-22.
		rain, clouds,	and sun				TOC elevati	on, NAVD 8	8 (feet):	15.91
Precip. in past 5 of					_			on, NAVD 8	8 (feet):	4.98
Source:			Services Agen		-	Water level from	`	´	Time:	8:21
Water level instru	ıment:	Dual-phase in	nterface probe	(Solinst)		Product level fro	om TOC (fee	t): None	Time:	8:21
CALCULATION	OF WE	LL VOLUM	E:							
(	22.05 ft	- 10.93 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	gal/ft <sup>3</sup> =		1.8	gallons in	one casi	ng volum
			x (well radius)				5	total gallo		-
CALIBRATION	•									
OALIDIO (101)	•		Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm	-		
Calibration St	tandard.			7.00	100%	238@20 <sup>o</sup> C	1,000	0/10		
Before I		7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10		
	Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASUI	DEMEN.	re.								
ILLD MLAGO	ZEMIEIA	10.	Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cm	-		s Remove
		10:45	18.3	9.29	0.05	-215	1,068	10	2	7 1 10 1 10 1 10
		10:55	19.2	7.44	0.03	-149	1,082	6.7	4	
		11:00	19.2	7.42	0.14	-149	1,002	4.9	5	
		11.00	17.2	7.72	0.09	-149	1,051	4.7	3	
Purge method:	,	Peristaltic pur	mp and disposa	ible poly t	ubing			Sample	e Time:	11:05
Duplicate/blank n	_						Dun	licate Sample	_	11:10
Sampling equipm	_		mp and disposa	ble poly t	ubing	VC	A attachmen	_		
Sample containers	_		As and two L			-				
Sample analyses:	_		BTEX, MTBI		H-mo		Laborator	y: Curtis & T	Compkin	s
Decontamination	_					Ri		al: Stored on		
Comments: Sample was clear. Pumped silt from the bottom of the we					f the well	<del>-</del>	2.0p 00.	Port contr		emove
			July Holli till					1 0.1 001111		

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	ATER S	SAMPLIN	G					Well No.:	N	IW-5
Project No.	Y5395-06					Record	led by:	WKS/RR	Date:	3/4/2009
Project Name: I	Harbor Fa	cilities Cente	<u>-</u> г				Depth of	well from TO	C (feet):	20.8
Location: F	Port of Oa	kland				_	v	Vell diameter (	inches):	2
6	551 Mariti	me Street, O	akland, Califor	nia		- So	reened inte	rval from TO	C (feet):	10.4-20.8
Weather:	Occasiona	l rain, clouds	, and sun			<del></del>	TOC eleva	tion, NAVD 8	8 (feet):	15.39
Precip. in past 5	days (in.)	0.92	e l		_	Ground	water eleva	tion, NAVD 8	8 (feet):	6.61
Source:		Oakland Fire	e Services Ager	icy "ONC	<u> </u>	Water level fro	om TOC (fe	eet): 8.78	Time:	8:18
Water level instru	ument:	Dual-phase	nterface probe	(Solinst)	•	Product level fro	om TOC (fe	eet): None	Time:	8:18
CALCULATION	N OF WE	LL VOLUM	E:					=		
	(20.80 ft	- 8.78 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	3 gal/ft <sup>3</sup> =		2.	0 gallons in	one cas	ing volume
			x (well radius)				6.			-
	-									
CALIBRATION	l:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	(mV)	(µmho/cr			
Calibration S				7.00	100%	238@20°C	1,000	0/10		
	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 MEASU	REMEN'	re.								
TILLD MLAGO	IZEIVIEIA	10.	Temperature	pН	DO	ORP	EC	Turbidity	Cun	ulative
		<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(μmho/cr	-		s Removed
		9:58	18.8	7.19	0.56	-118	1,644	26	1	o recino voc
		10:07	18.8	7.22	0.29	-118	1,918	8.4	3	
		10:07	18.6	7.22	0.29	-128 -109	1,910	8.4 8.4	4	
		10:11	18.8	7.20	0.40	-88	1,950	3.0	6.5	
		10.24	10.0	7.20	0.05	-00	1,950	5.0	0.5	
Purge method:		Peristaltic pu	mp and disposa	ble poly	tubing			_	e Time:	10:30
Duplicate/blank n								plicate Sampl	e Time:	
Sampling equipm			mp and disposa		tubing	_ VC	A attachm	ent: <u>none</u>		
Sample container	•		As and two L			···-				
Sample analyses:			, BTEX, MTB		H-mo			ory: Curtis &		s
Decontamination	-		water, DI water	r rinse		_ Ri	nsate dispo	sal: Stored on		
Comments: S	ample wa	s clear			. *			Port contr	actor to	remove
						A				

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWAT	ROUNDWATER SAMPLING							Well No.:	M۱	N-8A
Project No. Y53	395-06					Record	led by:	WKS/RR	Date:	3/4/2009
Project Name: Har	bor Fa	cilities Cente	<del>-</del> r					well from TO	C (feet):	23.14
Location: Port	t of Oa	kland				_	, W	ell diameter (	inches):	2
651	Mariti	me Street, Oa	akland, Califor	nia		- So	reened inte	rval from TO	C (feet):	7.54-22.54
Weather: Occ	asiona	rain, clouds	, and sun			_	TOC elevat	ion, NAVD 8	8 (feet):	14.99
Precip. in past 5 day	/s (in.)	0.92				Ground	water elevat	ion, NAVD 8	8 (feet):	4.92
Source:		Oakland Fire	Services Ager	icy "ONO	<del>-</del> "	Water level fro	om TOC (fe	et): 10.07	Time:	7:55
Water level instrume	ent:	Dual-phase i	nterface probe	(Solinst)	_	Product level fro	om TOC (fe	et): None	Time:	7:55
CALCULATION C	OF WE	LL VOLUM	E:							
(23	3 14 ft	- 10 07 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48			2.	1 gallons ir	one casi	ng volume
			x (well radius)				5	total gallo		-
	<b>-</b> -		(	,						
CALIBRATION:										
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	(mV)	(µmho/cr	n) (NTU)		
Calibration Star	ndard:			7.00	100%	238@20 <sup>0</sup> C	1,000	0/10		
Before Pu	rging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10		
After Pu	rging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASURE	MENT	re.								
FIELD MILASURE	INIT I	3.	Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cr	-		s Removed
					-					Kemoveu
		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 -161	2,004	3.0	4	
		8:35	17.7	7.36	0.12	-101	2,016	3.1	5	
Purge method:	-	Peristaltic pu	mp and disposa	able poly	tubing			_	e Time: _	8:40
Duplicate/blank num	-							plicate Sampl	e Time: _	
Sampling equipment	_		mp and dispose		tubing	_ vc	A attachme	ent: none		
Sample containers:		six 40-ml VC	As and two L	AG						
Sample analyses:	-	TPHg, TPHd	, BTEX, MTB	E, and TP	H-mo		Laborato	ory: Curtis & '	<b>Fompkin</b>	s
Decontamination me	ethod:	Alconox and	water, DI water	r rinse		Ri	nsate dispo	sal: Stored on	site,	
Comments: Sam	ple wa	s clear	4			<del>-</del>		Port contr	actor to 1	emove
										····

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	GROUNDWATER SAMPLING							Well No.:	M	W-9
Project No. Y	′5395-06					Record	led by:	WKS/RR	Date:	3/4/2009
Project Name: H		cilities Cente	- r					well from TO		25
Location: P	ort of Oa	kland				_	-	ell diameter (	· · ·	
6:	51 Mariti	me Street, Oa	akland, Califor	nia		- So		rval from TO	· -	
		l rain, clouds						ion, NAVD 8	` ′ =	
Precip. in past 5 d	lays (in.)	0.92				_		ion, NAVD 8		
Source:			Services Age	ncy "ONO	.,	Water level fro			Time:	
Water level instru	ıment:	Dual-phase i	nterface probe	(Solinst)	•	Product level fro			Time:	8:15
CALCULATION	OF WE	LL VOLUM	E:							
			x (0.083 ft) <sup>2</sup>				2.3	gallons in	one casi	ng volume
w	ell depth	- water level	x (well radius)	$^2 \times \pi \times ga$	l/ft³ =	2	5_	total gallo	ons remov	/ed
						9301				
CALIBRATION:	:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	$\frac{(mV)}{r}$	(µmho/cn	n) <u>(NTU)</u>		
Calibration S				7.00	100%	238@20°C	1,000	0/10		
Before 1	Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10		
After 1	Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASUF	REMENT	<b>S</b> :			<b>D</b> 0	on n			_	
		T:	Temperature	pН	DO	ORP	EC	Turbidity		ulative
		<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cn			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	
									22	
Purge method:		Perietaltic su	mp and dispos	ahle noly t	uhina			Cammi	e Time:	10:10
Duplicate/blank n	-	i oristanto pu	mp and dispos	aore pory t	womg			Sample plicate Sample	_	10.10
Sampling equipme	_	Parietaltic pu	mp and dispos	able poly t	uhina	VC	A attachme	-	- 1 IIIIe. <b>-</b>	
Sampling equipme	_				uomg	- **	n anaciine	ant. Home		
_	Sample containers: six 40-ml VOAs and two L AG TPHg, TPHd, BTEX, MTBE, and TPH-mo					mo Loboratowa Custia & Tomobias				
	Decontamination method: Alconox and water, DI water rinse					mo Laboratory: Curtis & Tompkins  Rinsate disposal: Stored on site,				
Comments: Sample was clear. Petroleum odor.						- K1	usate dispos			omove
Comments. Sa	unpie wa	s cicai. Felic	neum ogor.					Port contr	actor to re	emove

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATE				Well No.:	M\	N-10			
Project No. Y5395	-06				Recor	ded by: V	/KS/RR	Date:	3/4/2009
Project Name: Harbor		ter					ell from TO	_	25
	Oakland					-	ll diameter (	` _	2
651 Ma	ritime Street,	Oakland, Califor	nia		_ 	creened interv	,	· •	
Weather: Occasion	onal rain, cloud	ls, and sun			_	TOC elevation	on, NAVD 8	8 (feet):	15.65
Precip. in past 5 days (i	n.) 0.9	)2			- Ground	water elevation		_	
Source:	Oakland Fi	re Services Age	ncy "ONC	<u>-</u> "	Water level fr	om TOC (fee	t): 9.78	Time:	8:12
Water level instrument	Dual-phase	interface probe	(Solinst)	_	Product level fr	om TOC (fee	t): None	Time:	8:12
CALCULATION OF	WELL VOLU	ME:	· · · · · · · · · · · · · · · · · · ·						
0.									
		x (0.083 ft) <sup>2</sup>				2.5			ng volume
well de	pth - water leve	el x (well radius	) <sup>2</sup> x π x ga	ıl/ft³ =		5	_total gallo	ons remov	ved
CALIBRATION:		Та 4		DO.	OPP	EC	The at 1.11		
	т:	Temperature	pН	DO	ORP	EC	Turbidity		
	<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm)			
Calibration Standa			7.00	100%	238@20°C	1,000	0/10		
Before Purgir	-	13.9	7.00	100%	238@18.4°C	1,000	0.10/10		
After Purgir	ng: 12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASUREME	NTS:								
		Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
	Time	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cm)	•		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	
_						•			
10									2
*									
Purge method:	Peristaltic p	oump and dispos	able poly	tubing			Sample	e Time:	9:30
Duplicate/blank number	r:					Dup	icate Sample	e Time:	
Sampling equipment:	Peristaltic p	ump and dispos	able poly	tubing	VO	OA attachmen	t: none	_	
Sample containers:	six 40-ml V	OAs and two L	AG		_				5
Sample analyses:	TPHg, TPH	d, BTEX, MTB	E, and TP	H-mo	Laboratory: Curtis & Tompkins				3
Decontamination metho	Decontamination method: Alconox and water, DI water rinse				Rinsate disposal: Stored on site,				
	Comments: Sample was clear				-	•	Port contr		emove
<del></del>									
				-					

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

Calibration Standard:	GROUNDWATE			Well No.:	_MV	V-11				
Project Name:   Harbor Facilities Center	Project No. Y539	5-06				Record	led by: V	/KS/RR	Date:	3/4/2009
Location:   Port of Cakland   California   Screened interval from TOC (10 15 15 14 15 15 15 15 15 15 15 15 15 15 15 15 15		r Facilities Cente	<del>-</del> er		20		_		C (feet):	
Meather:   Occasional rain, clouds, and sun   TOC elevation, NAVD 88 (feet)   15.47	Location: Port o	f Oakland				<b></b>			_	2
Precip. in past 5 days (in)   Oscillate   Oscillat	651 M	Iaritime Street, C	akland, Califor	nia		So	reened inter	al from TO	C (feet):	15 - 25
Oakland Fire Services Agency "ONO"   Dual-phase interface probe (Solinst)   Water level from TOC (feet):   9.57   Time:   7:32     Time:   7:32   Time	Weather: Occas	ional rain, cloud	s, and sun			_	TOC elevation	on, NAVD 8	8 (feet):	15.47
Value   Instrument:   Dual-phase interface probe (Solinst)   Product level from TOC (feet):   None   Time:   7:32	Precip. in past 5 days	(in.) 0.92	2			Ground	water elevatio	on, NAVD 8	8 (feet):	5.90
CALCULATION OF WELL VOLUME:    (25.00 ft - 9.57 ft) x (0.083 ft)² x π x 7.48 gal/ft² =   2.5 gallons in one casing volume well depth - water level x (well radius)² x π x gal/ft³ =   2.5 total gallons removed	Source:	Oakland Fir	e Services Age	ncy "ONC	)"	Water level fro	om TOC (fee	t): 9.57	Time:	7:32
CALIBRATION:   Time	Water level instrumen	t: Dual-phase	interface probe	(Solinst)	-	Product level fro	om TOC (fee	t): None	Time:	7:32
CALIBRATION:   Time	CALCULATION OF	WELL VOLUM	ΛE:							
CALIBRATION:   Time	(25.0	00 ft - 9.57 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	3 gal/ft <sup>3</sup> =		2.5	gallons in	one casi	ng volume
Temperature   pH   DO   ORP   EC   Turbidity   (pmho/cm)   (NTU)								_		-
Purge method:   Peristaltic pump and disposable poly tubing   Purge method:   Purge method:		,								
Time	CALIBRATION:									
Calibration Standard:			Temperature	pН	DO	ORP	EC	Turbidity		
Before Purging: 7:21   13.9   7.00   100%   238@18.4°C   1,000   0.10/10		<u>Time</u>	(°C)	(S.U.)	(%)	(mV)	(µmho/cm)	<u>(NTU)</u>		
After Purging: 12:41	Calibration Stand	ard:		7.00	100%	$238@20^{\circ}C$	1,000	0/10		
Temperature pH   DO   ORP   EC   Turbidity   Cumulative	Before Purg	ing: 7:21	13.9	7.00	100%	238@18.4 <sup>0</sup> C	1,000	0.10/10		
Purge method:   Peristaltic pump and disposable poly tubing   Peristaltic pump and disposable poly tubing   Purglicate/blank number:   Sample quipment:   Peristaltic pump and disposable poly tubing   Purglicate/blank number:   Sample containers:   Sample analyses:   TPHg, TPHd, BTEX, MTBE, and TPH-mo   Laboratory:   Comments:   Sample was clear.   Well casing was dry.   Well cap was tight.   MTV   (mV) (μμηλο/cm) (NTU) (NTU) (Qallons Removed (MTV) (μμηλο/cm) (NTU) (NTU) (Qallons Removed (MTV) (μμηλο/cm) (NTU) (Qallons Removed (NTU) (Qallons (NTU) (Q	After Purg	ing: 12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
Purge method:   Peristaltic pump and disposable poly tubing   Peristaltic pump and disposable poly tubing   Purglicate/blank number:   Sample quipment:   Peristaltic pump and disposable poly tubing   Purglicate/blank number:   Sample containers:   Sample analyses:   TPHg, TPHd, BTEX, MTBE, and TPH-mo   Laboratory:   Comments:   Sample was clear.   Well casing was dry.   Well cap was tight.   MTV   (mV) (μμηλο/cm) (NTU) (NTU) (Qallons Removed (MTV) (μμηλο/cm) (NTU) (NTU) (Qallons Removed (MTV) (μμηλο/cm) (NTU) (Qallons Removed (NTU) (Qallons (NTU) (Q	FIFI D MFASIIREM	FNTS:								
Time			Temperature	На	DO	ORP	EC	Turbidity	Cum	ulative
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   Duplicate Sample Time:   12:35     Duplicate/blank number:   Duplicate Sample Time:   Sample quipment:   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   Comments:   Sample was clear. Well casing was dry.   Well cap was tight.   Port contractor to remove		Time	-	_				-		
Purge method:  Peristaltic pump and disposable poly tubing  Duplicate/blank number:  Sampling equipment:  Sample quipment:  Sample containers:  Sample analyses:  TPHg, TPHd, BTEX, MTBE, and TPH-mo  Decontamination method:  Alconox and water, DI water rinse  Comments:  Sample was clear. Well casing was dry. Well cap was tight.  12:05  7.67  0.11  -167  5,070  28  4  12:20  20  6  12:30  20  8  Sample Time:  12:35  Duplicate Sample Time:  Duplicate Sample Time:  VOA attachment: none  Start Tompkins  Rinsate disposal:  Stored on site,  Port contractor to remove										
Purge method:  Peristaltic pump and disposable poly tubing  Duplicate/blank number:  Sampling equipment:  Sample quipment:  Sample containers:  Sample analyses:  TPHg, TPHd, BTEX, MTBE, and TPH-mo  Decontamination method:  Alconox and water, DI water rinse  Comments:  Sample was clear. Well casing was dry. Well cap was tight.  Pont ontractor to remove										
Purge method: Duplicate/blank number: Sample quipment: Peristaltic pump and disposable poly tubing Duplicate/blank number: Sample quipment: Peristaltic pump and disposable poly tubing Sample containers: Sample containers: Sample analyses: TPHg, TPHd, BTEX, MTBE, and TPH-mo Decontamination method: Laboratory: Curtis & Tompkins Decontamination method: Alconox and water, DI water rinse Comments: Sample was clear. Well casing was dry. Well cap was tight. Port contractor to remove							-			
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										
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										
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										
Duplicate / Sample quipment:  Sampling equipment:  Sample containers:  Sample analyses:  TPHg, TPHd, BTEX, MTBE, and TPH-mo  Decontamination method:  Comments:  Sample was clear. Well casing was dry. Well cap was tight.  Duplicate Sample Time:  VOA attachment: none  VOA attachment: none  Laboratory: Curtis & Tompkins  Rinsate disposal: Stored on site,  Port contractor to remove										
Sampling equipment: Peristaltic pump and disposable poly tubing  Sample containers: six 40-ml VOAs and two L AG  Sample analyses: TPHg, TPHd, BTEX, MTBE, and TPH-mo  Decontamination method: Alconox and water, DI water rinse  Comments: Sample was clear. Well casing was dry. Well cap was tight.  VOA attachment: none  Laboratory: Curtis & Tompkins  Rinsate disposal: Stored on site,  Port contractor to remove	Purge method:		ımp and dispos	able poly	tubing			Sampl	e Time: _	12:35
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	•							<del>-</del> .	e Time:	
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	Sampling equipment:				tubing	VC	A attachmen	t: none		
Decontamination method: Alconox and water, DI water rinse  Comments: Sample was clear. Well casing was dry. Well cap was tight.  Rinsate disposal: Stored on site,  Port contractor to remove		six 40-ml V	OAs and two L	AG						
Comments: Sample was clear. Well casing was dry. Well cap was tight. Port contractor to remove	Sample analyses:				H-mo					
No padlock on well cap.				y. Well ca	ap was tig	ht.		Port contr	actor to r	emove
	No pa	dlock on well cap			**	- 8				

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	OUNDWATER SAMPLING							Well No.:	M	W-12
Project No. Y	75395-06					Record	led by: V	VKS/RR	Date:	3/4/2009
Project Name: H			r r				· ·	ell from TO	-	25
Location: P	ort of Oa	kland				_	-	ell diameter (		
6:	51 Mariti	ime Street, O	akland, Califor	nia		– Sc		val from TO	· ·	
Weather: O	ccasiona	l rain, clouds	, and sun			_		on, NAVD 8		
Precip. in past 5 d						_		on, NAVD 8	· · · ·	
Source:	• , ,	Oakland Fire	e Services Age	ncy "ONC	- )"	Water level fro		-	Time:	
Water level instru	ıment:	Dual-phase	interface probe	(Solinst)	•	Product level fro	om TOC (fee	t): None	Time:	
CALCULATION	OF WE	LL VOLUM	IE:					<u> </u>		
1	(25 NN A	10 60 <del>0</del> )	x (0.083 ft) <sup>2</sup>	v = v 7 49	2 gal/ft <sup>3</sup> =		2.3	gallong in	one ensi	ing volume
			x (well radius)				8	total gallo		-
<b>"</b>	cir depin	- water level	x (well radius)	, хих да	I/ It			total gaile	nis reino	veu
CALIBRATION	•									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm	( <u>NTU</u> )		
Calibration S	standard:			7.00	100%	238@20 <sup>o</sup> C	1,000	0/10		
Before 1	Purging:	7:21	13.9	7.00	100%	238@18.4°C	1,000	0.10/10		
After 1	Purging:	12:41	18.7	7.08	95.8%	234@15.3°C	1,060	0.00/9.5		
FIELD MEASUR	REMEN'	rs.								
TILLD MEAGO	X = 191 = 1 4		Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	(S.U.)	(mg/L)	(mV)	(µmho/cm)	•		s Removed
		11:49	18.4	7.43	0.21	-148	1,843	>1,000	2	<u> </u>
		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	5.5	ν.
		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	
57										
				(9.)						
Purge method:		Peristaltic pu	mp and dispos	able poly	tubing			-	e Time:	12:40
Duplicate/blank n								licate Sample	e Time:	
Sampling equipme			mp and dispos		tubing	_ VC	A attachmer	it: <u>none</u>		
Sample containers			OAs and two L							
Sample analyses:			I, BTEX, MTB		H-mo			y: Curtis & 7		s
	ation method: Alconox and water, DI water rinse					_ Ri	nsate disposa	al: Stored on	site,	5 E
Comments: Sa	omments: Sample was clear							Port contr	actor to 1	remove
										Ni.
				17						

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWAT	ER SA	MPLIN	G					Well No.:	M	W-1
Project No. Y53	95-06					Record	led by:	WKS/RR	Date:	4/1/2009
Project Name: Harb	or Facili	ties Cente	<del>-</del> г					well from TO	C (feet):	
Location: Port	of Oakla	nd				_	v	Vell diameter (	inches):	2
651	Maritime	Street, O	akland, Californ	nia			Screened int	erval from TO	C (feet):7	.65-17.65
Weather: Sunr	ıy, clear,	and cool			-	_	TOC eleva	tion, NAVD 8	88 (feet):	15.80
Precip. in past 5 days	s (in.)	C	)			Groun	dwater eleva	tion, NAVD 8	88 (feet):	5.13
Source:			e Services Agen			Water level fro			Time:	8:10
Water level instrume	ent: <u>D</u> ı	ual-phase	nterface probe	(Solinst)	)	Product level fro	m TOC (fee	t): 10.65	Time:	8:10
CALCULATION O	F WELL	- VOLUM	E:							
•			x (0.083 ft) <sup>2</sup> x (well radius)	_	•	==	1.1	_ gallons in o	_	
CALIBRATION:										
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm	(NTU)		
Calibration Stan	dard:			7.00	100	244 @ 15 <sup>0</sup> C	1,000	0/10		
Before Pur	rging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
After Pur	rging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASURE	MENTS:	:								
			Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	<u>s.u.</u>	(mg/L)	<u>(mV)</u>	(µmho/cm	•	Gallons	Removed
			d product level of hase product.	only, no	groundw	ater sample collec	eted due to the	ne presence		ū
Purge method:								Sampl	e Time:	
Duplicate/blank num	ber:						Dı	plicate Sampl	_	
Sampling equipment:			9			VOA		t:	_	
Sample containers:						-		-		
Sample analyses:							Laborator	/:		
Decontamination met	thod:					Rin		9		
Comments:			E 27			-	1		· · · · · · · · · · · · · · · · · · ·	0

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDW	ATER S	SAMPLIN	G					Well No.:	М	W-2
Project No.	Y5395-06					Record	ed by: V	VKS/RR	Date:	4/1/2009
Project Name: 1	Harbor Fa	cilities Cente	- T				Depth of w	ell from TO	C (feet):	18.06
Location:	Port of Oa	kland				_	We	ell diameter (	inches):	2
	651 Marit	ime Street, O	akland, Califori	nia		Sc	reened inter	val from TO	C (feet):	8.06-18.06
Weather:	Sunny, cle	ear, and cool				<b>_</b>	TOC elevati	on, NAVD 8	8 (feet):	16.43
Precip. in past 5	days (in.)	0	)		_	Groundy	vater elevati	on, NAVD 8	8 (feet):	5.09
Source:		Oakland Fire	e Services Ager	icy "ONO	<u></u>	Water level from	m TOC (feet	): 11.34	Time:	7:47
Water level instr	ument:	Dual-phase i	nterface probe	(Solinst)	_ 	Product level from	m TOC (feet	): None	Time:	7:47
CALCULATIO	N OF WE	ELL VOLUM	E: <sup>S</sup> ,		•					
	(18.06 ft	- 11.34 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	gal/ft <sup>3</sup> =		1.1	gallons in	one casir	ng volume
v	well depth	- water level	x (well radius)	$\int_{0}^{2} x \pi x gai$	$1/ft^3 =$		2.5	total gallo		-
CALIBRATION	l:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		Time	(°C)	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm	•		
Calibration	Standard:			7.00	100	244 @ 15 <sup>o</sup> C	1,000	0/10		
	Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
	Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASU	REMEN	TS:		•						
			Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	<u>s.u.</u>	(mg/L)		(µmho/cm)	-		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 pu	mp and disposa	able nolv t	นhino			Samnl	e Time:	9·10
Duplicate/blank i		pu		pory t	<u>_</u>		Dun	licate Sampl	-	7.10
Sampling equipm		Peristaltic nu	mp and disposa	able poly t	ubing	VO	A attachmen	_		
Sample container			As and two L		<b>5</b>	_				
Sample analyses:		***************************************		Laborators	: Curtis & T	ompkins				
	ample analyses: TPHg, TPHd, BTEX, MTBE, and TPH-mo Decontamination method: Alconox and water, DI water rinse.							Stored on		
	ample wa					_		Port contra		emove.
							-			

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	TER S	SAMPLIN	G			- 1	Well No.:	N	1W-3	
Project No. Y	5395-06					Record	ed by: W	KS/RR	Date:	4/1/2009
Project Name: H	arbor Fa	cilities Cente	r				Depth of we	ll from TOO	C (feet):	17.47
Location: Po	ort of Oa	kland				<del>-</del>	Wel	l diameter (i	inches):	2
65	51 Mariti	ime Street, O	akland, Califor	nia		_ Sc	reened interva	al from TOO	(feet):	7.47-17.47
Weather: Su	ınny, cle	ar, and cool					TOC elevation	n, NAVD 88	3 (feet):	15.66
Precip. in past 5 d	ays (in.)	0			_	Groundy	vater elevation	n, NAVD 88	3 (feet):	4.56
Source:		Oakland Fire	e Services Age	ncy "ONO	<del>, 11</del>	Water level fro	m TOC (feet)	: <u>11.10</u>	Time:	13:30
Water level instru	ment:	Dual-phase	nterface probe	(Solinst)	_	Product level fro	m TOC (feet)	: 10.38	Time:	13:30
	(17.47 ft	- 11.10 ft)	x (0.083 ft) <sup>2</sup> x (well radius)				1.0	_gallons in _total gallo		ing volume
CALIBRATION:			Temperature	рН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	рн ( <u>S.U.)</u>	<u>(%)</u>	(mV)	(µmho/cm)	(NTU)		
Calibration S	tandard:	11110	<u>1 U</u>	7.00	100	244 @ 15 <sup>0</sup> C	1,000	0/10		
Before I		7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
	Purging:		19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASUR	REMEN	TS:	T		DO	OPP	EC	T. Li Ke	G	. 1 4
		<u>Time</u>	Temperature (°C)	pH <u>S.U.</u>	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)		nulative s Removed
М	easured j	product level	only, no groun	dwater sai	mple colle	ected due to the p	resence of fre	e-phase pro	duct.	

TOC:	= ton	of c	asing

Comments:

Purge method:

Sample containers: Sample analyses:

Duplicate/blank number: Sampling equipment:

Decontamination method:

NAVD 88 = North American Vertical Datum of 1988.

BASELINE • 5900 Hollis Street, Suite D • Emeryville, CA 94608 (510) 420-8686 • (510) 420-1701

Sample Time:

Duplicate Sample Time:

VOA attachment:

Rinsate disposal:

Laboratory:

GROUNDWA	ATER	SAMPLIN	G					Well No.:	М	W-4
Project No. Y	3395-06		· · ·			Record	led by: W	KS/RR	Date:	4/1/2009
Project Name: H	larbor Fa	cilities Center	<u>.</u>				Depth of we		_	22.05
Location: Po	ort of Oa	kland				<del></del>	_	l diameter (		
6:	51 Mariti	ime Street, Oa	akland, Californ	nia		– Sc	reened interv			
Weather: S	unny, cle	ar, and cool				_	TOC elevatio		· · · •	
Precip. in past $\overline{5}$	days (in.	0	p-1			- Groundy	vater elevatio	n, NAVD 8	8 (feet):	4.28
Source:		Oakland Fire	Services Ager	icy "ONO	<del>,                                    </del>	Water level fro	om TOC (feet	): 11.63	Time:	7:53
Water level instru	ument:	Dual-phase is	nterface probe	(Solinst)	_	Product level fro	m TOC (feet	): None	Time:	7:53
CALCULATION	N OF W	ELL VOLUM	IE:							
(	(22.05 ft	- 11 63 ft)	x (0.083 ft) <sup>2</sup>	х π х 7 48	gal/ft <sup>3</sup> =		1.7	gallons in	one casi	ng volume
			x (well radius)				5	total gallo		
								8		
CALIBRATION	:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	<u>(mV)</u>	(µmho/cm)	(NTU)		
Calibration S	tandard:			7.00	100	244 @ 15 <sup>0</sup> C	1,000	0/10		
	Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
After I	Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASU	REMEN	TS:								
			Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	<u>S.U.</u>	(mg/L)	(mV)	(µmho/cm)	(NTU)		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:	-		mp and disposa	ible poly t	ubing			Sample	e Time:	10:30
Duplicate/blank n	umber:	MW-4dup				(i)	Dupl	icate Sample	e Time:	10:35
Sampling equipm	-	Peristaltic pur	mp and disposa	ble poly t	ubing	vo	A attachment	none		
Sample containers	s:	six 40-ml VO	As and two L	AG						
Sample analyses:	-	TPHg, TPHd	, BTEX, MTBI	E, and TPI	H-mo		Laboratory	: Curtis & 7	Compkins	3
Decontamination	method:	Alconox and	water, DI wate	r rinse.		Rin	nsate disposal	: Stored on	site,	
Comments: Sa	ments: Sample was clear. Dissolved oxygen reading on 3/26/09							Port contra	actor to r	emove.
гег	moval of	ORC sock w	as 16.02 mg/L.	Replace	d ORC so	cks after sample	collection.	_		

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDW	VATER	SAMPLIN	G			40		Well No.:	N	IW-5
Project No.	Y5395-06	5				Record	led by: \	VKS/RR	Date:	4/1/2009
Project Name:	Harbor Fa	cilities Cente	_ ЭГ				Depth of w	ell from TO	C (feet):	20.8
Location:	Port of O	akland					W	ell diameter (	inches):	2
	651 Marit	time Street, C	akland, Californ	nia		– Sc	reened inter	val from TO	C (feet):	10.4-20.8
Weather:	Sunny, cl	ear, and cool					TOC elevati	on, NAVD 8	8 (feet):	15.39
Precip. in past 5	5 days (in.)	) (	)			Groundy	vater elevati	on, NAVD 8	8 (feet):	6.23
Source:		Oakland Fir	e Services Ager	ncy "ONC	<b>5</b> "	Water level fro	m TOC (fee	t): 9.16	Time:	7:49
Water level inst	trument:		interface probe		- -	Product level fro	•		Time:	7:49
CALCULATIO	ON OF W	ELL VOLUN	NE:			25	···-			
	(20.80 f	- 9.16 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	8 gal/ft³ =		1.9	gallons ir	one casi	ing volume
			x (well radius)				6.5			
	-							_		
CALIBRATIO	N:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	(mV)	(µmho/cm	-		
Calibration	Standard:			7.00	100	244 @ 15°C	1,000	0/10		
Befor	e Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
Afte	er Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASI	IIREMEN	TQ.								
I ILLD MEAG	A: 7 = 141 = 14	10.	Temperature	pН	DO	ORP	EC	Turbidity	Curr	ulative
		<u>Time</u>	(°C)	<u>S.U.</u>	(mg/L)	(mV)	(µmho/cm	-		s Removed
		9:45	19.0	7.15	0.35	-57	1,697	5.9	1	5 Itomo voc
		9:43 9:58	18.9	7.13 7.14	0.35	-62		7.9	2.5	
		9.38 10:11	18.9	7.14	0.83	-02 -92	1,643 1,731	4.2	2.5 4	
		10:11	19.0	7.13	0.55	-102	1,731	2.5	6.5	
		10.24	19.0	7.14	0.55	-102	1,/12	2.3	0.5	
Purge method:		Peristaltic p	ımp and disposa	able poly	tubing			-	e Time:	10:30
Duplicate/blank							Dup	licate Sampl	e Time:	
Sampling equip			ımp and disposa		tubing	VO	A attachmer	nt: none		
Sample containe	ers:	six 40-ml V	OAs and two L.	AG		V				
Sample analyses	s:	TPHg, TPHe	i, BTEX, MTBI	E, and TP	H-mo		Laborator	y: Curtis &	<b>Fompkin</b>	s
Decontaminatio	n method:	Alconox and	water, DI wate	r rinse.		Ri	nsate disposa	al: Stored on	site,	
								Port contr		remove.
				- 11100.			and dispose			remo

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 4/1/2009 Date: Project Name: Harbor Facilities Center Depth of well from TOC (feet): 23.14 Well diameter (inches): Location: Port of Oakland 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.) Groundwater elevation, NAVD 88 (feet): 4.07 Oakland Fire Services Agency "ONO" Source: Water level from TOC (feet): 10.92 Time: 7:49 Water level instrument: Dual-phase interface probe (Solinst) Product level from TOC (feet): 7:49 None Time: **CALCULATION OF WELL VOLUME:** $(23.14 \text{ ft} - 10.92 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$ 2.0 gallons in one casing volume well depth - water level x (well radius)<sup>2</sup> x $\pi$ x gal/ft<sup>3</sup> = total gallons removed **CALIBRATION:** Temperature pН DO ORP EC Turbidity **Time** (°C) (S.U.) (%) (mV) (µmho/cm) (NTU) 100 244 @ 15°C Calibration Standard: 7.00 1.000 0/10 Before Purging: 7:15 13.2 7.06 103.7 240 @ 15.3°C 1,000 0.20/10 223 @ 15.3°C After Purging: 13:55 19.7 7.30 91.5 1,072 0.00/9.6 FIELD MEASUREMENTS: Temperature pН DO ORP EC **Turbidity** Cumulative **Time** (°C) <u>S.U.</u> (mg/L)(mV) (µmho/cm) (NTU) Gallons Removed 10:52 18.4 7.30 0.13 2,049 2 -151 6.1 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	d: 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.

Y5395-06									
	10	_			Record	ed by:	WKS/RR	Date:	4/1/200
larbor Fa	cilities Cente	er				Depth of	well from TC	C (feet):	25
Port of Oa	kland				_	•	Well diameter	(inches):	2
51 Marit	ime Street, O	akland, Californ	nia		Sc	reened int	erval from TO	C (feet):	15 - 25
Sunny, cle	ar, and cool				<del></del>	TOC eleva	ation, NAVD 8	38 (feet):	16.33
days (in.)	(	)					•		
	Oakland Fir	e Services Ager	icy "ONO	- )"'			-		
ument:	Dual-phase	interface probe	(Solinst)	•		-	· ·	Time:	<del></del>
N OF WE	LL VOLUM	IE:							
			7.40	1,03					
									7
vell depth	- water level	x (well radius)	īxπxga	1/m² =			total gall	ons remo	ved
<b>:</b>									
		Temperature	pН	DO	ORP	EC	Turbidity	/	
	<u>Time</u>	(°C)	(S.U.)	(%)	(mV)	(µmho/c			
Standard:		<u></u>	7.00	100	244 @ 15 <sup>o</sup> C	1.000			
	7:15	13.2				-			
Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	-			
DEMEN:	re.								
KENEN	13.	Tamparatura	ъU	DO	aao	EC	Turkidie	C	
	Time		_						
					-				S Kemovec
	12:20	20.2	7.17	0.16	-148	1,/95	2.5	7	
	Peristaltic pu	ımp and disposa	ble poly	ubing			· -	-	12:25
			·			•	-	le Time: _	
				ubing	_ vo	A attachm	ent: none		
				H-mo		Laborat	ory: Curtis &	Tompkin	ıs
method:	Alconox and	water, DI water	r rinse.	<u> </u>	Rii	nsate dispo	osal: Stored or	site,	
Comments: Sample was clear.							Port cont	ractor to	remove.
	Standard: Purging: Purging: REMEN	Standard: Purging: 7:15 Purging: 7:15 Purging: 13:55  REMENTS:  Time 12:00 12:10 12:20  Peristaltic purumber: Peristaltic purumber: Peristaltic purumber: Purging: 7:15 Purging: 7:15 Purging: 13:55	Standard:  Temperature  Time  Time	Sol Maritime Street, Oakland, California  Sunny, clear, and cool  days (in.)  Oakland Fire Services Agency "ONO  Dual-phase interface probe (Solinst)  NOF WELL VOLUME:  (25.00 ft - 11.51 ft) x (0.083 ft) <sup>2</sup> x π x 7.48  vell depth - water level x (well radius) <sup>2</sup> x π x ga  :  Temperature pH  Time (°C) (S.U.)  Standard: 7.00  Purging: 7:15 13.2 7.06  Purging: 13:55 19.7 7.30  REMENTS:  Temperature pH  Time (°C) S.U.  12:00 20.1 7.22  12:10 20.1 7.18  12:20 20.2 7.17   Peristaltic pump and disposable poly to six 40-ml VOAs and two L AG  TPHg, TPHd, BTEX, MTBE, and TP  method: Alconox and water, DI water rinse.	Standard:	Standard:   California   Cal	Screened int TOC elevations   Screened intersections   Screened intersections   Screened intersections   Screened intersections   Screenia in ToC elevations   Screenia in ToC elevations   Screenia in ToC elevations   Screenia in ToC elevations	Screened interval from TOC   Sunny, clear, and cool   TOC elevation, NAVD 8   Groundwater elevation, NAVD 8   Groundwater elevation, NAVD 8   Groundwater elevation, NAVD 8   Water level from TOC (feet):   11.51   mment:   Dual-phase interface probe (Solinst)   Product level from TOC (feet):   None	Screened interval from TOC (feet):   TOC elevation, NAVD 88 (feet):   Groundwater elevation, NAVD 88 (feet):   Groundwater elevation, NAVD 88 (feet):   Groundwater elevation, NAVD 88 (feet):   Inc.   Mone   Time:   Mone   Mon

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	ATER :	SAMPLIN	G					Well No.:	M	W-10
Project No. Y	75395-06					Record	led by:	WKS/RR	Date:	4/1/2009
Project Name: H	larbor Fa	cilities Cente	- r					vell from TO	C (feet):	
Location: Po	ort of Oa	ıkland			-	<del></del>	_	ell diameter (		
65	51 Marit	ime Street, O	akland, Califor	nia		– Sc		val from TO		
Weather: Si	unny, cle	ear, and cool				<del>-</del>	TOC elevati	on, NAVD 8	8 (feet):	15.65
Precip. in past 5 d	lays (in.)	0				- Groundy	vater elevat	on, NAVD 8	8 (feet):	5.32
Source:		Oakland Fire	Services Age	ncy "ONC	)"	Water level fro	m TOC (fe	et): 10.33	Time:	7:58
Water level instru	ıment:		nterface probe		<b>-</b> -	Product level fro	m TOC (fe	et): None	Time:	7:58
CALCULATION	OF WE	ELL VOLUM	E:							
-	(25.00 ft	- 10.33 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	3 gal/ft <sup>3</sup> =		2.4	gallons in	one cas	ing volume
			x (well radius)				8	total gallo		-
CALIDDATION	_									
CALIBRATION:	_		Temperature	pН	DO	ORP	EC	Tuekidie.		
		<u>Time</u>	(°C)	рп <u>(S.U.)</u>	<u>(%)</u>	(mV)	μmho/cm	Turbidity (NTU)		
Calibration S	tomdond.	Time		7.00	100	244 @ 15°C		0/10		
		7:15	 12.2		100	244 @ 13 C 240 @ 15.3°C	1,000			
Before I	Purging: Purging:	13:55	13.2 19.7	7.06 7.30	91.5	240 @ 15.3 °C 223 @ 15.3 °C	1,000 1,072	0.20/10 0.00/9.6		
						C	- <b>,</b>			
FIELD MEASUR	REMEN'	TS:								
			Temperature	pН	DO	ORP	EC	Turbidity	Cum	nulative
		<u>Time</u>	(°C)	<u>S.U.</u>	(mg/L)	<u>(mV)</u>	(µmho/cm	(NTU)	Gallon	s 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 pu	mp and dispose	able poly	tubing			Sample	e Time:	12:15
Duplicate/blank nu					2		Dup	olicate Sample	Time:	
Sampling equipme		Peristaltic pu	mp and disposa	able poly	tubing	vo	A attachme	nt: none	<u>_</u>	
Sample containers	s:	six 40-ml VC	As and two L	AG	(3					
Sample analyses:		TPHg, TPHd	, BTEX, MTB	E, and TP	H-mo		Laborato	ry: Curtis & 7	<b>Fompkin</b>	s
Decontamination r	method:	Alconox and	water, DI water	r rinse.		Ri	nsate dispos	al: Stored on	site,	h II
Comments: Sa	mple wa	s clear.						Port contr	actor to	remove.
Х						d		F7		

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDW	ATER S	SAMPLIN	G					Well No.:	M	W-11
Project No.	Y5395-06					Record	led by:	WKS/RR	Date:	4/1/2009
Project Name: 1	Harbor Fa	cilities Cente	- r					well from TO	C (feet):	
Location:	Port of Oa	kland				_	_	Vell diameter (		
(	651 Marit	ime Street, O	akland, Califor	nia		– Sc	reened inte	erval from TO	C (feet):	15 - 25
Weather:	Sunny, cle	ar, and cool				_	TOC eleva	tion, NAVD 8	8 (feet):	15.47
Precip. in past 5	days (in.)	0				 Grounds	vater eleva	tion, NAVD 8	8 (feet):	5.53
Source:		Oakland Fire	Services Age	ncy "ONC	<u>)</u> "	Water level fro	om TOC (fe	eet):9.94	Time:	7:20
Water level instr	ument:	Dual-phase i	nterface probe	(Solinst)	- -	Product level fro	om TOC (fe	eet): None	Time:	7:20
CALCULATIO	N OF WE	LL VOLUM	E:							
	(25.00 ft	- 9.94 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	3 gal/ft³ =		2.	4 gallons ir	one cas	ing volume
V			x (well radius)				8.			-
CALIBRATION	ſ•									
CALIBRATION	•		Temperature	pН	DO	ORP	EC	Turbidity		
		Time	(°C)	(S.U.)	(%)	(mV)	(µmho/cr	•		
Calibration	Standard:			7.00	100	244 @ 15°C	1,000	0/10		
	Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
	Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASU	REMEN'	rs:	_							
		m:	Temperature	pН	DO	ORP	EC	Turbidity		nulative
		<u>Time</u>	<u>(°C)</u>	<u>S.U.</u>	(mg/L)	(mV)	(µmho/cr			s 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 8:54	19.5 20.1	7.63 7.64	0.13 0.08	-152 -171	5,100	2.5	5	
		9:06	20.1	7.64 7.64	0.80	-1/1 -169	5,100 5,100	2.4 1.9	7 8.5	
		7.00	20.1	7.04	0.80	-109	3,100	1.9	6.3	
Purge method:		Peristaltic pu	mp and disposa	able poly	tubing			-	e Time:	9:10
Duplicate/blank		Desire 1st	1 11	11 1	. 1 .			plicate Sampl	e Time:	
Sampling equipm			mp and disposa	<u> </u>	tubing	<b>VO</b>	A attachm	ent: none		
Sample container	•		As and two L		**		T 1	0		
Sample analyses:			, BTEX, MTB		H-mo			ory: Curtis &		S
Decontamination			- Ri	nsate dispo	sal: Stored on					
Comments: S	ample wa	s clear. Well	cap has no locl				Port contr	actor to	remove.	
									····	

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWA	ATER S	SAMPLIN	G					Well No.:	M	W-12
Project No. Y	75395-06					Record	ed by: V	VKS/RR	Date:	4/1/2009
Project Name: H	larbor Fa	cilities Cente	- r					ell from TO		25
Location: P	ort of Oa	kland				_	-	ell diameter (	· · · ·	2
6	51 Marit	ime Street, O	akland, Califon	nia		_ Sc		al from TO		
Weather: S	unny, cle	ar, and cool					TOC elevation	on, NAVD 8	8 (feet):	16.79
Precip. in past 5 c	days (in.)	0				- Groundy	vater elevation	on, NAVD 8	8 (feet):	5.56
Source:		Oakland Fire	e Services Ager	cy "ONC	5"	Water level fro	m TOC (fee	t): 11.23	Time:	7:17
Water level instru	ument:	Dual-phase	nterface probe	(Solinst)	-	Product level fro	m TOC (fee	t): None	Time:	7:17
CALCULATION	OF WE	LL VOLUM	E:							
	(25.00 ft	- 11.23 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	gal/ft³ =		2.2	gallons in	one casi	ing volume
			x (well radius)				6	total gallo		
	28									
CALIBRATION	:		Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	(%)	(mV)	(µmho/cm	-		
Calibration S	Standard:			7.00	100	244 @ 15°C	1,000	0/10		
	Purging:	7:15	13.2	7.06	103.7	240 @ 15.3°C	1,000	0.20/10		
	Purging:	13:55	19.7	7.30	91.5	223 @ 15.3°C	1,072	0.00/9.6		
FIELD MEASUR	REMEN	rs:	Temperature	рН	DO	ORP	EC	Turbidity	Cum	ulative
		<u>Time</u>	(°C)	<u>S.U.</u>	(mg/L)		(umho/cm)			s 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 pu	mp and disposa	able poly	tubing			_	e Time: _	13:45
Duplicate/blank n		D * . *.*				W		licate Sample	e Time:	<del></del> :
Sampling equipme			mp and disposa		tubing	- vo	A attachmen	it: none		
Sample containers			As and two L							
Sample analyses:			, BTEX, MTBI		H-mo	Laboratory: Curtis & Tompkins				
Decontamination:			water, DI wate	r rinse.		- Rii	isate disposa	d: Stored on		
Comments: Sa	omments: Sample was clear.							Port contr	actor to 1	remove.
7										

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

									033	
GROUNDW	ATER S	AMPLIN	G					Well No.:	N	W-1
Project No.	4656016					Rec	orded by:	<i>8</i> :11	Date:	6/17/0
Project Name:	Harbor Fac	ilities Cente	er			_	Depth o	f well from TC		
Location:	Port of Oak	land				-	,	Well diameter	(inches):	2
<u> </u>	651 Maritir	ne Street, O	akland, Califor	nia			Screened in	terval from TC	C (feet)	7.65-17.65
Weather:	overca:	st, cool				_	TOC elev	ation, NAVD 8	88 (feet):	15.80
Precip. in past 5		Ø			_	Gro	ındwater elev	ation, NAVD	88 (feet):	
Source:	_		e Services Age		-	Water level i	from TOC (fe	et): 11-28	Time:	12:28
Water level instr	ument: <u>I</u>	Dual-phase	interface probe	(Solins	<u>t</u> )	Product level	from TOC (fe	et): 11-21	Time:	12:28
CALCULATIO	N OF WE	L VOLUM	IE:							
•	•	•	x (0.083 ft) <sup>2</sup> x (well radius)	_	_	=	<del>-2</del>	gallons in o total gallons	_	
CALIBRATION	ł:		<b></b>	••	<b>D</b> 0	077				
		Time	Temperature (°C)	pH (S.U.)	DO	ORP	EC	Turbidity		
Calibration	C4		<u> </u>			(mV)	(µmho/cn			
	Standard: Purging:	Free	. Product	+ Re	bove	in well:	well no	it samp	oled	
	Purging:			-		,	( )	(		
Allei	ruiging.									
FIELD MEASU	REMENTS	S:								
			Temperature	pН	DO	ORP	EC	Turbidity	Cum	ulative
	_	Time	(°C)	<u>S.U.</u>	(mg/L)	(m <u>V)</u>	(µmho/cm	ONTU)	Gallon	s Removed
	L									
	-					<b> </b>	<del>                                     </del>			
	⊢		<b> </b>		<u> </u>					
	-			ļ	ļ		<del>                                     </del>		-	
	_		110			15	+			
				·			1			
							<del>                                     </del>			
Purge method:	_							Sampl	e Time:	
Duplicate/blank	number:						D	uplicate Sampl	_	
Sampling equipm	nent:					V	OA attachmer	- "	·	
Sample container	's:					•				".
Sample analyses:	_						Laborator	y:		

Comments:

Decontamination method:

NAVD 88 = North American Vertical Datum of 1988.

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

Laboratory:

Rinsate disposal:

Project No. 46560	016	_			Reco	rded by:	Ø	Date	: 6/17/09		
Project Name: Harbor F	acilities Center			-	Depth of well from TOC (feet): 18.06						
Location: Port of O	akland					Wel	diameter	(inches)	: 2		
651 Mari	time Street, Oal	dand, Californi	a		Screened interval from TOC (feet): 8.06-18.06						
Weather: war	m. suni	M. SOM	le clo	)uds	TOC elevation, NAVD 88 (feet): 16.43						
Precip. in past 5 days (in.	): <u> </u>	J.		1	Ground	dwater elevation	, NAVD	88 (feet):	4.53		
Source:	Oakland Fir	e Services Age	ncy "ONO			om TOC (feet):			0820		
Water level instrument:	Dual-phase	interface probe	(Solinst)	P		om TOC (feet):		Time:			
CALCULATION OF W	ELL VOLUME	:							<u> </u>		
	યત્લક (	1,90				1.0	-				
	ift - 0.00 ft)					2.5	gallons in	one cas	ing volume		
well depti	ı - water leve	l x (well radius	$)^2 \times \pi \times ga$	/ <del>1</del> 13 =		3.0	total gallo	ns remo	ved		
10/0											
CALIBRATION:											
		Temperature	pН	DO	ORP	EC	Turbidity	1			
= 1	<u>Time</u>	(°C)	(S.U.)	(%)	<u>(mV)</u>	(undro/em)	(NTU)				
Calibration Standar	rd: 0 <b>220</b>		400	MA	N/A	4.49mS/m	0.0	10	10		
Before Purgir	ig: it	165	4.00 3.94	9.51	NA	4.47	2	/ -			
After Purgir			4.12	6.32	~/#	14	~	!			
	1 100	21.2	7.12	6.56		4.43	10	_			
FIELD MEASUREMEN	Te.					4.45	(0)	0	16.1		
LILLD MEAGONEMEN	13.	Temperature	pН	DO	ORP	EC	Turkidie.	C	1		
	Time	(°C)	<u>S.U.</u>	(mg/L)	(mV)	(µmho/cm)	Turbidity (NTU)		nulative		
1.5 min /	825	18.4	7.87	8.63		1.47 —	10		0.5		
500 mL	830	18.4	7.47	8.65	_	1.40 -		0.5			
200 MC	833	18-6	1.55	8.55		1.35	10	015	0.75		
11	895	18.1	7.59	8.6		1.35	io		1.5		
	853	18.4	7.58	8.58		1.37	iO		1.0		
	640	18.5	7.55	8.56		1.38	10-				
	845	18.5	7.58	8.00		1.39	10		2		
	847	185	7.50	6.67		1.39	10		2.5		
D				200							
Purge method:	G-000	<u>mp</u>						le Time:	850		
Duplicate/blank number:	<u>na</u>					_	ate Sampl	e Time:	Na		
Sampling equipment:	<u> </u>				VC	A attachment:	none				
Sample containers:		ber, le vo									
Sample analyses:	TPH-9,	d+mo 8				Laboratory:					
Decontamination method:	dising	sall.	Julai	2	Ri	nsate disposal:	_				
Comments:			11	Q							

Well No.:

MW-2

TOC = top of casing

NAVD 88 = North American Vertical Datum of 1988.

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-306

6.16 y 0.0832 50.042 x71

HFC\_GW\_SampleForms blank-6/15/2009

0.133 x 7.48 =

GROUNDWATER	SAMPLIN	G					Well No.:	MV	V-3
Project No. 4656016 Project Name: Harbor Fa Location: Port of Oz 651 Marit	icilities Centuckland ime Street, Control Cont	er Dakland, Califor Califor Califor E Services Agei Interface probe	ncy "ONO"		Groun	orded by:	Il from TO I diameter ( al from TO 1, NAVD 8 1, NAVD 8 1 (2.30	Date: (C (feet): C (feet): 7. 8 (feet): 8 (feet): 1 Time: 1	2 47-17.47 15.66
		x (0.083 ft) <sup>2</sup> l x (well radius)				2.9	_	one casing ons remove	-
CALIBRATION:	<u>Time</u>	Temperature (°C)	pH (S.U.)	DO (%)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)		
Calibration Standard: Before Purging: After Purging:	Free pr	oduct fer	und in	, well	i well	not sam	pled		
FIELD MEASUREMENT	Time	Temperature (°C)	pH S.U.	DO (mg/L)	ORP (mV)	EC (µmho/cm)	Turbidity (NTU)	Cumul Gallons F	
8 1 1 1									
Purge method:							Sample	Time:	
Duplicate/blank number: Sampling equipment: Sample containers:					\	Duplic OA attachment:	ate Sample	Time:	
Sample analyses: Decontamination method: Comments:						Laboratory: Rinsate disposal:			

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER	SAMPLI	NG					Well No.:	MW-4
Project No. 4656016	5				Reco	rded by:	(D)	Date: 6/17/69
Project Name: Harbor F	acilities Cen	<del></del> ter			1000		Name and Address of the Owner, where the Owner, which is the Owner, which is the Owner, where the Owner, which is the Owner,	C (feet): 22.05
Location: Port of O					-			inches): 2
		Oakland, Califo	rnia		-		-	C (feet): 11.25-22.0
		MW.50		01.0				8 (feet): 15.91
Precip. in past 5 days (in		Array, A	<u>IVL</u>	W WIY	_			8 (feet): 4.03
Source:		re Services Age	nev "ONO	141		rom TOC (feet		
		interface probe		_		rom TOC (feet		
			(SOMISI)		FIOURCE IEVEL I	iom TOC (reer	):	Time:
CALCULATION OF W	ELL VOLU	ME:						
				_		1,65	5	
		x (0.083 ft) <sup>2</sup>				35	_gallons in	one casing volume
well depti	ı - water leve	el x (well radius	$(x)^2 \times \pi \times ga$	V <del>11</del> 3 =		4	total gallo	ns removed
						6.54	1	
CALIBRATION.								
CALIBRATION:		T	**	7.0				
	Time	Temperature	pH	DO	ORP	EC	Turbidity	
0.111 6. 4.4	<u>Time</u>	(°C)	(S.U.)	<u>(%)</u>	<u>(mV)</u>	(µmho/cm)	(NTU)	
Calibration Standard:		alibration	صلم ل	ils Con	- MAN - 2			
Before Purging:		solibrali ari	OLENO.		10.00 2			
After Purging:								
FIELD MEASUREMEN	ITQ.							
I ILLD MILAGOREMEN	113.	Temperature	pН	DO	ORP	EC	Tunkidia.	Communication
ourage rate.	Time	(°C)	S.U.	(mg/L)	(mV)	EC (umho/cm)	Turbidity (NTU)	Cumulative
purge rate: 650 ml/min	1122	19.4	- Indiana Control		-108		7	Gallons Removed
MIN	1131		7.65	9.13		1.10	10/24	
	1136	19.8	7.65	9.19	-98	1.07	10/21	0.69
	1140	19.7	7.58 7.58	9.03	-173	1.10	10/3,8	1.55
	1143	19.8	1.59	9.09	-165		10/30	2.24
	1147	19.8	7.62	9.17	-171	1.10	10/24	2.75
(A)	1152	20.0	7.63	9.29	-177	1-10	10/16	3.44 4.30
	1157	20.0	7.56	9.25	-173	141	10/13	5.16
	1205	20.1	7.56		-178	1.11	10/6,45	6.50
				7		1311	107 07 00	0.34
Purge method:	alwa	amu		CO.	93		Sample	Time: 1200
Duplicate/blank number:	Onlo				<u> </u>	Dunli	_	Time: 0/9
Sampling equipment:	NA	-			Vi	OA attachment		
Sample containers:		nber le Vo	A >		•		. <u>1010</u>	
		1+mo 801		s 8260		Laboratory	: C8	4
Decontamination method:			oina	> UZUU		insate disposal		
	Baselin			mober	- condid	•		

NAVD 88 = North American Vertical Datum of 1988.

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-306

Resampled

TOC = top of casing

GROUND	WATED	SAMPLING
GROUND	WAILN	SAMPLING
Denient No	4656014	<b>C</b>

GROUNDWATER	SAMPLING		Well No.:	MW-4
Project No. 465601	6	Recorded by: L	takes D	ate: 6/19/09
Project Name: Harbor F	acilities Center		ell from TOC (fe	
Location: Port of O	akland		ll diameter (inch	
<u>651 Mari</u>	time Street, Oakland, California	Screened interv	al from TOC (fe	et): 11.25-22.05
			on, NAVD 88 (fe	
Precip. in past 5 days (in		Groundwater elevation	n, NAVD 88 (fe	et): 4.09
Source:	Oakland Fire Services Agency "ONO"	Water level from TOC (feet		me: 10:35
	Dual-phase interface probe (Solinst)	Product level from TOC (feet	): <u>Ø</u> Tir	me:
CALCULATION OF W	VELL VOLUME: USgal			
	$(t - 0.00 \text{ ft}) \times (0.083 \text{ ft})^2 \times \pi \times 7.48 \text{ gal/ft}^3$	= 3.6	gallons in one	casing volume
well depti	h - water level x (well radius) <sup>2</sup> x $\pi$ x gal/ft <sup>3</sup> =		total gallons re	_
			_	
CALIBRATION:				
	Temperature pH D0	O ORP EC	Turbidity	
	<u>Time (°C) (S.U.) (%</u>		(NTU)	
Calibration Standard:	: se attacked cal	Shoot sonn	equipo	<b>(</b> 7)
Before Purging		31200 (1017)	- 10-51	
After Purging:				
5	tarted on so	a 610:45		
FIELD MEASUREMEN	tarted purge is	us/cm		
riestimate)  purge rate	Temperature pH DO	7000/47	ነ Turbidity (	(Φρίοχ) Cumulative
1050 Meth	Time (°C) S.U. (mg	· ·	•	llons Removed
(exp Mora)	1055 20.55 792 2.	39 -66.0 1019	n.c	1.0
ourge rate	1057 20.62 8.00 2.	211-86,6 1043		1.25
	10 59 20.103 8.06 1.7			1.75
		5 -100,7 1090	1	<u>a.o</u>
	11:03 20.66 8.11 0.9		+	2.45
	1106 20.62 8.18 0.		<del>                                     </del>	<u>ව.%50</u> ව.75
	1108 20.618.14 05			3,00
	11:10 20.61 8.13 0.4	1-109.9 1120		3,25
D	1113   50.63   8.13   0.3		1 1/ 1	3.50
Purge method:	LOW- SLOW, perista		Sample Tin	
Duplicate/blank number: Sampling equipment:	<u>Ma</u>		icate Sample Tin	ne:
Sample containers:	1 Lamber 15 3	VOAs VOAs		
Sample containers.  Sample analyses:				
Decontamination method		Silica gel Laboratory Rinsate disposal		
Comments:	TANK TONIVY	Kilisate disposat	· _ //-	
			China Carlo	
TOC = top ofin-			_	
TOC = top of casing NAVD 88 = North American	o Vertical Datum of 1988	1 221 701	_ 4	
	Time Tomo OH 1 DC	) OEP [EC]	gal	-

FOC = top of casing							
NAVD 88 = North American Vertica	l Datum of 1988.		. ^~	1 oep	[ EC ]		000
Time	Temp	PH	100	100			Jun
MAKCOLM PI	RNIE - 2000 F	owell St S	te 1180 -1	Pmeryville.	CA 94608	• (510) 59	6-306
11-14 30.63	3	011	0.33	-111	1735	3.75	
11.16-5	20.65	8.16	1.00	<u> </u>	1126	4.0	
11.17	20.44	18.14	0.30	1-119.9	11971	4.12	
HFC_GW_SampleForms blank-6/15/20	9 20.77	8.04	0,17	-110.7	1132	4.75	
11-24-	20.76	12910	0.11	-11 5	1132	500	-
11.26	1 20.70	, , , , ,		, ,, S	7110	5.00 back	
					T RIAL	K 11 LF 37	

Time temp pH DO ORP EC gal 11:29 20:76 7:97 0:09 -117.2 1132 11:29 20:76 7:95 0:08 -111.5 1134

GROUNDY	VAIER	SAMPLIN	iG					V	Vell No.:		MW-5
Project No.	465601					Rec	orded by:	- (	Ø	Date	6/17/09
Project Name:			er			_	Depth	of wel	I from TO	C (feet)	: 20.8
Location:	Port of O					_	Well diameter (inches): 2				
			Dakland, Califo	rnia		_	Screened	interva	I from TO	C (feet)	10.4-20.8
Weather:		coat, coo	.(						, NAVD 8		
Precip. in past	5 days (in.		ф		_						5.88
Source:			re Services Ag		2"	Water level				Time	844
Water level ins	trument:	Dual-phase	interface prob	e (Solinst)		Product level	from TOC	(feet):		Time	
CALCULATIO	ON OF W	ELL VOLU	VE:								
	(00.00.6		(0.002.0)1	5.4	n 1/03			1.83			
		-	x (0.083 ft) <sup>2</sup>		_		_	34			sing volume
	well dept	n - water leve	el x (well radiu	s) xπxga	1/π =		_	6.6	total galle	ons rem	oved
CALIBRATIO	N:										
			Temperature	pН	DO	ORP	E	2	Turbidity	,	
		<u>Time</u>	(°C)	(S.U.)	(%)	<u>(mV)</u>	(µmhc	<u>/cm)</u>	(NTU)		
Calibration	Standard	: 5	e as Mu	11-7- ° C	oe Co	c cal. de	tails				
Befor	re Purging	: Sam	2 45 40	0.01.2	10						
Afte	er Purging	:									
CIELO MEAC	IDEMEN	TO.									
FIELD MEAS	OKEMEN	115:	Temperature	рΗ	DO	ORP	EC	-	Toulisia.	C	1-45
. =5 .44		Time	(°C)	S.U.	(mg/L)	(mV)	μmho	_	Turbidity (NTU)		nulative 18 Removed
650 m/m	2	1120	20.7	7.44	8.56	- 80	1.97	/CIII/		Garior	is Kemoved
	ata	1125	20.6	7.41		-138	1.98		10/18		101
Flow &	we.	1128	20.7	7 27	8.60	-138	1.85		18/7.6		1.86
		1131	10.5	7.42	8.64	-90	1.64		10/15		2.38
		1134	26.5	7.42	2.71	-84	1.75		21.11		3.41
		1139	20.6	7.38	8-60	-115	1.94		5 51		4.27
		1150									(0.16
		and the same of the same		40.00	المتناطيسية		£	a grand grand page have	* 114		Introduction in
			#			18	1		(1)		
<b>.</b>					Ļ	<u> </u>					
Purge method:	•		reopump							e Time:	1150
Duplicate/blank								•	ate Sampl	¥.	
Sampling equip		-	A				OA attach	ment:	h	A	
Sample containe	ers:	1 L av	nber. 6	VOAs							

Sample analyses:

Comments:

Decontamination method:

NAVD 88 = North American Vertical Datum of 1988.

Rosampled

TPH-9, d, mo 8015,

disposable tubing

6/19/09

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-306

VOCs 8260

Laboratory:

Rinsate disposal:

D : 131 ACCCOL	_						-			
Project No. 4656016		Mar.			Reco	rded by:		Date: 6/19/09		
Project Name: Harbor Fa		er			-	Depth o	f well from ?	TOC (feet): 20.8		
Location: Port of Oa					Marie			er (inches): 2		
		akland, Califo			_	Screened in	terval from ?	ΓΟC (feet): 10.4-20.8		
Weather: Sunn		, light t	xerse		_	TOC elev	ation, NAVI	D 88 (feet): 15.39		
Precip. in past 5 days (in.)	) <u> </u>	ně	1113	_	Groun	dwater elev	ation, NAVI	D 88 (feet): 5.97		
Source:	Oakland Fir	e Services Age	ncy "ON	<u>D</u> "				2 Time: 1025		
Water level instrument:	Dual-phase	interface probe	(Solinst)		Product level i					
CALCULATION OF WE	ELL VOLUN	IE:								
	9.42			-						
(20.80 ft	- 0.00Th)	x (0.083 ft) <sup>2</sup>	$\times \pi \times 7.4$	$8 \text{ gal/ft}^3 =$		1.84 3	gallon:	s in one casing volume		
well depth	- water level	x (well radius	$(x)^2 \times \pi \times ga$	al/ft³ =		4	5.5 total g	allons removed		
CALUDDATION.										
CALIBRATION:		T	T.T	DO.	000	20				
	Time	Temperature	pH (S.U.)	DO	ORP	EC	Turbid	•		
	Time	(°C)	(3.0.)	<u>(%)</u>	( <u>mV</u> )	(µmho/c		D.		
Calibration Standard:	Cetil	of other	nto	DYONA	244.5	Cost	2			
Before Purging:					70 4	. 3. ( 0. 1)	4			
After Purging:	CAL SE	lution:		04 1	2111-	vari	105			
	1100	29.02	4.18	90.1	244.5					
FIELD MEASIDEMENT	FIELD MEASUREMENTS:									
LIEP MENOUVEMEN	13.	Temperature	pН	DO (	プ <i>タ5</i> I ORP	EC	Turbidi	·		
started ormaina	Time	(°C)	S.U.	(mg/L)	(mV)	(umho/c		The second control of		
started purging @ 1035	10/41	21.79			the state of the latest st		10 0410	) Gallons Removed		
0.030		22.2	13/58	938	-72.y	1697	$\mathcal{A}$			
moter not -	1102	21.79	6.98	905	-29.5	205				
Marking subport	12:41	27 13	7.87	0.44	161	0331	<del>-(  -   -   -   -   -   -   -   -   -   </del>	2.5		
Working: support	1244	21.75	7.81	8.24	-68.2	2172		2.75		
restart a	1246	21.75	7.75	0.19	-67.2	206	######################################	3.25		
12:40	1249	21.84	7.66	0.16	-659	1748		3.50		
	252	21.82	7.59	0.24	-66.6	1872	. 4435	1/5		
	1255	21.78	7,57	0.41	-67.7	2062		5		
Continue on back	1258	21.76	7.56	0.47	-67.4	2129		5.5		
Purge method:	geopun		YSI		rametors		San	ple Time: 1305		
Duplicate/blank number:		Na				D	uplicate Sam			
Sampling equipment:	NA				V	OA attachm		NA		
Sample containers:			<del>on</del> s	3 VOA				45		
Sample analyses:	TPHa.d.		VOC			Laborat	orv:	CLT		
Decontamination method:	dispos					insate dispo	-	-0.1		
Comments:		300	3		•	man and				

75+

NAVD 88 = North American Vertical Datum of 1988.

mw-5 6/19/09

Time Temp pH DO ORP EC Turbidity Gal 101 21.77 755 0.49 -67.0 2167

GROUNDWA	GROUNDWATER SAMPLING							,	Well No.:	MY	N-8A
Project No.	4656016						Reco	rded by:	70	Date:	06/17/09
Project Name: H	arbor Fa	cilities Cente	r			_		Depth of we	ll from TO		
Location: Po	ort of Oa	kland		91					l diameter (	_	
<u>6:</u>	51 Mariti	ime Street, O	akland, Califor	nia			5	Screened interv	al from TO	C (feet):	7.54-22.54
Weather:	ONEYC	ast low	60's			_		TOC elevation	n, NAVD 8	8 (feet):	14.99
Precip. in past 5 d	lays (in.)				_		Groun	dwater elevatio	n, NAVD 8	8 (feet):	3.59
Source:			e Services Age		_	Water	level f	rom TOC (feet)	: <u>11.40</u>	Time:	\$10
Water level instru	ment:	Dual-phase i	interface probe	(Solinst)	_	Product	level f	from TOC (feet)	N/A	Time:	-
CALCULATION	OF WE	LL VOLUM	E:								
0.12002	0	,,	1000					1.9			
	(23.14 ft	- 0.00 <del>0</del> )	x (0.083 ft) <sup>2</sup>	xπx74	R oal/ <del>A</del> ³ =			€ <del>78</del>	gallons in	one onsi	ng volume
			x (well radius					<del></del>	_ganons in total gallo		-
	<sub>F</sub>		(**********************************	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				_ <del></del>	_ wan gano	112 LEILIOA	/eu
CALIBRATION:											
			Temperature	pН	DO		RP	EC	Turbidity		
		<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	<u>(m</u>	<u>(V)</u>	(µmho/cm)	(NTU)		
Calibration St		Sam	1M 42 00	W-7	500	Con	ca).6	ration d	ء ا، حاد		
Before I		701	Cocce		WINIG.						
After F	Ourging:										
FIELD MEASUR	EMEN1	rs:									
			Temperature	pН	DO	O	RP	EC	Turbidity	Cum	ulative
		Time	(°C)	S.U.	(mg/L)		V)	(umho/cm)	(NTU)		Removed
600 my/m.	n	1230	18.8	7.61	9.84			245	10		
1.		1233	18.5	7.61	9.89	-1	32	2.59	17/8.8	1	0.47
	[	1235	18.4	7.62	9.85			2.29	10		0.79
		12.38	18.2	7.67	9.74			2.17	10		1.26
	- 1	1241	18.4	7,58	<b>10.70</b>	ببقيد	<del>18</del>	2.16	10/3.2		1.74
	- 1	13-44	18.3	7.67	9.76		52	2.14	10/2.3		2.21
	ŀ	1246	18.4	7.62	9.62		64	2.5	10/2.]		2.53
	-	1251	18.3	7.66	9.59	- 1	64	2.12	10/1-1	$\rightarrow$	3.00
	ŀ	1255	18.3 18.3		9.49	-		2.13	22/0.75		3.32
Purge method:			Geopum		1.1.1		<u>w 1</u>	1201-	Sample	Time:	3.95 1255
Duplicate/blank nu	ımber:		NA					Dunli	cate Sample		
Sampling equipme	_	N/A				1 1	V	OA attachment		· 1 III.C	/ <b>V/I</b> T
Sample containers:	_			VOAS		-					
Sample analyses:	-	TPH-9, C			10Cs 8	2100		Laboratory		2T	
Decontamination n	nethod:	disposa					R	Linsate disposal		1	
Comments:				)		• )(	-		-		

NAVD 88 = North American Vertical Datum of 1988.

Project No.   4656016	GROUNDWATER	SAMPLIN	G					Well No.:	M	IW-9
Project Name   Harbor Facilities Center   Depth of well from TOC (feet): 25	Project No. 465601	6		120		Reco	rded by: (	<i></i>	Date:	6/12/89
Location:   Port of Oakland   Ost   Port of Oakland   Ost	Project Name: Harbor F	acilities Cente	- er				· —		-	
Solution   Street   Oakland, California   Screened interval from TOC (feet):   15-25	Location: Port of O	akland				_	_			
Weather:   Operant   Cool   TOC elevation, NAVD 88 (feet):   16.33   Groundwater elevation, NAVD 88 (feet):   16.33   Groundwater elevation, NAVD 88 (feet):   15.35   Groundwater elevation, NAVD 88 (feet):   15.35   Groundwater elevation, NAVD 88 (feet):   15.35   Time:   241   Product level from TOC (feet):   19.55   Time:   241   Time:	651 Mari	time Street, O	akland, Califor	nia		- :		•		
Precip. in past 5 days (in.):  Source:  Oakland Fire Services Agency "ONO" Water level instrument:  CALCULATION OF WELL VOLUME:  (25.00 ft - 0.00 ft) x (0.083 ft) <sup>3</sup> x x x 7.48 gal/ft <sup>2</sup> =  well depth - water level x (well radius) <sup>2</sup> x x x gal/ft <sup>3</sup> =  CALIBRATION:  Temperature pH DO ORP EC Turbidity  Time ("C") (S.U.) (%) (my) (umbo/cm) (NTU)  Calibration Standard:  Before Purging: After Purging: After Purging:  After Purging:  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Time ("C") S.U. (mg/L) (my) (umbo/cm) (NTU)  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Time ("C") S.U. (mg/L) (my) (umbo/cm) (NTU)  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Time ("C") S.U. (mg/L) (my) (umbo/cm) (NTU)  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity  Gallons Removed	Weather: Over	cast co	ol							
Source: Water level instrument:  Dual-phase interface probe (Solinst)  Water level from TOC (feet):  Dual-phase interface probe (Solinst)  Product level from TOC (feet):  Time:  R41  Product level from TOC (feet):  Time:  R41  Time: R41	Precip. in past 5 days (in.	):	ø			- Groun				
Water level instrument:   Dual-phase interface probe (Solinst)   Product level from TOC (feet):   Time:	Source:	Oakland Fir	e Services Age	ncy "ONC						
(25.00 ft - 0.00 ft) x (0.083 ft) <sup>2</sup> x π x 7.48 gal/ft <sup>2</sup> =	Water level instrument:	Dual-phase	interface probe	(Solinst)					_	
(25.00 ft - 0.00 ft) x (0.083 ft) <sup>2</sup> x π x 7.48 gal/ft <sup>2</sup> =	CALCULATION OF W	ELL VOLUM	ie.	-						
Calibration   Sample   Time   Calibration	CALCULATION OF W	ELL VOLUM	16.				21			
CALIBRATION:   Temperature pH DO ORP EC Turbidity (mV) (mmho/cm) (NTU)	(25.00 f	r - 0.00 ft	x (0.083 f)2	xπx74	R cal/ft³ =			gallone in	one cesi	na volumo
Temperature								_		-
Time (°C) (S.U.) (%) (mV) (µmho/cm) (NTU)  Calibration Standard:  Before Purging: After Purging:  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity (NTU)  Time (°C) S.U. (mg/L) (mV) (µmho/cm) (NTU) (Gallons Removed)  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity Cumulative (mg/L)			(	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			(2.0)	_ total gailo	IIS TEITION	/eu
Time (°C) (S.U.) (%) (mV) (µmho/cm) (NTU)  Calibration Standard:  Before Purging: After Purging:  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity Cumulative (°C) S.U. (mg/L) (mV) (µmho/cm) (NTU) Gallons Removed (°C) S.U. (mg/L) (mV) (µmho/cm) (NTU) (°C) S.U. (mg/L) (°C) S										
Time (°C) (S.U.) (%) (mV) (µmho/cm) (NTU)  Before Purging: After Purging:  After Purging:  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity Cumulative (mg/L) (my) (µmho/cm) (NTU) Gallons Removed (NTU) (mg/L) (my) (µmho/cm) (NTU) Gallons Removed (NTU) (mg/L) (mg	CALIBRATION:									
Calibration Standard:  Before Purging:  After Purging:  After Purging:  FIELD MEASUREMENTS:  Temperature pH DO ORP EC Turbidity Cumulative (NTU) Gallons Removed			-	-		ORP	EC	-		
Before Purging:   See MW-2 for calibration details		<u>Time</u>	<u>(°C)</u>	(S.U.)	<u>(%)</u>	<u>(mV)</u>	(µmho/cm)	(NTU)		
After Purging:    FIELD MEASUREMENTS:   Temperature   pH   DO   ORP   EC   Turbidity   Cumulative   (°C)   S.U.   (mg/L)   (mV)   (µmho/cm)   (NTU)   Gallons Removed   (NTU)   (NTU	Calibration Standard	75								
FIELD MEASUREMENTS:    Temperature	Before Purging	see	MW-2 R	m cali	bratio	n deta	ds			
Temperature   pH   DO   ORP   EC   Turbidity   Cumulative	After Purging	_								
Temperature   pH   DO   ORP   EC   Turbidity   Cumulative										
Temperature   pH   DO   ORP   EC   Turbidity   Cumulative	EIEI D MEAGIIDEMEN	Te.								
Time	LIEFD MENGOKEMEN	19.	Temperature	ьH	DO	OPP	EC	Tunkidika	Cum	
150 ml   19.1   7.51   8.69   -160   2.34   10   3.5   10   3.5   10   3.5   10   3.5   10   3.5   10   10   3.5   10   10   10   10   10   10   10   1		Time	•							
1033   193   7.49   3.67   -123   2.24   10   1.0   0.60	450 ml				T	T			Canons	
19.2   7.46   8.79   -131   2.21   10   28   0.95     1040   19.5   7.42   8.78   -153   208   10   60     1045   19.6   7.43   8.86   -155   2.06   10   1.5     1049   19.1   7.42   8.87   -156   202   1.10   3.69     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35   4.96     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.01   10   0.35     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1055   19.8   7.44   8.99   -165   7.00   10   1.5     1056   19.8   7.44   8.99   -165   7.00   10   1.5     1056   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   10   1.5     1057   19.8   7.44   8.99   -165   7.00   1.00     1057   19.8   7.44   7.44   7.90   7.00   7.00   7.00	100 110								-+	
1040   19.5   7.42   8.78   -15.3   2.08   10   10   10   10   10   10   10	(afra)				_				-+	
1045   19.6   7.43   8.86   -155   2.06   101.5   2.85   1049   19.7   7.42   8.87   -156   202   10   0.35   10.69   10.55   19.8   7.44   8.99   -165   7.01   10.35   19.6   10.01   10.05   19.6   10.01										
10-19   19.7   7.42   8.87   -156   202   10   10   3.69	and w									285
Purge method:  Duplicate/blank number:  Sample Time:  NA  Duplicate Sample Time:  NA  Sample containers:  Sample analyses:  TPH-9, d, mo 8015, VOC 8200  Comments:  Smells Strongly of due sel	800 min									
Purge method:  Duplicate/blank number:  Sample Time: 1100  Duplicate Sample Time: 1100  Duplicate Sample Time: 1100  NA  Sampling equipment:  NA  Sample containers:  Sample containers:  Sample analyses:  The giden Sols vocable tobing  Comments: Swells Strongly of due se	•			7.44						
Purge method:  Duplicate/blank number:  Sample Time:  NA  Duplicate Sample Time:  NA  VOA attachment:  NA  Sample containers:  Sample analyses:  Tell-9, d, mo 8015, voc 8200  Decontamination method:  Comments:  Smells Strongly of due se				STATE OF						
Duplicate/blank number:  Sampling equipment:  NA  VOA attachment:  NA  Sample containers:  Sample analyses:  TPH-9, d, mo 8015, VOC 8200  Decontamination method:  Comments:  Swells Strongly of due sel							=			
Duplicate/blank number:  Sampling equipment:  NA  VOA attachment:  NA  Sample containers:  Sample analyses:  TPH-9, d, mo 8015, VOC 8200  Decontamination method:  Comments:  Swells Strongly of due sel		L				<u> </u>				
Sampling equipment:  NA  Sample containers:  Sample analyses:  TPH-g.d.mo 8015, VOC 8200  Decontamination method:  Comments:  Smells Strongly of due sel	_	<u>Geo</u>	brimb					•		
Sample containers:  1 Lamber, (e VOAs  Sample analyses:  TPH-9.d. mo 8015, VOC 8200  Laboratory:  Clt  Decontamination method:  Comments:  Smells strongly of due sel	-		NA						: Time: _	N/A
Sample analyses: TPH-9, d, mo 8015, VOC= 8200 Laboratory: CLT  Decontamination method: disposable tubing Rinsate disposal:  Comments: Smells strongly of duese!			I/A			_ v	OA attachment	:	/A	
Decontamination method: desposable tubing Rinsate disposal: ————————————————————————————————————	•					ħ				
Comments: Smells strongly of due sel	•			VOC	· 820	00	Laboratory	:	LT_	2 8 9
		disposo	the tubing			_ R	linsate disposal	:		
7.3" at standing index in wall have tolony The	Comments: Sime 2.5"	ils stro	raly of	dues	<u>re1</u>	new - tolon	100 10 A			

TOC = top of casing Resampled 6/19/09
NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER	SAMPLIN	G					Well No.:	MW-9
Project No. 4656016	5				Reco	rded by:	(0)	Date: 6/19/09
Project Name: Harbor Fa	acilities Cente	r					vell from TO	
Location: Port of Oa	akland						ell diameter (	
651 Marit	ime Street, O	akland, Califor	rnia					C (feet): 15 - 25
Weather: Sunn	4. 70°.	breary			_			8 (feet): 16.33
Precip. in past 5 days (in.)		one	111		— Groun	dwater elevat		
Source:	Oakland Fire	e Services Age	ncy "ONC			from TOC (fe		
Water level instrument:		interface probe			Product level	•		Time:
CALCULATION OF WI	ELL VOLUM	IE:		100000				
						2.		
(25.00 ft	: - 0.00 ft)	x (0.083 ft) <sup>2</sup>	xπx7.48	$8 \text{ gal/ft}^3 =$				one casing volume
well depth	ı - water level	x (well radius	$(x)^2 \times \pi \times ga$	l/ft³ =			5 total gallo	_
							_	
CALIBRATION:								
		Temperature	pН	DO	ORP	EC	Turbidity	
	Time	(°C)	(S.U.)	(%)	(mV)	(umho/cm	-	
Calibration Standard:					<del></del>			
Before Purging:	Cali	bration	teens	grown	rental	for deta	.ds	
After Purging:								
FIELD MEASUREMEN	TS:							
		Temperature	pН	DO	ORP	EC	Turbidity	Cumulative
	Time	(°C)	S.U.	(mg/L)	(mV)	(µmho/cm	(NTU)	Gallons Removed
	1345	20.55	7.92	0.03	-144.4	2208		15
	1348	20.51	7.85	0.01	-146.8	2175		2
	135	20.51	7.83	0.00	-148.3	2147		2.5
	1354	20.5	7.82	0.00	-150.1	2133		3
	1400	20.49 20.45	7.79	0.01	-151.8 -152.3	2116		3.5
10.1	1403	20.43	7.61	0.01	-152-9	209		
	1406	20.45	7.57	0.01	-153.2	205	+	4.5
	1409	20.46	7,55	The second name of the second	-1533	2161		5,5
	, , , , , , , , , , , , , , , , , , ,	2						
Purge method:		Georgian	9				Sample	e Time: 1410
Duplicate/blank number:		N/A				Dur	licate Sample	
Sampling equipment:		NA			V	OA attachmen		
Sample containers:	1 L amb	er conto	r <del>A</del> ₹ 3	3 VOA				
Sample analyses:	TPH-a.d.			s 8260		Laborator	у: <i>(Е</i> т	h,
Decontamination method:						- Rinsate dispos		
Comments: Book	an piro	INA P	1337		_			

NAVD 88 = North American Vertical Datum of 1988.

GROUNDWATER	SAMPLIN	G					Well No.:	MW-10
Project No. 465601	6				Reco	rded by:	<b>(</b> Ø	Date: 6/17/09
Project Name: Harbor F	acilities Cente	- er				-		C (feet): 25
Location: Port of O	akland		****		-	-		(inches): 2
651 Mari	time Street, O	akland, Califo	rnia					C (feet): 15 - 25
Weather: OVer	reast co	0						88 (feet): 15.65
Precip. in past 5 days (in.		Ø			– Groun			8 (feet): 4.80
Source:	Oakland Fir	e Services Age	ncy "ON	<b>5</b> "		from TOC (feet		
Water level instrument:	Dual-phase	interface probe	(Solinst)	_		from TOC (feet		Time:
II.	t - 0.00 ft)	E: x (0.083 ft) <sup>2</sup> x (well radius		_		2.2	9 _gallons in	one casing volume
CALIBRATION:								
		Temperature	pН	DO	ORP	EC	Turbidity	
	Time	<u>(°C)</u>	(S.U.)	(%)	(mV)	(µmho/cm)	(NTU)	
Calibration Standard Before Purging After Purging	sea	2 MW-2	for (	calibrat	non det	ails		
EIELD MEACHBEMEN	TO.							
FIELD MEASUREMEN	15:	Tamaanatuna		<b>DO</b>	ODD	F.G.	<b>7</b> 5 1 1 1 1 .	
Pinne rate	Time	Temperature (°C)	pH S.U.	DO (ma/L)	ORP	EC	Turbidity	Cumulative
Purope rate 750 ml/min	1015			(mg/L)	(mV)	(µmho/cm)	(NTU)	Gallons Removed
750 ml/min	1015	18.9	7.17	8.64	:39	3.60	10	
	1020	19.1	7.13	8.66	-177	3.59	51/01	0.99
	1025	19.2	7.14	8.64	-109	3.57	110,4	
	1030	19.0	7.13	8.77	-117	3.57 3.52	10 2.0	2.18
	1637	19.3	7.10	2.78	-95	3.48	10/2-0	4.36
=	1045		12.5	70		13.00	10/2-0	5.94
_								
Purge method:	Crea	pump					Sample	e Time: 1045
Duplicate/blank number:	N	À\				Dupli	cate Sample	THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN
Sampling equipment:	N/P	<b>†</b>			V	OA attachment	. Λι	IA
Sample containers:	1 L an	nber. 6	YOAs		•			
Sample analyses:	Tott-9		015	VOCS	8260	Laboratory	: (	AT
Decontamination method:	dispos	able tober				Rinsate disposal		

Comments:

NAVD 88 = North American Vertical Datum of 1988.

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-306

Note: turbidity meter calibrated to 0.85, not 0

Project No. 4656016	5	7.5			Reco	rded by:	CO	Date	10/12/08		
Project Name: Harbor Fa		er I			Recorded by: Date: 6/17/09  Depth of well from TOC (feet): 25						
Location: Port of O	·······	-			-	-	l diameter (				
		akland, Califor	rnia		_	Screened interv					
	ercast.		1100		-	TOC elevation					
Precip. in past 5 days (in.)		Ø.				dwater elevatio					
Source:		e Services Age	ncy "ONC	- '"		from TOC (feet)					
Water level instrument:				_		from TOC (feet)			705		
- Tator lever histament.	Duar-priasc	interface probe	(Somist)		Floduct level	TOC (leet	):	Time:			
CALCULATION OF WI	ELL VOLUN	IE:									
						2.30					
(25.00 ft	- 0.00 ft)	x (0.083 ft) <sup>2</sup>	$x \pi x 7.48$	$8 \text{ gal/ft}^3 =$		-4.0		one cas	ing volume		
well depth	ı - water level	x (well radius	s) <sup>2</sup> x π x gε	ıl/ft³ =		3.77					
0411004704											
CALIBRATION:		Temperature	<i>f</i>								
	Time	(°C)		DO	ORP	EC	Turbidity				
			(S.U.)	<u>(%)</u>	(mV)	(µmho/cm)	(NTU)				
Calibration Standard:	Z San	re as	MW-	2: sea	e sheet	for do	tails				
Before Purging:	OUNCE	EB3	7- au	MARI	=952	567	-4Q				
After Purging:	3	TELE	101	36							
FIELD MEASUREMEN	TS:										
Purae into		Temperature	pН	DO	ORP	EC	Turbidity	Cur	ulative		
in product	<u>Time</u>	(°C)	S.U.	(mg/L)	(mV)	(µmho/cm)	(NTU)		s Removed		
Darge rate:  500ml min  0.32 gal/min	916	19.8	7.83	8.15		5.71	207		133.114		
MIN	921	19.8	7.86			5.69	22.42		0.66		
0.32 gal/min	923	19.8		8.01		5.68	2.42		0.92		
<b>5</b> , <b>1</b>	925	10.0	7.83	8.15		5.62	137		1.19		
	928	20.0	7.83	8.19		5.69	ila		1.58		
4	930	19.9	7.82	8.23		5.70	40		1.85		
350 ML Slowed -	932	20.0	7.83	8.27		5.48	130		2.11		
350 ML ESlowing -	986	19.8	1.84	8.25		5.68	<10	-	2.48		
n in	939	19.9	7.63	8.22		5.66	410		2.75		
contil on reverse -	141	19.7	7.85	8.21		5.06	4 10/	9	2.94		
Purge method:	agopur	9m					Sample	Time	950		

Well No .:

Sample Time:

**Duplicate Sample Time:** 

VOA attachment:

Rinsate disposal:

Laboratory:

MW-11

TOC = top of casing

Comments:

Duplicate/blank number:

Decontamination method:

Sampling equipment:

Sample containers: Sample analyses:

NAVD 88 = North American Vertical Datum of 1988.

MALCOLM PIRNIE • 2000 Powell St Ste 1180 • Emeryville, CA 94608 • (510) 596-306

8260

6 VOAs

MW-11 (4/17/09)

Time	Temp 20.0	ett	Do	EC	Turbidity <10	ORP	· Cum.c
944	20.0	7.85	8.20	5.64	410		3.21
946	19.8	7.83	8.22	5.61	-10/17		340
949	19.7	7.84	8.27	5.67	10	-95	3.67

GROUNDW	ATER	SAMPLIN	G					Well No.:	M	W-11
Project No.	4656016	5		Salara de la companya del companya de la companya del companya de la companya de		Reco	rded by:	0	Date:	6/19/0
Project Name:	Harbor Fa	acilities Cente	er_				Depth of w	ell from TO		
Location:	Port of O	akland						ll diameter		
	651 Marit	time Street, O	akland, Califo	rnia			Screened inter	al from TO	C (feet):	15 - 25
Weather:	<u>syn</u>	MY Warr	<u>n</u>				TOC elevation	on, NAVD 8	8 (feet):	15.47
Precip. in past 5	days (in.)			·····			dwater elevation			
Source:			e Services Age		_	Water level:	from TOC (fee	1): <u>10-3</u> 2	7 Time:	1427
Water level instr	rument:	Dual-phase	interface probe	(Solinst)		Product level:	from TOC (fee	i):	Time:	
CALCULATIO	N OF W	ELL VOLUM	IE:	-			- State of the sta			
			x (0.083 ft) <sup>2</sup> x (well radius		-			gallons ir total gallo		_
CALIBRATION	N:									
			Temperature	pН	DO	ORP	EC	Turbidity		
		<u>Time</u>	(°C)	(S.U.)	(%)	<u>(mV)</u>	(µmho/cm)	•		
Calibration	Standard:	6.00	calibrat	700	مام م مل	C				
Before	Purging:	2000	Calivian	WYI 3	Sruer	(TOW)	eguipco			
After	r Purging:									
FIELD MEASU	REMEN	TS:								
			Temperature	pН	DO	ORP	EC	Turbidity	Cur	ulative
		<u>Time</u>	(°C)	<u>s.u.</u>	(mg/L)	(mV)	(µmho/cm)	(NTU)		s Removed
		14:35	21.03	7.96.	-0.01	-149,9	5694	rc.	1.0	
		14:38	21.02	7.89	-0.01	-152.0	5690	114	-1	
		14:40	20,95	7.82	-0.01	-152.9	5679			
	)3	14:42	20.92	7.85	0.01	-153.9	5671			
		14:44	30.89	791	0.01	-154.2	5657		2.5	
		14:40	20.87	8.17	0.01	155.3	5654			
		14:48	30.85	8.30	S'OT	-155.9	5650	+	2 0	
		14:50	30,85	833	0.01	-156.4	5645		3,5	
		11:53	20.85	8.32	0.01	126.8	5646 5644	1 1	,,	
Purge method:	3	00	opimo	8,54	1 0.01	1-13 7. 1	136711	Sampl	4.5	14:55
Duplicate/blank r	number:	-	W/A				Duni	icate Sampl		
Sampling equipm			/A			V	OA attachmen	-	MA	N/A
Sample container			amber.	63 V	IOAS	· _ '	O'I REMINISTER		NIT	
Sample analyses:					00s 80	200	Laboratory	<i>r</i> · <i>(</i>	11	
Decontamination		disposo			0		Linsate disposa		<u> </u>	
Comments:	•	n Omaine		8		•	wisposa			

NAVD 88 = North American Vertical Datum of 1988.

GROUNDY	VATER	SAMPLIN	G					Vell No.:	MW-1	2
Project No.	4656016				******	Reco	rded by:	2	Date: 6/1	7/09
Project Name:	Harbor Fa	cilities Cente	er				Depth of we	ll from TO		
Location:	Port of Oa	kland				_	-			***************************************
	651 Marit	ime Street, C	akland, Califo	rnia				•	· · · —	25
Weather:	OVEY	ast co	ले।			<b></b>				
Precip. in past	days (in.)	:	8			Groun				
Source:		Oakland Fir	e Services Age	ency "ONO	•	Water level f	rom TOC (feet)	: 11.83	Time: 94	7
Water level inst	trument:		interface probe							_
CALCULATIO	(25.00 ft well depth	- 0.00 ft) - water level	x (0.083 ft) <sup>2</sup> x (well radius	s) <sup>2</sup> x π x gal pH	/ft³ =  DO	ORP	EC	total gallo	_	'olume
	Standard: e Purging: er Purging:	<u>Time</u> Sam	e or M	( <u>s.u.)</u> v-2; s	<u>(%)</u> ee s	2.13 gallons in one casing vor 4.27 total gallons removed  ORP EC Turbidity (mV) (umho/cm) (NTU) sheet for defails  ORP EC Turbidity Cumulative (mV) (umho/cm) (NTU) Gallons Rem				
FIELD MEAS	JREMENT	rs:		1						
= :			Temperature	pН	DO	6473/E 1853	100 TOTAL NO. 100	Characteristic State (Control	Section	
purge rat	e: I	Time	(°C)	S.U.	(mg/L)		The state of the s		Gallons Ren	noved
(-60 ml /		118	18.7	17.38	6.77	-282	1197	16/14	58.87	H

H CHICKLE			- Participation -	111111111111111111111111111111111111111	1	THE PERSON OF TH	71.11	Janon.	3 KCIIIO V CU
porage tare:	118	18.7	17.38	6.77	-282	197	16/1	4	
600 my/min	123	18.7	7.31	6.63		1.97	10/60	8	0.80
	126	187	7.24	6.63	-295	1.97		3	1.27
	051	18.5	7.25	6.66	-	1.97	10/		1.90
	i32	18.5	737	6.62	-280	1.9%	101	ů l	2.22
	135	18.4	728	6.68	-292	1.96	1071	2	2.69
	137	187	7.24	6.70	- 302	1.96	10/1	2	3.01
	139	18	1.23	6.66	-302	197	10/1	6	3.33
	145	10-1							4.27
Purge method:		georpur	I			4 DIM9	Sau	mple Time:	145
Duplicate/blank number:	N	× '		N		Dupl	icate Sar	mple Time:	150
Sampling equipment:	N/F	<b>-</b>			V	OA attachment		N/A	
Sample containers:	1 Lam	ber. U	10A5				U		
Sample analyses:	TPH-9. d	No. of the control of		s 824	0	Laboratory	<i>r</i> :	CLT	
Decontamination method:	dispose		_			Rinsate disposal			
Comments:	standy	na wate	Y 710	well y	rault				

NAVD 88 = North American Vertical Datum of 1988.



## HORIBA U-10 RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: JE		DATE: 6/16/09
INSTRUMENT INFORMATION RENTAL I.D. NUMBER:		
CALIBRATION INFORMATION	CALIDD ATION	
PARAMETERS:	CALIBRATION STANDARDS:	LOT#
1. CONDUCTIVITY ZERO	Fresh Air	N/A
2. CONDUCTIVITY SPAN	718uS/cm	
	1000uS/cm	6 <u>888</u>
	6,670uS/cm	
	58,700uS/cm	
3. pH ZERO	pH 7	1801964
4. pH SLOPE	pH 4	1712202
	pH 10 (high rang	e) (710812
5. DISSOLED OXYGEN ZERO	Sodium Sulfite So	olution
6. DISSOLVED OXYGEN	"AIR CAL." Barometric press	ure = 760mmHg
7. TURBIDITY ZERO	0.0 NTU's	
8. TURBIDITY SLOPE	20 NTU's	6/16/09
	100 NTU's	



### YSI 556MPS RENTAL CALIBRATION CERTIFICATE

SERVICE TECHNICIAN:

DATE: 6/18/09

**INSTRUMENT INFORMATION** 

RENTAL I.D. NUMBER: YSI-556. 29

SERIAL#: CUSTOMER.

### **CALIBRATION INFORMATION**

PARAMETERS:	STANDARDS:	PASS ( ) LOT#
1. CONDUCTIVITY	<u>(ΘΟΟ</u> μMhos	<u>× 6888</u>
2. pH ZERO	pH 7	<u>× 18019</u> 64
3. pH SLOPE	pH 4	× 1712282
pH SLOPE	pH 10	¥ 1710812
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	N/A
5. REDOX (ORP)	23 mV (YSI Zobell solution)	<u>x</u> 4/15/p



### Port of Oakland

530 Water Street • Oakland, CA 94607

### Appendix B PLS Surveys, Inc. Results





	Miles San and	V-12-2								- N. P. C.	The second second				_
POINT	MORTHENS	EASTING	LATTITUDE	LONGITUDE	ELEVATION	BLEVATION	DESCRIPTION	GPS	ACCURACY	HORZ.	COMPANY	EQUIP.	DATE	VERT.	CLASS
NO.	NAD63	MAD63			CASING	VALILY	_	CODE	CENTIMETER	CODE				CODE	
1	2121386,72	6037683.15	37,8670060	-122.5138524	15.47	15.92	N664-11	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MIN
2	2121475.78	0057661.18	37,8073429	-122,3130343	15.91	16.50	RSNI-8	RTK	0.3	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MM
4	2121623.94	0037481.56	37,8073762	-122.3138576	15.62	15.74	FBN-7	RTK	0.3	NADSS	PLS SURVEYS INC.	L530	1/24/2009	DIG	MW
6	2121581.48	0037690.22	37,8075347	-122.5158409	14.92	15.54	RW-4	RTK	0.3	NADES	PLS SURVEYS INC.	L630	1/24/2009	DIG	MW
	2121000.22	8037644.79	37.8079057 -	-122.3139899	15.66	18,05	FOM-3	RTK	0.3	NAD63	PLS SURVEYS INC.	L630	1/24/2009	DIG	100
10	2121003,92	6037683.23	37.8075849	-122,3139358	15.66	15,67	MAY-3	RTK	0.3	NADES	PLS SURVEYS INC.	1,530	1/24/2009	DIG	189
12	2121521.37	6037626,96	37.8073639	-122.3140765	18.75	\$6.11	RW-6	RTK	0.3	NAD63	PLS SURVEYS DIC.	1.830	1/24/2009	DIG	MW
13	2121482.76	6037908.36	37.8072973	-122.3134330	18.57	17.23	Rtv-e	RTK	0.3	NAD83	PLS SURVEYS INC.	1,530	1/24/2009	DIG	MAN
15	2121537,47	6037833.83	37.8074215	-122,3133416	16.79	17,05	NW-12	RTK	0.3	NAD83	PLS SURVEYS INC.	1.530	1/24/2009	DIG	MW
16	2121914.62	6637878.92	37.8674274	-122.3142340	15.85	16.03	MM-10	RTK	6.3	NAD83	PLS SURVEYS INC.	L630	1/24/2000	DIG	MW
_17	2121670.02	6037501.67	37.8077728	-122.3142911	15.80	16.25	MON-1	RTK	0.3	NAD83	PLS SURVEYS INC.	1.630	1/24/2009	DIG	MW
18	2121660.85	6037571.36	37.8077485	-122.3142576	12.95	15,68	RM-1	RTK	0.3	NAD83	PLS SURVEYS INC.	1.530	1/24/2009	DIG	MW
19	2121660.08	6637989,42	37,8077704	-122.3141610	16.43	16.73	MW-2	RTK	0.3	NAD63	PLS SURVEYS INC.	1,530	1/24/2000	DIG	MW
23	2121720,51	6037421.48	37.8079021	-122.3147802	16.33	18.61	NOVI-0	RTK	0.3	NAD63	PLS SURVEYS INC.	L530	1/24/2009	DIG	MAN
24	2121600,88	0037320,39	37.8077577	-123.3151267	15.39	15.95	MW-5	RTK	0.3	NAD83	PLS SURVEYS INC.	1.830	1/24/2009	DIG	MIN
26	2121041.00	0037602,67	37.8070800	-122,3141479	15,56	18.67	RW-2	RTK	0.3	NAD63	PLS SURVEYS INC.	1.630	1/24/2008	Dta	MIN
27	2121887.30	00375/7.29	37.6063135	-122.3142509	14.99	15.32	NW-CA	RTK	0.3	MADES	PLS SURVEYS INC.	L530	1/24/2009	Dig	IBN
20	2121839.27	6037210.79	37.8982170	-122,3155174	15.91	16.38	MW-4	RTK	0.5	NAD83	PLS SURVEYS INC.	L530	1/24/2009	DIG	MIN
29	2121546.48	6037658.33	37,9074368	-122.3139489	14,79	15.32	RW-5	RTK	0.3	NADES	PLS SURVEYS INC.	L530	1/24/2008	DIG	MON



VERTICAL CONTROL IS PID-HT 0866 "D1203" EL=16.37 FT NAVD 88 HORIZONTAL CONTROL POINT IS:H006 ROS 996 (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**





### 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

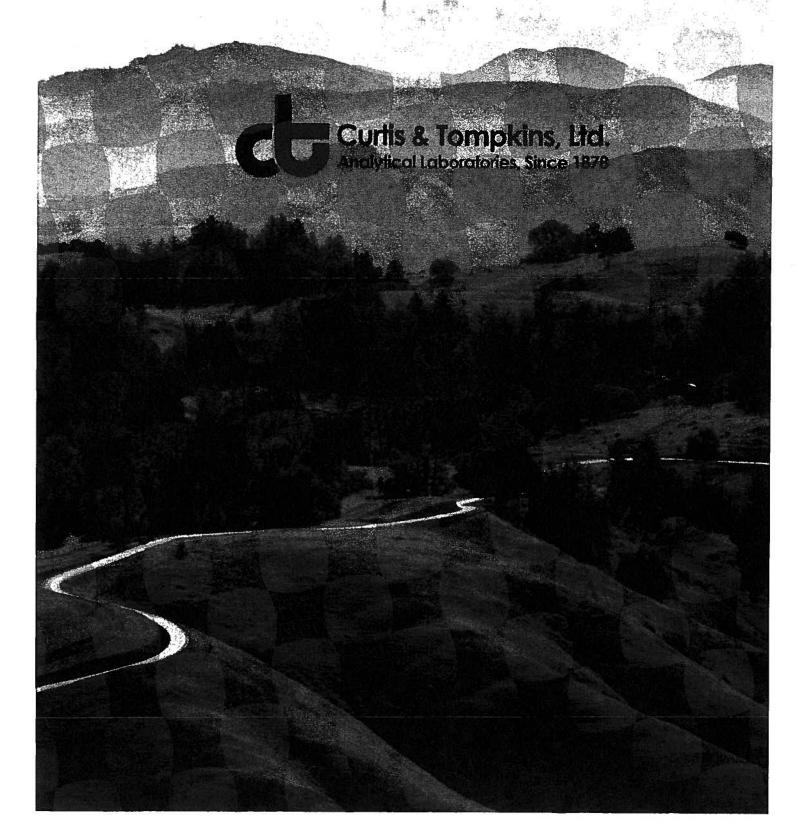
		Yes	No	NA
(De	NERAL QUESTIONS scribe "no" responses below in "comments" section. Contact the laboratory, as requ lanation or action on "no" responses; document discussion in comments section.)	t <b>ired, f</b> o	r furthe	er
la.	Does the report include a case narrative? (A case narrative MUST be prepared by the lab for all analytical work requested by BASELINE)	х		
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?	Х		
lc.	Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor's name?			Х
1d.	Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of "hold" samples)?			Х
le.	Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?			Х
1 f.	Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable)?			Х
2a.	Is the laboratory report format consistent and legible throughout the report?	х		
2b.	Are the sample and reported dates shown in the laboratory report correct?	х		
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?	х		
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)	х		
5a.	Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	х		
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?	Х		
6.	Are the units in the lab report provided for each analysis consistent throughout the report?	х		

		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)?	Х		
8a.	Are detection limits appropriate based on the analysis performed (i.e., not elevated due to dilution effects)?	Х		
8b.	If no, is an explanation provided by the laboratory?			х
9a.	Were the samples analyzed within the appropriate holding time (generally 2 weeks for volatiles, and up to 6 months for total metals)?	Х		
9b.	If no, was it flagged in the report?			х
10.	If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?			х
11a.	Do the chromatograms confirm quantitative laboratory results (petroleum hydrocarbons)?			Х
11b.	Is a standard chromatogram(s) included in the laboratory report?			х
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.)			х
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?	*		<sup>§</sup> X
13b.	REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			Х
13c.	REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) that triggered the need for a revision?			Х
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
	QC Questions 1/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.	Х		
	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.			х

1		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.	х		
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.)	х		
(Sar fewe fran	ch Quality Control  inples are batched together by matrix [soil, water] and analyses requested. A batch general  er samples of the same matrix type, and is prepared using the same reagents, standards, pr  the as the samples. QC samples are run with each batch to assess performance of the entire  cess.)	ocedure	s, and ti	0 or me
17.	Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	х		
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.	Х		
18b.	If no, is an explanation provided in the case narrative to validate the data?			х
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.	Х		
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?			Х
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.	Х		
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).	1	х	

### Quality Control Checklist - continued

	Yes	No	N/
20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?	х		
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.		х	
21b. If no, is an explanation given in the case narrative to validate the data?	Dorted within the lab's acceptable recovery limits? A malyte, which is similar in chemical structure to the for, and which is not commonly found in environmental reation of the surrogate is spiked into the sample or QA on or sample preparation. Results are usually reported as callure to meet lab's limits for primary and secondary thing and reanalysis of the sample; failure of only the surrogate may be acceptable under certain circumstances. In in the case narrative to validate the data?  The corresponding are recovery was within limits.  A X X X X X X X X X X X X X X X X X X		
Comments: High surrogate recovery was observed for trifluorotoluene (FID) in MW-10 (lab # 211082-06 bromofluorobenzene (FID) surrogate recovery was within limits.	07); the c	orrespor	nding
Matrix spikes were not performed for this analysis in batch 149730 due to insufficient sample blank, lab # 211082-011) was analyzed with more than 1 mL of headspace in the VOA vial.	amount.	QCTB	(trip





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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

# Laboratory Job Number 211082 ANALYTICAL REPORT

Baseline Environmental

5900 Hollis St.

Emeryville, CA 94608

Project : Y5395-06

Location : Harbor Facilities Center

Level : II

Sample ID	<u>Lab ID</u>
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:

Project Manager

Date: <u>04/16/2009</u>

Signature:

Senior Program Manager

Date: <u>04/20/2009</u>

**NELAP # 01107CA** 



#### 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.

## BASELINE Environmental Consulting

# **CHAIN OF CUSTODY RECORD**

5900 Hollis Street, Suite D Emeryville, CA 94608

Tel: (510) 429-8686 Fax: (510) 420-1707

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

Project Number	Y5395-06																			T, M. C. Alle			
Project Name:	Harbor Faci	ilities Cen	ter																-				
Complete (Girmatura)	2.5			1					Cont	ainers						1							
Kegnadel Fi		10.00	-0-			<b>T</b>	_					<b>.</b>				Į.							
Sample ID	7/46		Nag-	1—		Тур	<u> </u>				-	Pres	crva	tive	_								
No. Station					600 ml Poly	150 ml Poly	-LAG	40 ml VOA				Ę	HNO3	7	NOH+ZnAc	IPH-g (EPA Method 8015B)	TEPH as diesel and motor oil with silica gel cleanup (EPA Mechod 8015B)	BTEX and MTBE (EPA Method 8260B)					Remarks/ Composite
MW-2	Date 4/1/2009	Time	Media	No.	<del>, 8</del>	<del>, 2</del> ,	_		_		قِيْ إ	_	<del>, É</del>	Š	ž		Pass					<u> </u>	
MW-2 MW-4			W	8	├	$\vdash$	2	6	-	-		X		-	_	X	Х	Х					
MW-4dup	4/1/2009		W	8	-	Н	2	6				X	$\vdash$	Ш		Х	Х	Х				↓	
MW-5	4/1/2009 4/1/2009	10:35	W	8	-	-	2	6			X		<b>-</b>	-	_	X	X	Х				1	
MW-8A	4/1/2009	11:00	W	8	-	Н	2	6		_	X		_	$\vdash$	$\dashv$	х	Х	X		ļ	↓	↓	
MW-9	4/1/2009	12:20		8			2	6	-+			X	<u> </u>	$\vdash$	-	Х	X	X		ļ	<b>!</b>	<b>_</b>	
MW-10	4/1/2009				+	Н	_					X	$\vdash$	_	-	Х	Х	х		ļ	<u> </u>	↓	
MW-11	4/1/2009			8	Н	Н	2	6			X		$\vdash$	$\vdash$	_	X	Х	Х			<u> </u>	↓	
MW-12	4/1/2009		W	8	$\vdash$	Н	2	6		-	X		<u> </u>		-	Х	X	Х				<u> </u>	
QCEB-040109	4/1/2009	14.40	w	8	-	Н	2	6			X		<u> </u>			X	X	Х	_	<u> </u>			
QCEB-040109	4/1/2005	2.43	w	2	$\vdash$	Н	2	6 V	$\rightarrow$	+		X	H	$\vdash$		X	X	Х			-		
<b>₹</b>	11100	7-00	- "	1	$\vdash$	Н		~		+-	X	1	Н	$\vdash$	-	メ		X		ļ	├	<del> </del>	
				<del>                                     </del>		$\vdash$		-	$\dashv$		╂—	-	-		-			_			ļ	—	
	<del></del>		<u> </u>	╂—	╀─┤	┡			-+		╁	-	Н	$\vdash$	-					ļ		<b>—</b> —	
	<del>                                     </del>		<del> </del>	₩		$\vdash$	$\vdash$		-+	_	╄	$\vdash$			-							<b>Ļ</b>	
			<del> </del>	├─	-	┝╌╢		-	-	+	┿	-	$\vdash$		-							<del> </del>	<u> </u>
-			<del> </del>	<del>                                     </del>	H	┝┈┤	-	-	-		$\vdash$	-	$\vdash$	-1	-					ļ		—	<u> </u>
			<del> </del>	<del> </del>	$\vdash$						╆	-		-								├	
				<del>                                     </del>	Н	$\vdash\vdash$	-	$\dashv$	$\dashv$		╄		$\vdash$	$\vdash$	_							<b>↓</b>	<del> </del>
			-	$\vdash$	$\vdash$	$\vdash$		-	$\dashv$		╁	-	$\vdash$		-	-					-	+	<u> </u>
				_	$\vdash$	$\vdash$			-+		-	-	Н		$\dashv$					<u> </u>	_	-	
		<del></del>		$\vdash$	Н		$\vdash$	$\dashv$			+	-		<del>-  </del>						<del></del>	$\vdash$		
Relinquished by: (S	Signature)	<u> </u>	<u> </u>	Date/	Lime	4	Par	احورن	hur (	Signatu		Ц				Date/Tim				<u> </u>	L	L	J
Kegmord 1	amue			4/1		इच		T.	7. (	2 KIMIT		al		_	-		09 7:50			A	4 T ak		
Retinguished by: (S	Signature)			Date/				ive	hr- 7	Signatu	TO Y	900	7		$\dashv$	7///	J4 C.SO			Arrival a		шогу:	<del></del>
				-					ا) درت	السنود					-					Email co	•		
Relinquished by: (S	Signature)			Date/	ime	$\dashv$	Rece	ive	hv: (	Signati	me)				$\dashv$				_	redgy@t			_
					- aire	1		- 100	<i>₩</i>	التسيع					ᅱ					im@bas			I.
Received at laborat	nry with inte	ct: Y	ES NO			Com	men	te.												minka/bas	CITHO-C	iv.com	

COOLER RECEIPT CHECKLIST	Curtis & Tompkins, Ltd.
Login # 211082 Date Received 4/1/09 Client BASELINE Project HARBON	Number of coolers 7 PACILITIES CENTRIC
Date Opened 41109 By (print) M VILL & Wellesign) Date Logged in 8y (print) (sign)	
1. Did cooler come with a shipping slip (airbill, etc)Shipping info	YES 🚳
2A. Were custody seals present?   YES (circle) on cooler  How many Name	
2B. Were custody seals intact upon arrival?  3. Were custody papers dry and intact when received?  4. Were custody papers filled out properly (ink, signed, etc)?  5. Is the project identifiable from custody papers? (If so fill out to 6. Indicate the packing in cooler: (if other, describe)	YES NO MA
Bubble Wrap Foam blocks Bags Cloth material Cardboard Styrofoam 7. Temperature documentation:	5
Type of ice used: ☐ Wet ☐ Blue/Gel ☐ None	Temp(°C) 9.5, 11.9
☐ Samples Received on ice & cold without a temperature	
Samples received on ice directly from the field. Cooling	g process had begun
	No.
If YES, what time were they transferred to freezer?	
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?	YES NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?	NO NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?	TOPS NO TOPS NO TOPS NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?	MES NO ME
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?	MES NO ME
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?	ABS NO TO THE NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?	ABS NO NA
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?	YES NO YES NO YES NO YES NO YES NO YES NO N/A
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?	YES NO YES NO YES NO YES NO N/A YES NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  If YES, Who was called?  By	YES NO YES NO YES NO YES NO N/A YES NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  If YES, Who was called?  By	YES NO YES NO YES NO YES NO N/A YES NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  If YES, Who was called?  By	YES NO YES NO YES NO YES NO N/A YES NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  If YES, Who was called?  By  COMMENTS	YES NO  WES NO  WES NO  WES NO  YES NO N/A  YES NO  Date:
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  If YES, Who was called?  By  COMMENTS	YES NO YES NO YES NO YES NO N/A YES NO



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

Field ID: Type:

MW-2

SAMPLE

Lab ID: Analyzed: 211082-001 04/07/09

Analyte Result RLC7-C12 Gasoline

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

Field ID: Type:

MW-4 SAMPLE Lab ID:

211082-002

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:

Type:

MW-4DUP SAMPLE

Lab ID: Analyzed: 211082-003 04/07/09

Analyte Result RL Gasoline

Surrogate	%REC	Limits	9 4
Trifluorotoluene (FID)	109	63-146	
Bromofluorobenzene (FID)	104	70-140	

Field ID: Type:

MW-5

SAMPLE

Lab ID: Analyzed: 211082-004 04/07/09

Analyte Result RL Gasoline C7-C12 ND 50

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

RL= Reporting Limit

Page 1 of 3

<sup>\*=</sup> Value outside of QC limits; see narrative Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected



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

Field ID:

A8-WM

Analute

Lab ID:

211082-005

Type:

SAMPLE

Analyzed:

04/07/09

	1/68410	THE PARTY OF THE P
Gasoline C7-C12	ND	50
Surrogate	%REC Limits	
Trifluorotoluene (FID)	110 63-146	
Bromofluorobenzene (FID)	105 70-140	

Field ID:

MW-9

Lab ID:

211082-006

Type:

SAMPLE

Analyzed:

04/07/09

Analyte_	Result	RL	
Gasoline C7-C12	210 Y	50	
Surrogate	%REC Limits	2 2 2	
Trifluorotoluene (FID)	118 63-146		
Bromofluorobenzene (FID)	106 70-140		

Field ID:

Type:

MW-10 SAMPLE Lab ID: Analyzed: 211082-007

04/07/09

Analyte	Result	RL.	
Gasoline C7-C12	87 Y	50	
Surrogate	%REC Limits		
Trifluorotoluene (FID)	156 * 63-146	, <u>, , , , , , , , , , , , , , , , , , </u>	
Bromofluorobenzene (FID)	107 70-140		

Field ID: Type:

MW-11

SAMPLE

Lab ID: Analyzed:

211082-008 04/07/09

Analyte Result RL Gasoline C7-C12 ND 50

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

RL= Reporting Limit

Page 2 of 3

<sup>\*=</sup> Value outside of QC limits; see narrative
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected



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

Field ID: Type:

MW-12

SAMPLE

Lab ID: Analyzed:

211082-009 04/07/09

Result RLGasoline C7-C12

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

Field ID:

QCEB-040109

Lab ID:

211082-010

SAMPLE Type:

Analyzed:

04/07/09

Analyte C7-C12 Result Surrogate **%REC** Limits

Trifluorotoluene (FID) 104 63-146 Bromofluorobenzene (FID) 100 70-140

Field ID:

Type:

QCTB SAMPLE

Lab ID:

211082-011

Analyzed: 04/07/09

Analyte Result RL Gasoline Surrogate **%REC** 

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

Type: Lab ID:

BLANK QC490574 Analyzed:

04/06/09

Analyte	Result	RL	148
Gasoline C7-C12	ND	50	

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

RL= Reporting Limit

Page 3 of 3

<sup>\*=</sup> Value outside of QC limits; see narrative

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



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	<del>-</del>				

Analyte	Spiked	Result	%REC	Limits	<u>ei</u>
Gasoline C7-C12	1,000	950.1	95	76-121	

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



Total Volatile Hydrocarbons						
Lab #:	211082	Location:	Harbor Facilities Center			
Client:	Baseline Environmental	Prep:	EPA 5030B			
Project#:	Y5395-06	Analysis:	EPA 8015B			
Field ID:	ZZZZZZZZZ	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	<u>-</u>				

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:

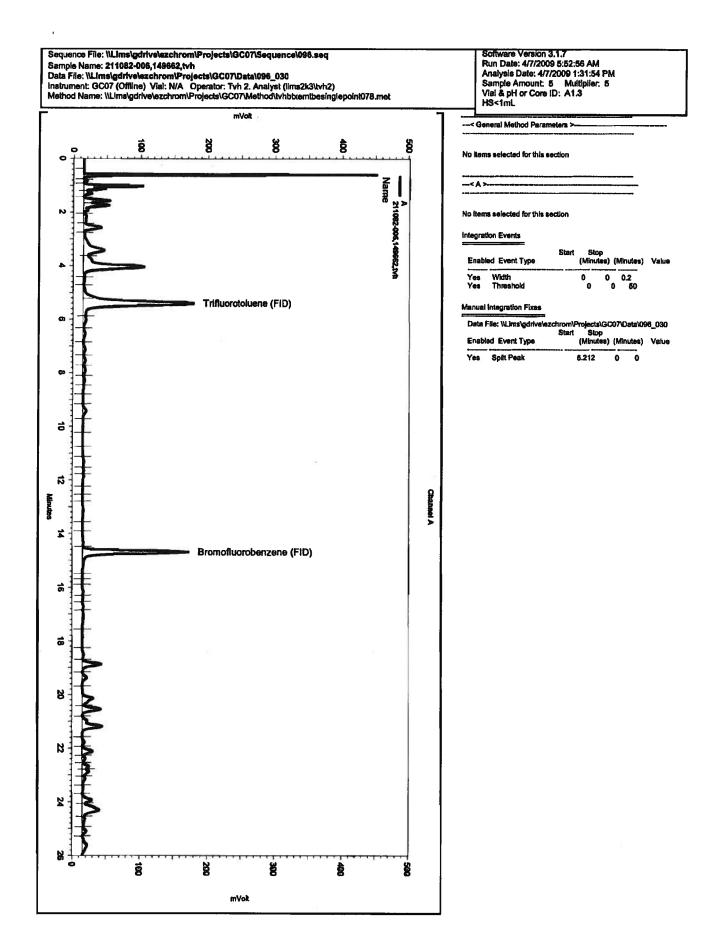
MSD

Lab ID:

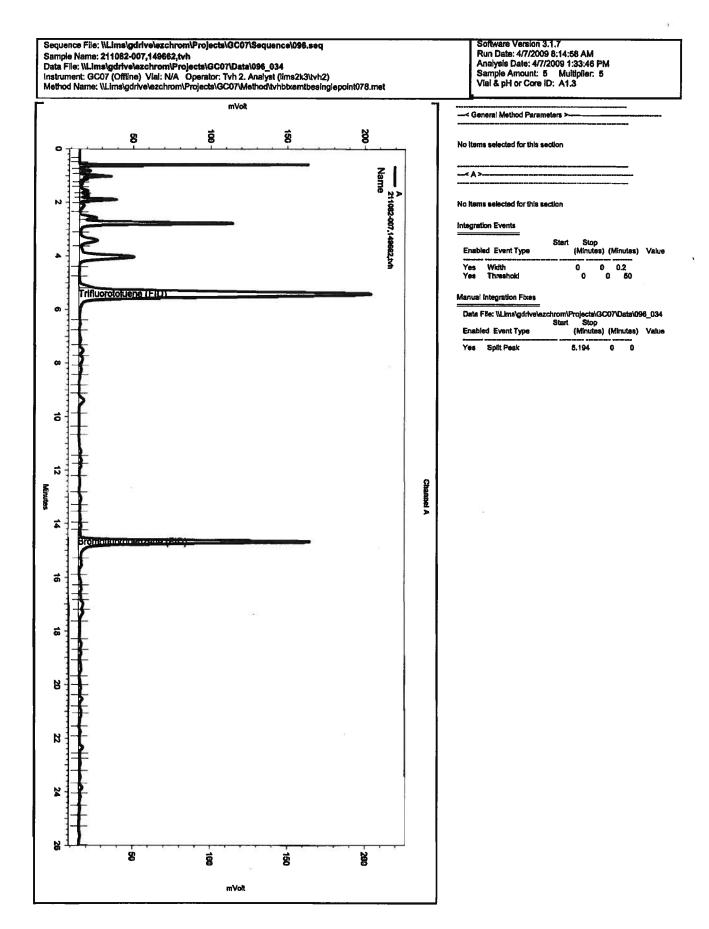
QC490577

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

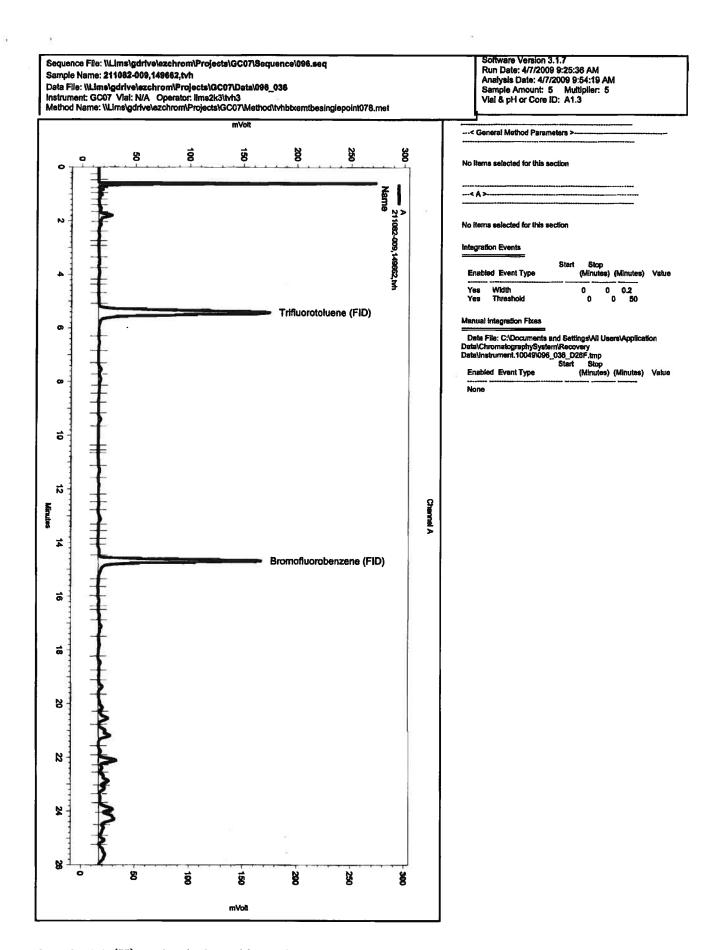
Surrogate	%REC	Limits
Prifluorotoluene (FID)	121	63-146
Bromofluorobenzene (FID	105	70-140



Page 2 of 4 (2) Curtis & Tompkins Ltd.



Page 2 of 4 (2) Curtis & Tompkins Ltd.



Page 2 of 4 (55) Curtis & Tompkins Ltd.

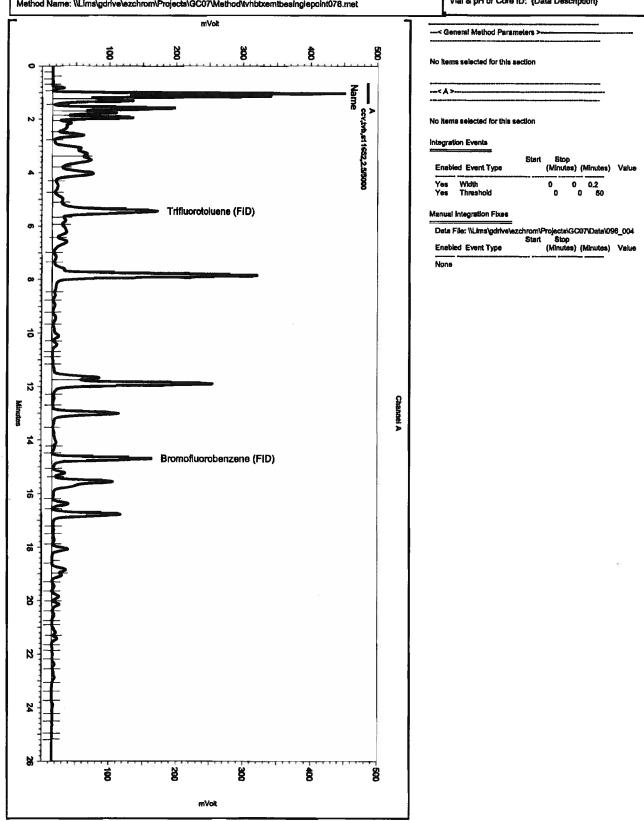
Sequence File: \\\\Lims\gdrive\ezchrom\Projects\GC07\Sequence\096.seq\
Sample Name: ccv,tvh,s11652,2,8/5000

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\tvhbbxemtbesinglepoint078.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}



Page 2 of 4 (11) Curtis & Tompkins Ltd.



Total Extractable Hydrocarbons Harbor Facilities Center EPA 3520C EPA 8015B 04/01/09 Lab #: 211082 Location: Baseline Environmental Client: Prep: Y53<u>95-06</u> Project#: Analysis: Water Matrix: Sampled: 04/01/09 Units: ug/L Received: 1.000 Diln Fac: Prepared: 04/03/09 Batch#: 149611

Field ID:

MW-2SAMPLE

211082-001

Analyzed: Cleanup Method:

04/10/09 EPA 3630C

Type: Lab ID:

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

Surrogate **%REC** Limits o-Terphenyl 61-127

Field ID:

MW-4SAMPLE Type: Lab ID:

211082-002

Analyzed:

04/10/09

EPA 3630C Cleanup Method:

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

**Limits** 61-127 Surrogate **%REC** o-Terphenyl

Field ID: Type: Lab ID:

MW-4DUP

SAMPLE

211082-003

Analyzed:

04/10/09

Cleanup Method: EPA 3630C

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

Limits 61-127 Surrogate **%REC** o-Terphenvl

Field ID:

MW-5

SAMPLE

Analyzed:

Cleanup Method:

04/09/09 EPA 3630C

Type: Lab ID: 211082-004

Analyte Result RLDiesel C10-C24 Motor Oil C24-C36 300 ND

Surrogate FREC Limits 61-127 o-Terphenyl

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 1 of 3



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

Field ID:

MW-8A SAMPLE 211082-005

Analyzed: Cleanup Method:

04/09/09 EPA 3630C

Type: Lab ID:

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

Surrogate	%REC Limits	
o-Terphenyl	83 61-127	

Field ID: Type: Lab ID:

MW-9SAMPLE

Analyzed:

04/09/09

Cleanup Method: EPA 3630C 211082-006

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

Surrogate	*REC	Limits	
o-Terphenyl	98	61-127	

Field ID:

Type:

MW-10 SAMPLE 211082-007 Analyzed:

04/09/09

Cleanup Method: EPA 3630C

Lab ID.	211002-007		
	Analyte	Result	RL
Diago	10_004	100 V	EΛ

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 SAMPLE Analyzed:

04/09/09

Type: Lab ID:

211082-008

Cleanup Method: EPA 3630C

	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

Page 2 of 3



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

Field ID:

MW-12

Analyte

SAMPLE 211082-009

Analyzed: Cleanup Method:

04/09/09 EPA 3630C

Type: Lab ID:

RL

Motor Oil C24-C36	420 Y ND	50 300	a	
Surrogate	%REC Limits	· · · · · · · · · · · · · · · · · · ·		
o-Terphenyl	91 61-127			$\overline{}$

Result

Field ID: Type: Lab ID:

QCEB-040109

SAMPLE

211082-010

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

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

Gurrage to 9			
Surrogate *	REC	Limits	
o-Terphenyl 89		61-127	

Type: Lab ID:

BLANK 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 Page 3 of 3



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	



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



Total Extractable Hydrocarbons				
Lab #:	211082	Location:	Harbor Facilities Center	
Client:	Baseline Environmental	Prep:	EPA 3520C	
Project#:	Y5395-06	Analysis:	EPA 8015B	
Field ID:	ZZZZZZZZZZZ	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	8REC	Limits
Diesel C10-C24	494.5	2,500	3,026	101	38-127

Surrogate	%REC	Limits	
o-Terphenyl	114	61-127	

Type:

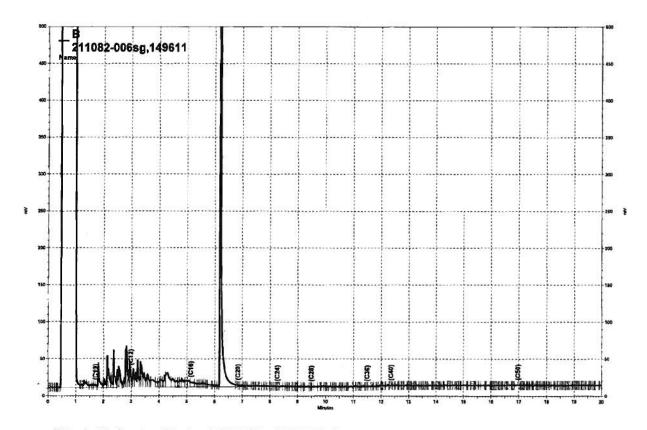
MSD

Lab ID:

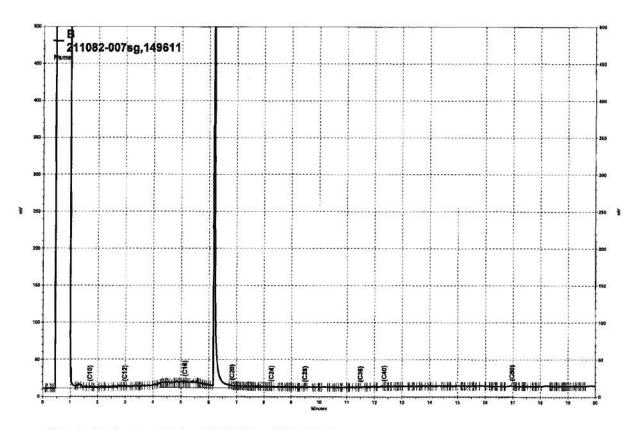
QC490366

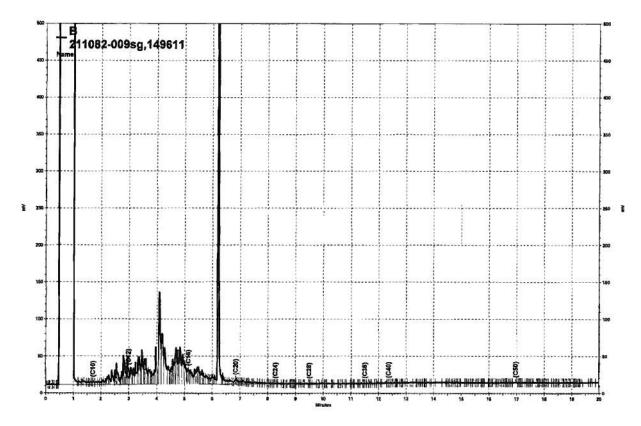
Analyte	Spiked Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,743	90	38-127	10	37

Surrogate	%REC	Limits	
o-Terphenyl	106	61-127	

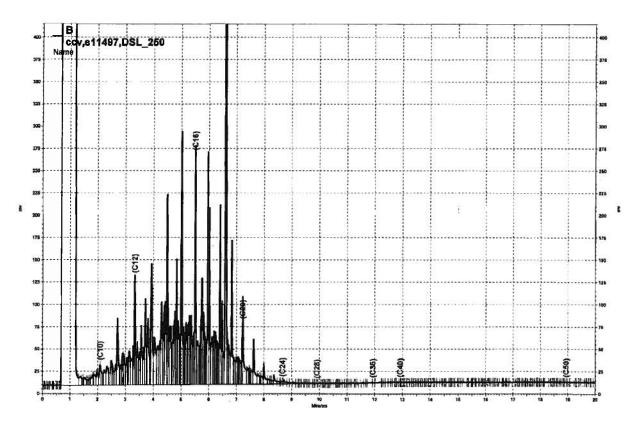


-----\Lims\gdrive\ezchrom\Projects\GC14B\Data\099b015, B

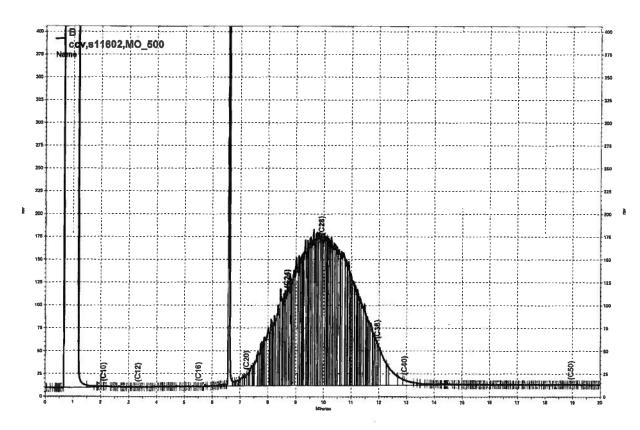




\Lims\gdrive\ezchrom\Projects\GC14B\Data\099b018, B



-----\Lims\gdrive\ezchrom\Projects\GC15B\Data\099b031, B



\Lims\gdrive\ezchrom\Projects\GC15B\Data\099b032, B



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	16
MTBE	ND		0.5	
Benzene	ND		0.5	
Toluene	ND		0.5	
Ethylbenzene	ND	45	0.5	
<pre>m,p-Xylenes o-Xylene</pre>	ND	E.	0.5	
o-Xylene	ND		0.5	

Surrogate	%REC	Limits	V r
1,2-Dichloroethane-d4	120	77-137	
Toluene-d8	102	80-120	*
Bromofluorobenzene	96	80-125	

ND= Not Detected RL= Reporting Limit Page 1 of 1



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 o-Xylene	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 Page 1 of 1



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	
Ethylbenzene m,p-Xylenes 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
Page 1 of 1



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		



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	



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	(8)
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



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	G-



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	



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



	Purgeable A	romatics by G	C/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	4	

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

Surrogate	%REC	Limits	15	
1,2-Dichloroethane-d4	119	77-137	Ü	
Toluene-d8	102	80-120		
Bromofluorobenzene	95	80-125		



	Purgeable A	Aromatics by GO	C/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	8REC	Limits
1,2-Dichloroethane-d4	117	77-137
Toluene-d8	101	80-120
Bromofluorobenzene	96	80-125



	Purgeable A	romatics by GO	C/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

Page 1 of 1



	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	-	24											

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	ä

### **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

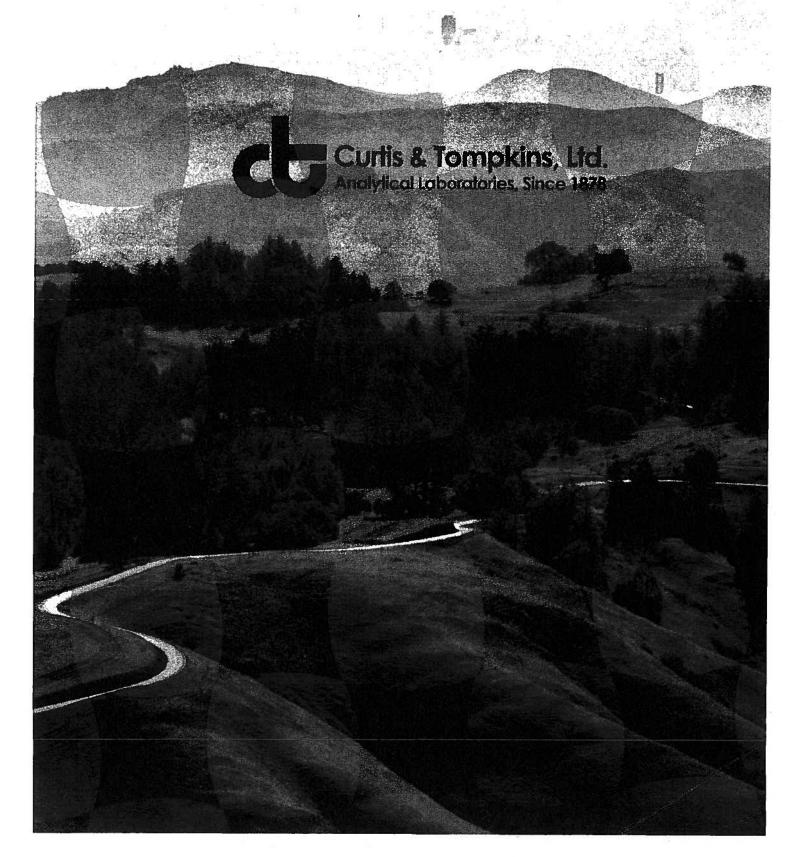
Report Date: 03/16/2009

BASELINE Reviewer: jgm

		Yes	No	NA
(Des	NERAL QUESTIONS scribe "no" responses below in "comments" section. Contact the laboratory, as requal nation or action on "no" responses; document discussion in comments section.)	iired, fo	r furthe	er
1a.	Does the report include a case narrative? (A case narrative MUST be prepared by the lab for all analytical work requested by BASELINE)	х		
lb.	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?	Х		
1c.	Does the case narrative indicate which samples were analyzed by a subcontractor and the subcontractor's name?		¥	х
1d.	Does the case narrative summarize subsequent requests not shown on the chain-of-custody (e.g., additional analyses requested, release of "hold" samples)?			Х
le.	Does the case narrative explain why requested analyses could not be performed by laboratory (e.g., insufficient sample)?	i.e.		Х
1f.	Does the case narrative explain all problems with the QA/QC data as identified in the checklist (as applicable)?		ł	х
2a.	Is the laboratory report format consistent and legible throughout the report?	х		
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?	х		
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)	х		
5a.	Are preparation methods, cleanup methods (if applicable), and laboratory methods indicated for all analyses?	х		
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?	Х		
6.	Are the units in the lab report provided for each analysis consistent throughout the report?	X		

		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)?	Х		
8a.	Are detection limits appropriate based on the analysis performed (i.e., not elevated due to dilution effects)?	Х		
8b.	If no, is an explanation provided by the laboratory?			х
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?			х
10.	If samples were composited prior to analysis, does the lab report indicate which samples were composited for each analysis?		i II	Х
11a.	Do the chromatograms confirm quantitative laboratory results (petroleum hydrocarbons)?	٩		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)?		,	Х
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?			Х
13b.	REVISED LAB REPORTS ONLY. Does the case narrative indicate the date of revision and provide an explanation for the revision?			х
13c.	REVISED LAB REPORTS ONLY. Does the revised lab report adequately address the problem(s) that triggered the need for a revision?			х
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 °
	QC Questions   /Laboratory Quality Control - Groundwater Analyses			
	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.	х		
	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.	=		х

* 2		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.	х	77.00	
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.)	х		
(Sar fewe fran	ch Quality Control  nples are batched together by matrix [soil, water] and analyses requested. A batch general er samples of the same matrix type, and is prepared using the same reagents, standards, pr ne as the samples. QC samples are run with each batch to assess performance of the entire eress.)	ocedures	s, and ti	0 or me
17.	Do the sample batch numbers and corresponding laboratory QA/QC batch numbers match?	Х		
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?			Х
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.	х		
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?			х
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.	х		
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).	Х		





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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

## Laboratory Job Number 210447 ANALYTICAL REPORT

Baseline Environmental

5900 Hollis St.

Emeryville, CA 94608

Project : Y5395-06

Location : Harbor Facilities Center

Level : II

Sample ID	<u>Lab ID</u>
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
OCTB	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:

Project Manager

Date: 03/13/2009

Signature:

Senior Program Manager

Date: <u>03/16/2009</u>

NELAP # 01107CA



#### 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** 

#### CHAIN OF CUSTODY RECORD

5900 Hollis Street, Suite D

Emeryville, CA 94608

Tel: (510) 420-8686 Fax: (510) 420-1707

21	1	4	4	
ΝI,	U			

Turn-Around-Time Standard

Laboratory Curtis & Tompkins, Ltd.

BASELINE Contact Person Jim McCarty

Project Number Project Name:	Y5395-04- ( Harbor Faci	- •	ter													340							1/202	
Samplers: (Signature)			•		Containers																			
Willow Karl	H / 1/4	mald,	Koney			Туре	•					Preservative								_				
Sample ID No. Station		Time	Media	No.	500 ml Poly	250 ml Poly	1-LA0	40 ml VOA				lce	HCL	HNO3	\$ <del>0</del>	4aOH+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/ Compo
MW-2	3/4/2009		W	8	וייו	٦	2	6			П	Ÿ	וֹאַ		ار	-	X	X X	X			┼	+-	
MW-4	3/4/2009		w	8	m		2	6			$\vdash$		X	Н		$\neg$	X	X	x	_	<del> </del>	+	+	
MW-4dup	3/4/2009		w	8		$\vdash$	2	6			$\vdash$		X			$\dashv$	X	X	$\hat{\mathbf{x}}$		+	+	1	<del> </del>
MW-5	3/4/2009		w	8			2	6			П		X	М		$\dashv$	X	X	X		<del> </del>	+	+	+
MW-8A	3/4/2009		w	8			2	6			Н	X	$\mathbf{x}$	$\vdash$	М	$\neg$	X	$\frac{x}{x}$	X		+	+	+	<del> </del>
MW-9	3/4/2009		W	8			2	6	·				X				X	X	X		1	1 -	1	<del> </del>
MW-10	3/4/2009	4:80	w.	8.			2	6				х	X				X	X	X		<b>†</b>	+		1
MW-11	3/4/2009		W	8			2	6						П			X	X	$\frac{\ddot{x}}{x}$		1	+	<del> </del>	<del>                                     </del>
MW-12	3/4/2009		W	8			2	6				Х	х				Х	х	x		1 -	1	<del>                                     </del>	
QCEB-030409	3/4/2009	13:12	W	8			2	6				X	X				х	х	X			$\top$	1	<del>-</del>
QCTB	3/4/2009	7:00	W	2				2				X					X					1	1	
																					-			
																								1
																				Ľ			T	
																							7	
																					<u> </u>		1	1
																							_	
																								1
	·																							
			<u> </u>	<u> </u>	Ш		]																<u> L</u>	
					$\sqcup$			_																1
					لــــا	Щ	1		لببا						Ш									
Relinquished by: (	Signature)			Date/	ime		Reg	ived	by:	(Sig	natur	c)					Date/Tim							
Regional Ho	yeary			असम		<u>દઃદર</u>						<u>~</u>					3/4/1/	1555	ኢ		Arrival		ratory:	
Reliaquished by: (	Signature)			Date/	lime	_	Kece	ived	by:	(Sig	natur	e)			_			•			Remark			
half				D						(0)		_					_				Email c			
Relinquished by: (	Signature)			Date/	ime	1	Kece	ived	by:	(Sig	natur	c)_	_								redgy@			<u>m</u>
Received at laborat		ct: (Y	ES NO		_	Com															jim@ba	seline-e	nv.com	

onice

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.
Login # 2/1447 Date Received 3/4/09 Number of coolers 2 Client Baseline Project Hawber facility's Center
Date Opened 3/4/09 By (print) Dunny (sign)  Date Logged in 3/4/4 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  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?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  15. NO  16. TES NO  17. TES NO  17. TES NO
14. Are the samples appropriately preserved?  YES NO. N/A
15. Are bubbles > 6mm absent in VOA samples?
16. Was the client contacted concerning this sample delivery? YES NO  If YES, Who was called? By Date:
COMMENTS  Simple #1 - Simple In signation fine log in (SC fine (9:00))  #1 -
- 41
AMPLACESC VON of LABILIES
*

SOP Volume:

**Client Services** 

Section: Page:

1.1.2

1 of 1

Rev. 6 Number 1 of 3
Effective; 23 July 2008
Z:\qc\forms\checklists\Cooler Receipt Checklist\_rv6.doc



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

Field ID:

Type: Lab ID:

MW-2 SAMPLE 210447-001

Batch#:

148678 03/10/09 Analyzed:

Analyte		Result	RL	
Gasoline C7-C12	ND		50	
Surrogate	%REC	Limits	3	
Trifluorotoluene (FID)	104	63-146		
Bromofluorobenzene (FID)	113	70-140		

Field ID:

Type: Lab ID:

MW-4

SAMPLE 210447-002

Batch#: Analyzed: 148678 03/10/09

Analyte Gasoline C7-C12 Result

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

Field ID:

Batch#:

148678

Type: Lab ID:

MW-4DUP SAMPLE 210447-003

03/10/09 Analyzed:

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Surrogate	%REC Limits		

	Surrogate	TREC	Limits
i	Trifluorotoluene (FID)	103	63-146
	Bromofluorobenzene (FID)	102	70-140
1			

Field ID:

MW-5

Batch#:

148678

Type: Lab ID:

SAMPLE 210447-004

Analyzed:

03/10/09

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Surrogate	%REC Limits		
Buttodara			
Trifluorotoluene (FID)	101 63-146		

Page 1 of 4

4.0

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



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

Field ID:

MW-8A

SAMPLE 210447-005 Type: Lab ID:

Batch#: Analyzed: 148678

03/10/09

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Surrogate	%REC Limits		0
Trifluorotoluene (FID)	101 63-146		

Field ID: Type: Lab ID:

MW-9

SAMPLE 210447-006

Batch#: Analyzed: 148678

03/10/09

Analyte		Result	RL	
Gasoline C7-C12		290 Y_	50	
Surrogate	%REC	Limits		
DULLOUGUE	0140	HILL CO		
Trifluorotoluene (FID)	120	63-146		

Field ID:

Type: Lab ID:

MW-10

SAMPLE 210447-007

Batch#: Analyzed: 148721

03/10/09

Analyte		Result	RL	
Gasoline C7-C12		96 Y	50	
Surrogate	%REC	Limits		
Trifluorotoluene (FID) Bromofluorobenzene (FID)	186 * 111	63-146 70-140		

Field ID:

MW-11

SAMPLE

Batch#:

148721

Type: Lab ID:

210447-008

Analyzed:

03/10/09

Analyte		Result	RL RL	
Gasoline C7-C12	ND		50	
Surrogate	*REC	Limits		
Trifluorotoluene (FID)	103	63-146		
Bromofluorobenzene (FID)	109	70-140		

Page 2 of 4

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



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

Field ID:

MW-12

Type: Lab ID:

SAMPLE

210447-009

Batch#: Analyzed: 148721 03/10/09

Analyte Gasoline C7-C12 Result **RL** 50 150 Y

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

Field ID:

QCEB-030409

SAMPLE

Type: Lab ID:

210447-010

Batch#:

148721 03/10/09 Analyzed:

Analyte Result Gasoline C7-C12

· · · · · · · · · · · · · · · · · · ·	<u> </u>		
Surrogate	%REC	Limits	€ *
Trifluorotoluene (FID)	108	63-146	
Bromofluorobenzene (FID)	116	70-140	

Field ID: Type: Lab ID:

SAMPLE

QCTB

210447-011

Batch#: Analyzed:

148721 03/10/09

Analyte Gasoline C7-C12 Result ND Surrogate **%REC** Limits 63-146 Trifluorotoluene (FID) 111 Bromofluorobenzene (FID) 70-140

Type: Lab ID:

BLANK QC486501

Batch#: Analyzed: 148678 03/09/09

Analyte Result Gasoline C7-C12 ND Limits 63-146 70-140 Surrogate **%REC** Trifluorotoluene (FID) Bromofluorobenzene (FID) 103

96

RL= Reporting Limit

Page 3 of 4

4.0

<sup>\*=</sup> Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected



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

Type: Lab ID:

BLANK QC486690 Batch#: Analyzed: 148721 03/10/09

Analyte	Result	RL	
Gasoline C7-C12	ND	50	
Surrogate	%REC Limits		
Trifluorotoluene (FID)	105 63-146		
Bromofluorobenzene (FID)	103 70-140		

<sup>\*=</sup> Value outside of QC limits; see narrative Y= Sample exhibits chromatographic pattern which does not resemble standard ND= Not Detected RL= Reporting Limit Page 4 of 4



	Total Vola	tile Hydrocarbo	ons
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	$\neg$
Gasoline C7-C12	1,000	951.7	95	76-121	$\neg$

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



	Total Vola	tile Hydrocarbo	ons
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

	iked 1	Result	%REC :	Limits F	RPD :	Lim
Gasoline C7-C12 2,	000	1,939 9	6	66-120 1		20

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



	Total Volat	tile Hydrocarbo	ons
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



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

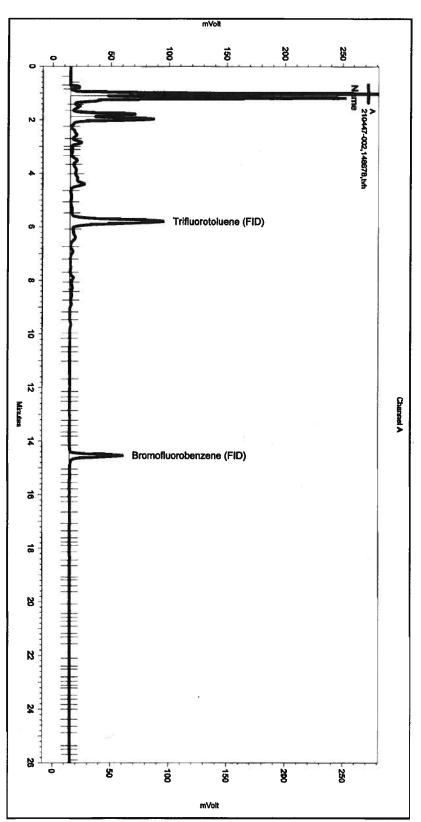
Surrogate	%REC	Limits
Trifluorotoluene (FID)	120	63-146
Bromofluorobenzene (FID)	131	70-140

Sequence File: \\Lims\gdrtve\ezchrom\Projects\GC04\Sequence\068.seq

Sample Name: 210447-002,148678,tvh

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\068\_030 \\
Instrument: GC04 Vial: N/A Operator: \lims\2k3\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

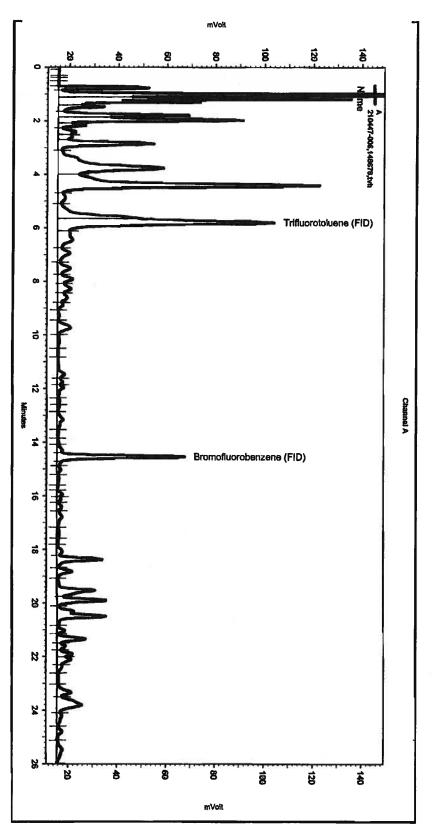


< General Method Parameters >-	
No items selected for this section	
< A >	
No items selected for this section	
ntegration Events	
Start Enabled Event Type	Stop (Minutes) (Minutes) Value
Yes Width Yes Threshold	0 0 0.2 0 0 50
Manual Integration Fixes	
Data File: C:\Documents and Sett Data\ChromatographySystem\Reco Data\Instrument.10047\068_030_Al Start	very F78.tmp
Enabled Event Type	(Minutes) (Minutes) Value
None	

Page 2 of 4 (6) Curtis & Tompkins Ltd.

Sequence File: \\Lims\gdrive\ezchrom\Projects\\GC04\Sequence\\068.seq Sample Name: 210447-006,148676,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\tvhbbc064.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

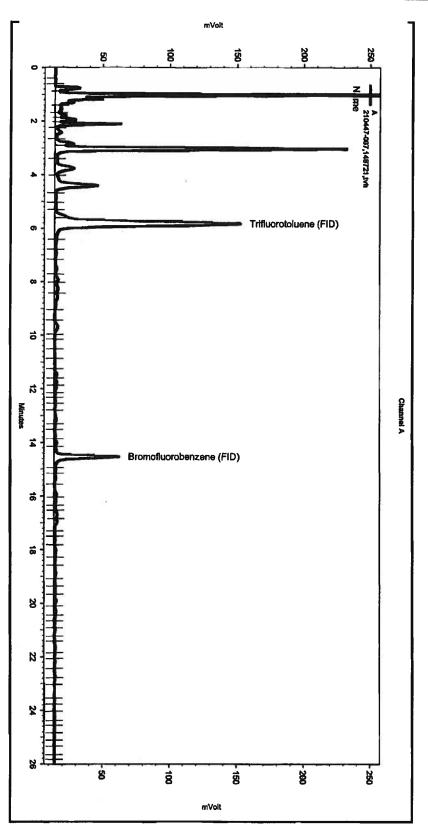


< Ge	neral Method Para	ameters >
No Iten	ns selected for this	section
(A>		
No iten	ns selected for this	section
Integral	tion Events	
Enab	led Event Type	Start Stop (Minutes) (Minutes) Value
	Width Threshold	0 0 0.2 0 0 50
	Integration Fixes	
Vanual	magration i may	
		= lezchrom\Projects\GC04\Data\068_034 Start Stop
Data		
Data	Flie: \\Lims\gdrive\ led Event Type Split Peak	Start Stop

Page 2 of 4 (2) Curtis & Tompkins Ltd.

Sequence File: \\\Lims\gdrive\ezchrom\\Projects\\GC04\Sequence\\069.seq\
Sample \text{Name: 210447-007,148721,tvh}
Data File: \\\Lims\gdrive\ezchrom\\Projects\\GC04\Data\\069\_015\
Instrument: GC04 (Offline) \text{Via: N/A Operator: Tvh 2. Analyst (lims2k3\\\vh2) \text{Method Name: \\\Lims\gdrive\ezchrom\\Projects\\GC04\\Method\\\vh0\\vh0\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\vh0\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\vh0\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\\vh0\\vh0\\v

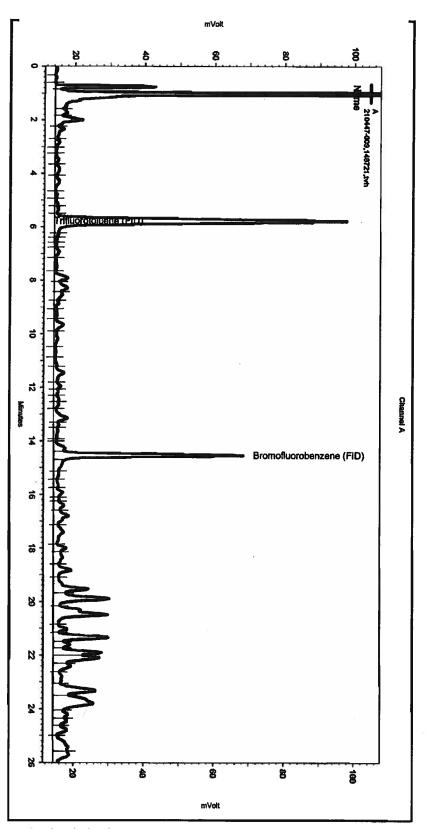
Software Version 3.1.7
Run Date: 3/10/2009 9:16:00 PM
Analysis Date: 3/11/2009 9:59:38 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: B1.3



Page 2 of 4 (2) Curtis & Tompkins Ltd.

Sequence File: \\Lims\gdrive\exchrom\Projects\GC04\Sequence\069.seq Sample Name: 210447-009,148721,tvh
Data File: \\Lims\gdrive\exchrom\Projects\GC04\Data\069\_017 instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2) Method Name: \\Lims\gdrive\exchrom\Projects\GC04\Method\tvhbtxe064.met

Software Version 3.1.7
Run Date: 3/10/2009 10:31:12 PM
Analysis Date: 3/11/2009 10:01:08 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: 81.3

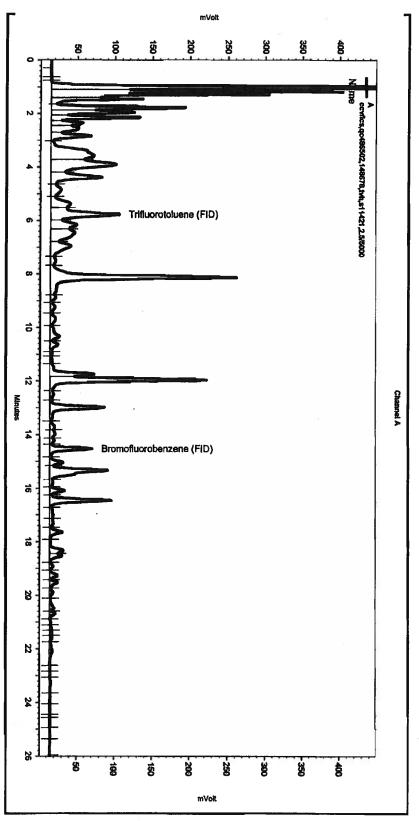


< Ge	neral Method Para	meters >
No Item	ns selected for this	section
_< <u>A</u> >		
No item	ns selected for this	section
Integra	tion Events	
Enab	led Event Type	Start Stop (Minutes) (Minutes) Value
Yes Yes	14.00.	0 0 6.2 0 0 50
Manuel	Integration Fixes	
Data	File: \\Lims\gdrive\r	exchrom\Projects\GC04\Data\069_017 Start Stop
Enabl	led Event Type	Start Stop (Minutes) (Minutes) Value
Yes	Lowest Point Ho Split Peak	rizontal Basell 0 26.017 0 14.703 0 0

Page 2 of 4 (2) Curtis & Tompkins Ltd.

Sequence File: \\Lims\gdrive\szchrom\Projects\\GC04\Sequence\\00088.seq Sample Name: ccv/lcs,qc486502,148678,tvh,s11421,2.5/5000 Data File: \\Lims\gdrive\szchrom\Projects\\GC04\Data\\00088\_004 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\\vh2) Method Name: \\Lims\gdrive\szchrom\Projects\\GC04\Method\vhb\xe084.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}



< Ge	neral Method Paran	neters >-				_
No iten	ns selected for this :	section				
~A>					<u>-</u>	
No item	ns selected for this s	section				
Integral	tion Events					
Enab	led Event Type	Start	Sto (Minut		Minutes)	Value
Yes Yes	******		00	0	0.2 50	
Manuel	Integration Fixes					
Data	File: \\Lims\gdrive\e	zchrom\i			4\Data\0	68_004
Enab	led Event Type	Cuit			Minutes)	Value
None					_	

Page 2 of 4 (6) 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 SAMPLE

Lab ID:

210447-001

Type: Cleanup Method: EPA 3630C

Analyte	Result	RL	. 191
Diesel C10-C24	ND	50	
Motor Oil C24-C36	ND	300	

Surrogate	%REC Limit		
o-Terphenyl	90 61-12	7	

Field ID: Type:

MW-4 SAMPLE

Lab ID: 210447-002 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits	 	100
o-Terphenyl	74	61-127	 	

Field ID:

Type:

MW-4DUP SAMPLE

Lab ID: 210447-003 Cleanup Method: EPA 3630C

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

Surrogate	*REC	Limits	
o-Terphenyl	86	61-127	

Field ID: Type:

MW-5 SAMPLE

Lab ID: 210447-004 Cleanup Method: EPA 3630C

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

o-Terphenyl 96 61-127	Surrogate	%REC Limits	Ø 8 8	25
	I o-Terpnenvi	<u> </u>	· -	

Y= Sample exhibits chromatographic pattern which does not resemble standard ND= Not Detected RL= Reporting Limit Page 1 of 3  $\,$ 



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: Type:

A8-WM

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: Type:

MW-9

SAMPLE

Lab ID: 210447-006 Cleanup Method: EPA 3630C

Analyte	Result	RL	21
Diesel C10-C24	310 Y	50	
Motor Oil C24-C36	ND ND	300	

Surrogate	*REC	Limits	
o-Terphenyl	94	61-127	

Field ID:

MW-10

Lab ID:

210447-007

SAMPLE Type:

Cleanup Method: EPA 3630C

Analyte	Result	RL	8
Diesel C10-C24	110 Y	50	
Motor Oil C24-C36	ND	300	
	· · · · · · · · · · · · · · · · · · ·	····-	

Surrogate	*REC	Limits	
o-Terphenyl	88	61-127	

Field ID: Type:

MW-11

SAMPLE

Lab ID: 210447-008 Cleanup Method: EPA 3630C

Analyte	Result	RL	
Diesel C10-C24	ND	50	
Motor Oil C24-C36	ND	300	
		9	· · · · · · · · · · · · · · · · · · ·

Surrogate	%REC	Limits	4
o-Terphenyl	77	61-127	

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

Page 2 of 3

2.0



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

Field ID: Type:

MW-12 SAMPLE

Lab ID: 210447-009 Cleanup Method: EPA 3630C

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

Surrogate	<b>%REC</b>	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 ND	300	

Surrogate	*REC	Limits	
o-Terphenyl	88	61-127	

Type: Lab ID:

BLANK QC486325 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits	
aMarshanrel		61.107	
o-Terphenvl	106	61-127	

Y= Sample exhibits chromatographic pattern which does not resemble standard ND= Not Detected RL= Reporting Limit Page 3 of 3  $\,$ 



	Total Extra	ctable Hydroca:	rbons
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: Lab ID:

BS

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

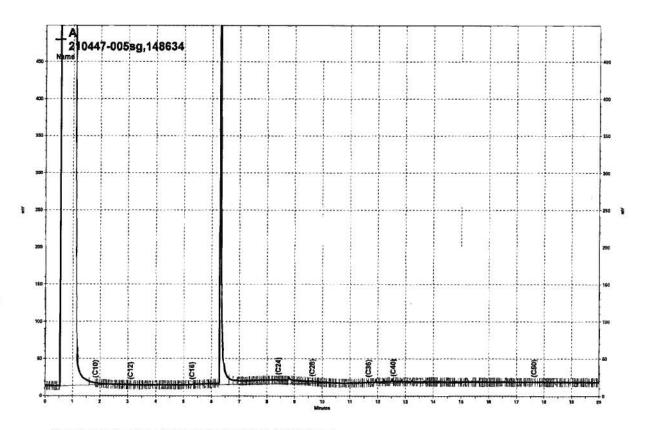
Cleanup Method: EPA 3630C

Lab ID:

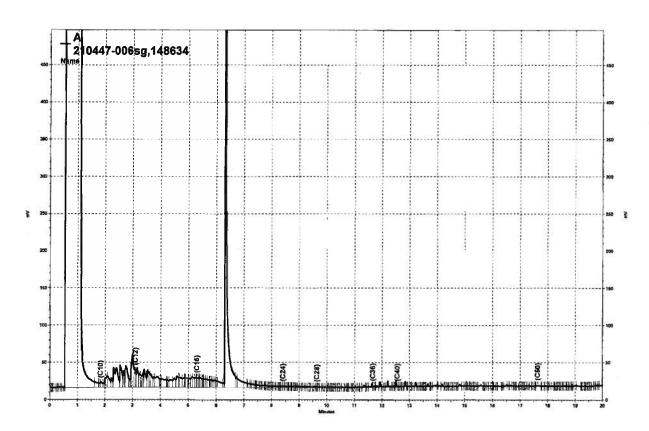
QC486327

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

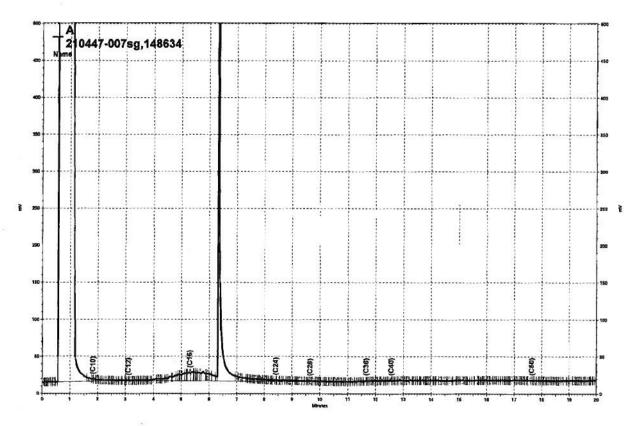
Surrogate	%REC	Limits	
o-Terphenyl	94	61-127	



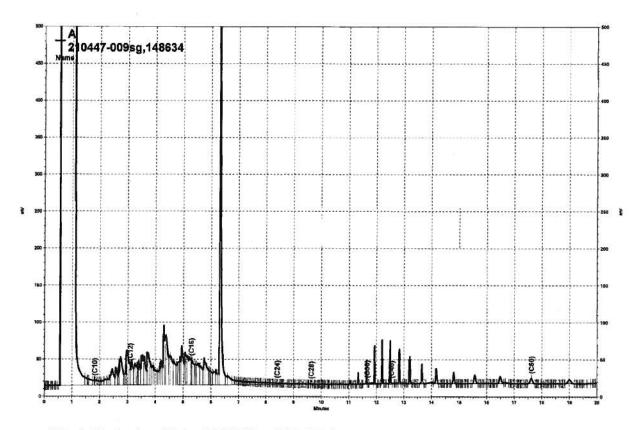
-----\Lims\gdrive\ezchrom\Projects\GC17A\Data\068a026, A



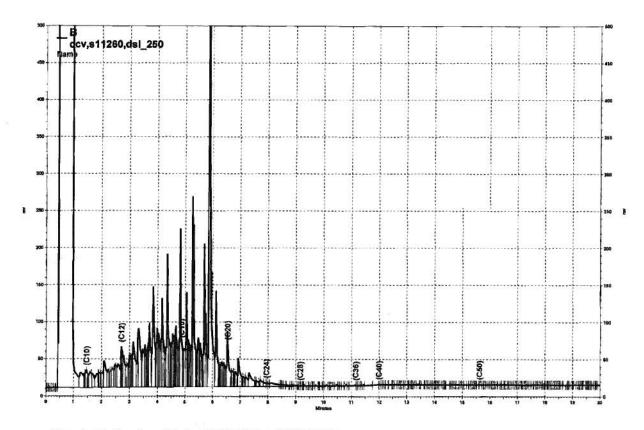
\Lims\gdrive\ezchrom\Projects\GC17A\Data\068a031, A



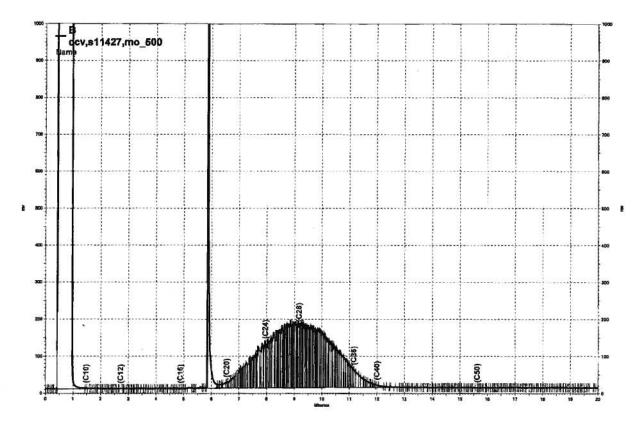
-----\Lims\gdrive\ezchrom\Projects\GC17A\Data\068a032, A



\Lims\gdrive\ezchrom\Projects\GC17A\Data\068a034, A



\Lims\gdrive\ezchrom\Projects\GC15B\Data\067b063, B



\Lims\gdrive\ezchrom\Projects\GC15B\Data\067b064, B



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	



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 o-Xylene	ND	0.5	27
o-Xylene	ND	0.5	

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	77-137
Toluene-d8	103	80-120
Bromofluorobenzene	116	80-125



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	8



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

Page 1 of 1



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	· 3		

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	



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	<u>-</u>	

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	



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	<sup>6</sup> 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



	Purgeable F	Aromatics by GO	C/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 o-Xylene	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 Page 1 of 1



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:	$\mathtt{ug/L}$	Analyzed:	03/11/09	
Diln Fac:	1.000	17		

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



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:	${ m ug/L}$	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	
m,p-Xylenes o-Xylene	ND	0.5	-

Surrogate	%REC	Limits	
1,2-Dichloroethane-d4	111	77-137	
Toluene-d8	97	80-120	
Bromofluorobenzene	96	80-125	



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 o-Xylene	ND	0.5	
o-Xylene	ND	0.5	

Surrogate	%REC	Limits	ji
1,2-Dichloroethane-d4	106	77-137	
Toluene-d8	103	80-120	
Bromofluorobenzene	118	80-125	•



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	
m,p-Xylenes o-Xylene	ND	0.5	

Surrogate	%REC	Limits	
1,2-Dichloroethane-d4	97	77-137	
Toluene-d8	105	80-120	
Bromofluorobenzene	109	80-125	



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 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	



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 o-Xylene	ND	0.5	20
o-Xylene	ND	0.5	

Surrogate	%REC	Limits	<u> </u>
1,2-Dichloroethane-d4	109	77-137	
Toluene-d8	101	80-120	
Bromofluorobenzene	99	80-125	



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	8REC	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:

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	



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	2	×		
1,2-Dichloroethane-d4	106	77-137				***
Toluene-d8	104	80-120				
Bromofluorobenzene	106	80-125				

Type:

MSD

Lab ID:

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	8
1,2-Dichloroethane-d4	103	77-137	
Toluene-d8	104	80-120	
Bromofluorobenzene	103	80-125	



n.	Purgeable P	Aromatics by GO	C/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:

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		



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:

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	<b>Limits</b>	
1,2-Dichloroethane-d4	100	77-137	
Toluene-d8	100	80-120	
Bromofluorobenzene	97	80-125	



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



	Purgeable A	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	 90 E	
1,2-Dichloroethane-d4	103	77-137		
Toluene-d8	100	80-120		
Bromofluorobenzene	94	80-125		

Type:

MSD

Lab ID:

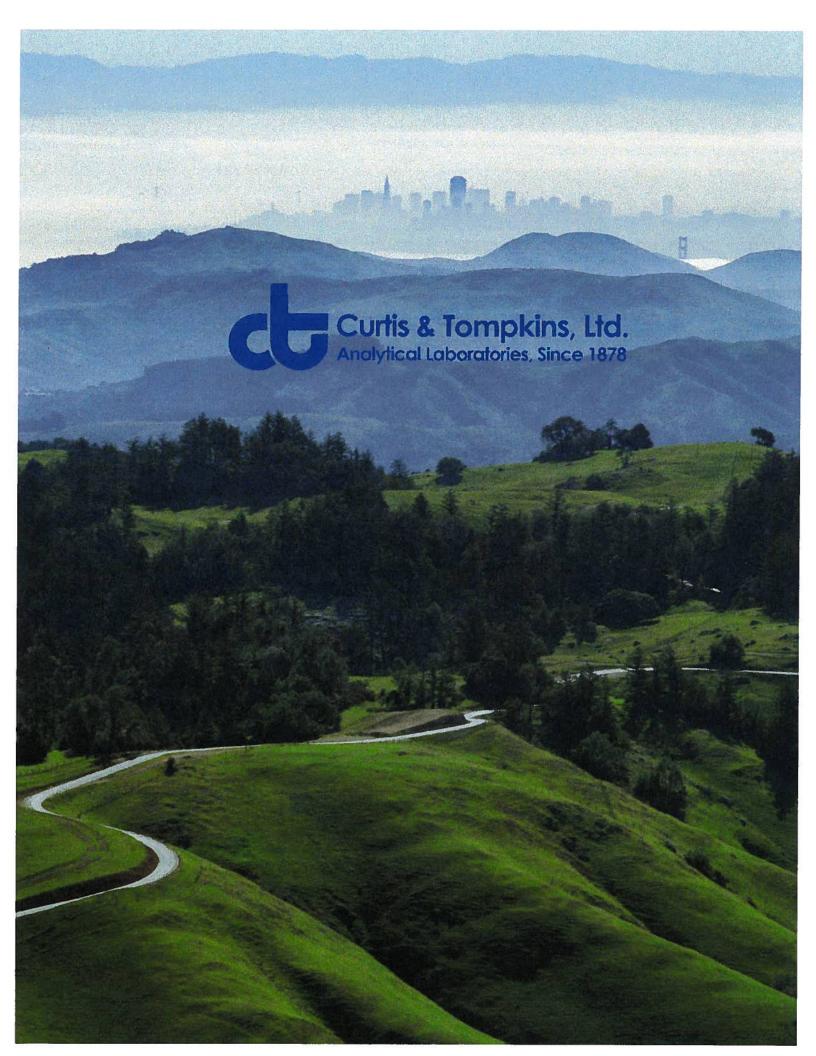
QC487022

Analyte	Spiked	Result	%REC	Limits	RPD	Li.m
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	
<del></del>			

RPD= Relative Percent Difference

Page 1 of 1





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

2323 Fifth Street, Berkeley, CA 9471O, Phone (510) 486-0900

# Laboratory Job Number 212970 ANALYTICAL REPORT

Malcolm Pirnie, Inc.

2000 Powell St.

Emeryville, CA 94608

Project : 4656016

Location : Port Of Oakland - HFC

Level : II

<u>Sample ID</u>	<u>Lab ID</u>
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:

Project Manager

Date: <u>06/25/2009</u>

Signature

Senior Program Manager

Date: <u>06/26/2009</u>

NELAP # 01107CA



## CASE NARRATIVE

Laboratory number:

212970

Client:

Malcolm Pirnie, Inc.

Project:

4656016

Location:

Port Of Oakland - HFC

Request Date: Samples Received: 06/18/09, 06/19/09 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.

## Curtis & Tompkins, Ltd.

Analytical Laboratory Since 1878 2323 Fifth Street

# **CHAIN OF CUSTODY**

Analysis

(	Berkeley, CA 94710 510) 486-0900 Phone (510) 486-0532 Fax	C&TI	C&TLOGIN#: 270470  Sampler: Lyda Hakes/Caronine Orsi									100	,			1								
		Sample	sampler: Lyda Hales/Caroure ors								ા છાલ	,		Shicas										
Project	No.: 4656016	Report	To:	1	no	10	mille	1	Щ	iclo	Hak	واع	_	S)	S									
	Name: POSEOLOGIC	and His Compa	ny:	n	na	1	colm f	5,0	1	i o		10		3	82									
Project					ý		596.30		_		· · · · · · · · · · · · · · · · · · ·			OSS	bi									
	und Time: Sto						6.886				<del></del>		,	$\frac{\infty}{2}$	图									
Bill	to: Port of Oak	cland	į,				Ž,						Q Q	ğ	3									
	Atm Jess Rubi	0		Ma	7			1001	T		itive	ľ	٧	व	ナ		ļ							
Lab No.	Sample ID.	Sampling Date Time	Soil	Water	Waste		# of Containers	된	H <sub>2</sub> SO <sub>4</sub>	S N H	핃		OH-PI	되	BIE									
	mw.2"	6/17/09 8:50		X			7	X			X		Z	X	X					<u> </u>		1		-
2	MILLIOS BUILD	4/17/09 9:50	_	<b>/</b> _			<b>—</b>	11	-		4			1	1	- (	- C	4)	d		П	4	, .	1
5	Mills	6170910:45	<u> </u>	-	$\vdash$			++	-	$\vdash$	+	-	₩	+	+		$\perp$	+	-	-	$\coprod$	4		4
	au. 5	W12/00 11:50		1		-		+†	+		+	$\vdash$	H	H	+	$\dashv$		+	+-	+-	+-+	+		$\dashv$
7	nu-u	6/17/09 12:00	-	1				$\dagger \dagger$	+		+	H	H	+	+	$\dashv$	+	╬	+	+	┼┼	$\dashv$	-	4
1	MW·8A#	4/17/09 12:55			$\vdash$	<del>                                     </del>		† †	+		<del>}    </del>	H	₩	-}	H	+	+	+	+	+-	+-+	-	-	-
4	MW-12*	4/17/09/3:45			П			11	1		1	H	1	-	†+	$\dashv$	-	十	+	+	<del>                                     </del>	+	+	$\dashv$
9	PD-0617097	6/17/09 13:45					V	IJ		$\Box$		h	J.	M	V	$\neg$	1,		+-	<del>                                     </del>	<del>     </del>	+	+	-
10	TRIP BLAN!	4/17/19		V			1				4	7		1	丈				$\top$	1		$\dashv$		1
												Γ	•					1	1					1
		' -	3															1	_			$\top$	$\top$	1
	20 24777-1444			1												T		1					$\top$	1
Notes:	SAMPLES SHILLS	SAMPLE RECEIPT	RE	ŮΝ	QUI	SHI	ED BY:				-	•	REC	CEIV	NEO	BY:								1
	SAMPLES SITTING IN H2021 lebels fell off, Ambres.	Intact Cold On Ice Ambient	(	1	S	4	5	> (	26/1		1 930 ATE / TIM	,	*	d		<u></u>		6	18	100	7	93 ATE	) / TIME	=
	fell off Ambers.	Preservative Correct?  Yes No NA	1		•						ATE / TIM		,	J	V				.'			:		
	AF-		1	;	:				-		1	1		•								AIE /	/ TIME	=
L	SIGNATURE	· ·			1					D	ATE / TIM	E							_	_	D/	ATE /	/ TIME	囙
			(4)																					

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878 2323 Fifth Street

# **CHAIN OF CUSTODY**

"	Berkeley, CA 94710 510) 486-0900 Phone	CATI	വര	ini i	<u>,</u> (	2	12970						_			1		AI	nary	/8IS	·				
	(510) 486-0532 Fax	Jair	.00	III 7	r•	_								760											
		Sample	<u>∍r: /</u>	4	<del>l</del> a	Ł	ed co	IG.					ac	0	1										
Project	No.: 4656 016						Miller						کو	2015	3										
	Name: POCL-HFC	resample compa	iny:	M	10	J	colmi	Dir	'n	LQ.	ر		silita	Ĩ	2										
Project							596.3							1 6											
Turnaro	ound Time: Stat	Fax:	<u>51</u>	0	5.5	59	16.88	5	5				8015	א ו											
	90-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			Ma	trix		a		Pres	erva	tive		W	NOTE Y	5										
Lab No.	Sample ID.	Sampling Date Time	Soil	Water	Waste		# of Containers	HCL.	H <sub>2</sub> SO <sub>4</sub>	ŐNH	핑		CM/P-HGT	101							j				
S S S S S S S S S S S S S S S S S S S	MW-4	a/19/09 1130		X		コ	4	<u> X</u>			۴		X	·						†-	-		$\dashv$		$\dashv$
13	MW-5"	6 19 1305		X	$\perp$	_	4	X	1_		<u> </u>		_	×											
7	MW- II	6 19 69 1410		X			4	X	_	ļ.,	<del>                                      </del>	4	X	X	_		┞	<u> </u>	_	ļ	Ш	$\square$			_
11	Trip Blank-061909	6/19/09 1500		$\langle \rangle$	$\dashv$	$\rightarrow$	7		┼		$\longleftrightarrow$	$\dashv$		X	<b>-</b>	├	┢	ļ	-	-	$\square$			_	_
•	THE DEGREE VILLION	-1110/ 1500		$\Delta$		$\dashv$		$\vdash$	$\vdash$	-	$\leftarrow$	$\dashv$	-	Δ	<del> </del>		-	┢	┼	-	-	-	$\dashv$		
E <sup>1</sup>					6	寸		+			-	$\dashv$	-		<del> </del>	<u> </u>	<del>                                     </del>	╁	$\vdash$	-	$\vdash$		-	$\dashv$	$\dashv$
						$\neg$		1					-		<del>                                     </del>			<del> </del>	-	+		$\overline{}$	-	$\dashv$	$\dashv$
		Vii									_							<del>                                     </del>	†	†	$\vdash$	$\Box$			$\neg$
																$\vdash$			T						$\dashv$
	<del></del>																								$\neg$
								_	↓																
Notes:		SAMPLE RECEIPT	igspace								$\perp$		_	Λ	<u> </u>	<u> </u>		$\bot$	<u> </u>						
Notes:		Intact Cold	RE	LIN		ŞHI	ED BY:							Þ	IVE	Dβ	Y:	)							
		On Ice Ambient	/	1	=		1		06			154		$\bigvee$	ha	$\mathcal{T}$	J.	182	JA		Ob	19ta	09	154	F
		Preservative Correct?		<u> </u>	V	4				D/	ATE /	TIMI		14	m	w		7	<u> </u>					/ TI	
	<u></u>	Yes No NA								D/	ATE /	TIME										£	ATE	/ TI	ME
					ti)					D/	TE/	TIME										Г	ATF	:/TI	MF
	SIGNATURE																								لتت

## **COOLER RECEIPT CHECKLIST**



Login # 717970 Date Received 6-19-9 Number of coolers / Client MAKOM PIRME Project PORT HEC
Date Opened 6-19-9 By (print) Sturing (sign)  Date Logged in By (print) (sign)
1. Did cooler come with a shipping slip (airbill, etc) YES Shipping info
2A. Were custody seals present? \( \subseteq YES \) (circle) on cooler on samples  How many \( \subseteq \text{Name} \)  Date
2B. Were custody seals intact upon arrival?  YES NO NA
<ul><li>3. Were custody papers dry and intact when received?</li><li>4. Were custody papers filled out properly (ink, signed, etc)?</li></ul>
4. Were custody papers filled out properly (ink, signed, etc)?  5. Is the project identifiable from custody papers? (If so fill out top of form)  NO  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: 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 YES If YES, what time were they transferred to freezer?
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  NO
9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  NO
9. Did all bottles arrive unbroken/unopened? 10. Are samples in the appropriate containers for indicated tests? 11. Are sample labels present, in good condition and complete?
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. NO  16. NO  17. NO  18. NO  19. N
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. NO  17. NO  18. NO  19. NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. VISTOR WILLIAM STATES AND NOTICE AND STATES AND NOTICE AND STATES AND STATES AND NOTICE AND STATES
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. NO  17. NO  18. NO  19. NO
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. VISTOR WILLIAM STATES AND NOTICE AND STATES AND NOTICE AND STATES AND STATES AND NOTICE AND STATES
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. If YES, Who was called?  18. NO  19. Date:  19. Dotte:  10. Dotte: The Samples on court 2.
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. If YES, Who was called?  18. NO  19. Date:  19. Dotte:  10. Dotte: The Samples on court 2.
If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. If YES, Who was called?  18. NO  19. Date:  19. Dotte:  10. Dotte: The Samples on court 2.

SOP Volume:

**Client Services** 

Section: Page: 1.1.2

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**



Login # 7 17970 Date Receive! 6-189 Number of coolers / Client MALCOLM PERME Project HFC PURT OF CONK
Date Opened 619-9 By (print) TRACY By (sign)  Date Logged in 6/19/9 By (print) Sign (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  How many Name Date  2B. Were custody seals intact upon arrival?  3. Were custody papers dry and intact when received?  4. Were custody papers filled out properly (ink, signed, etc)?  5. Is the project identifiable from custody papers? (If so fill out top of form)  6. Indicate the packing in cooler: (if other, describe) me/1ed in at hother describe
Bubble Wrap Foam blocks Bags None Cloth material Cardboard Styrofoam Paper towels
Type of ice used: Wet Blue/Gel None Temp(°C) in 1 coeller
☐ 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?  If YES, what time were they transferred to freezer?  9. Did all bottles arrive unbroken/unopened?  10. Are samples in the appropriate containers for indicated tests?  11. Are sample labels present, in good condition and complete?  12. Do the sample labels agree with custody papers?  13. Was sufficient amount of sample sent for tests requested?  14. Are the samples appropriately preserved?  15. Are bubbles > 6mm absent in VOA samples?  16. Was the client contacted concerning this sample delivery?  17. Date: 6 -18 - 6 - 18 - 18
in melted ice & mw-s & mw-q. No songe or
client will resample mw-11, mw-9, mu-5 ama-y

SOP Volume:

Client Services

Section: Page: 1.1.2

1 of 1

Rev. 6 Number 1 of 3
Effective: 23 July 2008
Z:\qc\forms\checklists\Cooler Receipt Checklist\_rv6.doc



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

Field ID: Type: Lab ID:

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

Analyte Result RL Gasoline C7-C12 ND

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

Field ID:

MW-11 SAMPLE Sampled:

06/19/09 06/19/09

Type: Lāb ID:

212970-002

Received: Analyzed:

06/20/09

Analyte Result Gasoline C7-C12 ND 50

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

Field ID:

MW - 10SAMPLE

Sampled: Received: 06/17/09

Type: Lab ID: 06/18/09 06/20/09 212970-003 Analyzed:

Analyte Result Gasoline C7-C12 90 Y

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

Field ID: Type:

Lab ID:

MW-9SAMPLE 212970-004 Sampled: Received: Analyzed: 06/19/09 06/19/09 06/20/09

Analyte Result Gasoline C7-C12

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

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 1 of 3



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

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

Analyte Result RL
Gasoline C7-C12 ND 50

Surrogate\*RECLimitsTrifluorotoluene (FID)8163-146Bromofluorobenzene (FID)8770-140

Field ID: Type: Lab ID: MW-4 SAMPLE 212970-006 Sampled: Received: Analyzed:

06/19/09 06/19/09 06/20/09

Analyte Result RL
Gasoline C7-C12 69 Y 50

Field ID: Type:

MW-8A SAMPLE 212970-007 Sampled: Received:

06/17/09 06/18/09 06/21/09

 Lab ID:
 212970-007
 Analyzed:
 06/21

 Analyte
 Result
 RL

 Gasoline C7-C12
 ND
 50

Surrogate \*REC Limits

 Surrogate
 \$REC
 Limits

 Trifluorotoluene (FID)
 79
 63-146

 Bromofluorobenzene (FID)
 87
 70-140

Field ID: Type:

Lab ID:

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

 Analyte
 Result
 RI

 Gasoline C7-C12
 64 Y
 50

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Page 2 of 3



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

Analyte Result RL
Gasoline C7-C12 67 Y 50

Surrogate\*RECLimitsTrifluorotoluene (FID)8263-146Bromofluorobenzene (FID)10070-140

Type: Lab ID: BLANK QC500848 Analyzed:

06/20/09

Analyte	Result	antonia mendia a RII. Na mana mana mana mana mana	
Gasoline C7-C12	ND	50	
Surrogate	%REC Limits		

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

Page 3 of 3



	Total Vol	atile Hydrocarbo	ons
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	Separate the property of the second
Trifluorotoluene (FID)	114	63-146	
Bromofluorobenzene (FID)	102	70-140	



	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

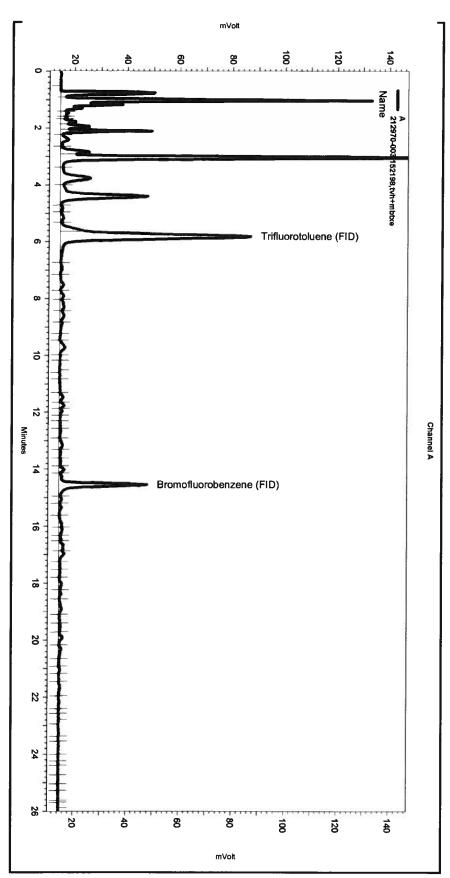
Lab ID:

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	

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

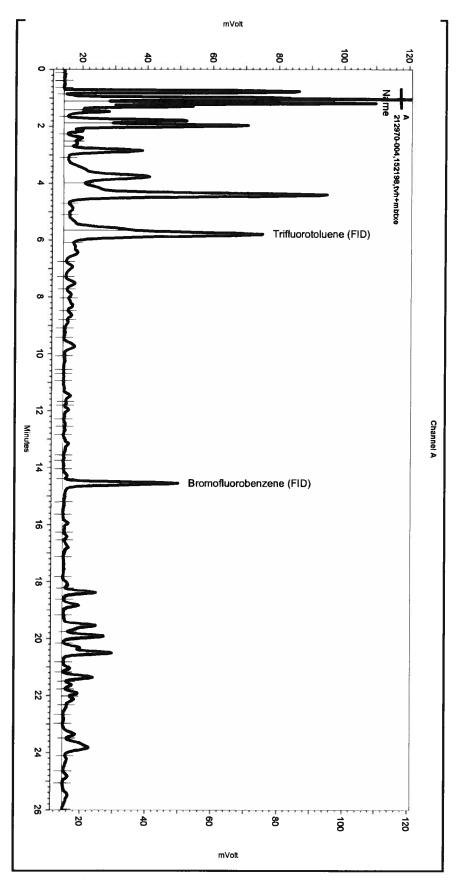


< Ge	neral Method Para	ameters >
No iten	ns selected for this	section
<a></a>		
No item	s selected for this	section
Integrat	tion Events	
Enab	led Event Type	Start Stop (Minutes) (Minutes) Value
Yes Yes	Width Threshold	0 0 0.2 0 0 50
Manual	Integration Fixes	
Data	File: \\Llms\gdrive\	ezchrom\Projects\GC04\Data\171_022 Start Stop
Enabl	ed Event Type	(Minutes) (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\\vhbtxe162.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



< Ge	neral Method Pa	rameters >				
No item	s selected for thi	s section				
< A >						
No Item	s selected for thi	s section				
Integrat	ion Events					
Enabl	ed Event Type	Start			/inutes)	Value
Yes Yes			0	0	0.2 50	
Manual	Integration Fixes	<u>.</u>				
Data F	lle: \\Lims\gdrive	 elezchrom\ Start	Projects Stor		\Data\17	71_023
Enable	ed Event Type	Stait			(Inutes)	Value
Yes	Split Peak		5.648	0	0	

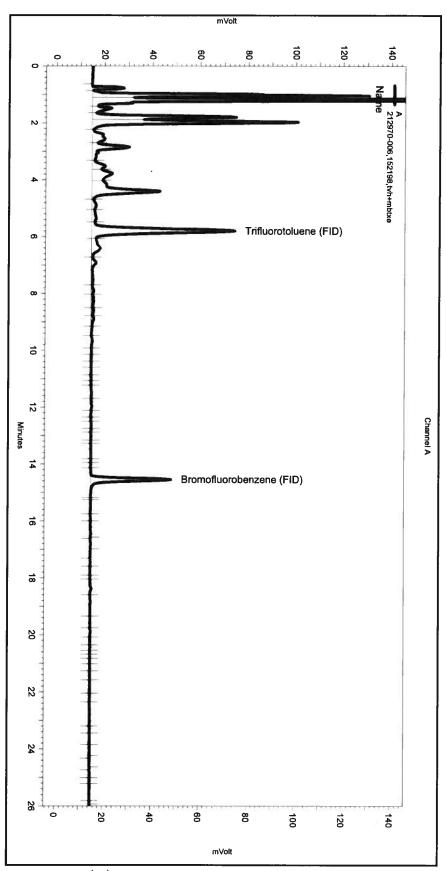
Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq

Sample Name: 212970-006,152198,tvh+mbtxe

Data File: \\Lims\\gdr\ve\ezchrom\\Projects\\GC04\Data\171\_025 \\
Instrument: GC04 \Viai: N/A \ Operator: \lims\2k3\tv\h3 \\
Method \Name: \\Lims\\gdr\ve\ezchrom\\Projects\\GC04\Method\\tv\hbtxe162.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

---< General Method Parameters >-



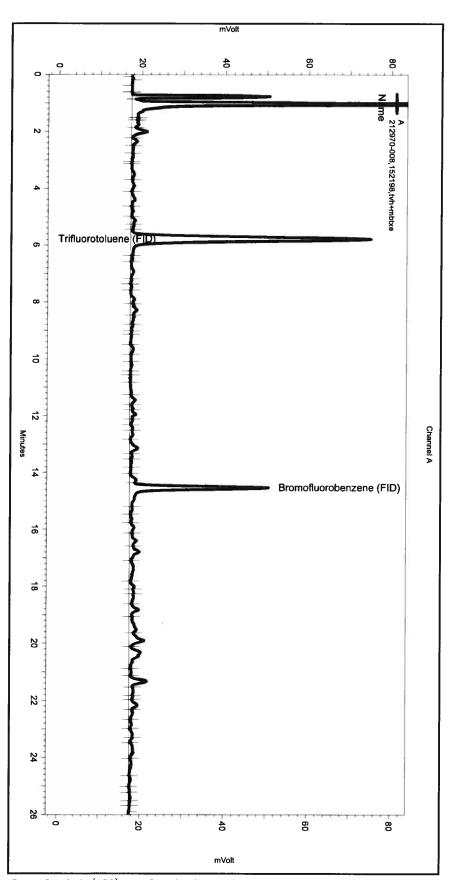
No items selected for this section			
< A >			
No items selected for this section			
ntegration Events			
	Stop		
Enabled Event Type	(Minutes)	(Minutes)	Value
Yes Width		0.2	
Yes Threshold	0	0 50	
fanual Integration Fixes			
Data File: C:\Documents and Sett Data\ChromatographySystem\Reco	very	ers\Applicat	ion
Start			
Enabled Event Type		(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\\tvhb\xe162.met

Run Date: 6/21/2009 7:59:24 AM Analysis Date: 6/21/2009 8:28:52 AM Sample Amount: 5 Multiplier: 5 Vial & pH or Core ID: a1.3,HS<1ml



Gonoral monitor Caramotors		
No items selected for this section	•	
< A >		
No items selected for this section		
ntegration Events		
Start Enabled Event Type	Stop (Minutes) (Minutes	s) Value
Yes Width Yes Threshold	0 0 0.2 0 0 50	
Manual Integration Fixes		
Data File: C:\Documents and Sett Data\ChromatographySystem\Reco Data\Instrument.10047\171_039_06 Start	very i0B.tmp	ation
Enabled Event Type	(Minutes) (Minutes	) Value
None		

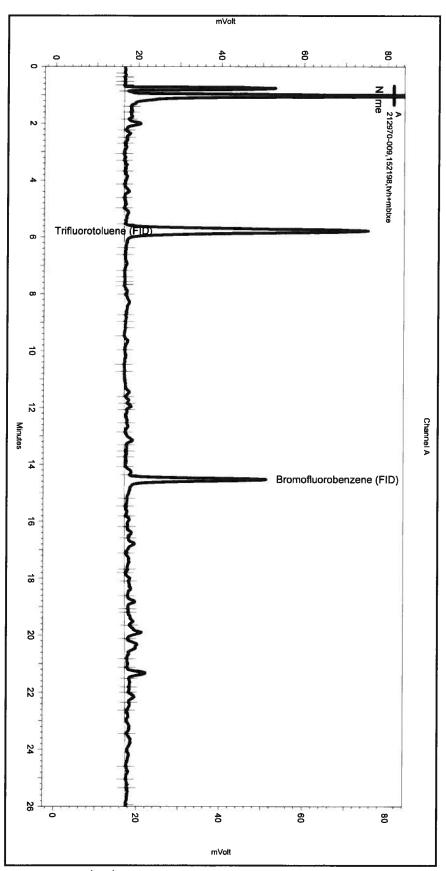
Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence\171.seq

Sample Name: 212970-009,152198,tvh+mbtxe

Data File: \\Lims\gdrive\ezchrom\\Projects\\GC04\Data\171\_038 \\
Instrument: GC04 \Viai: \N/A \ Operator: \lims\2k3\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

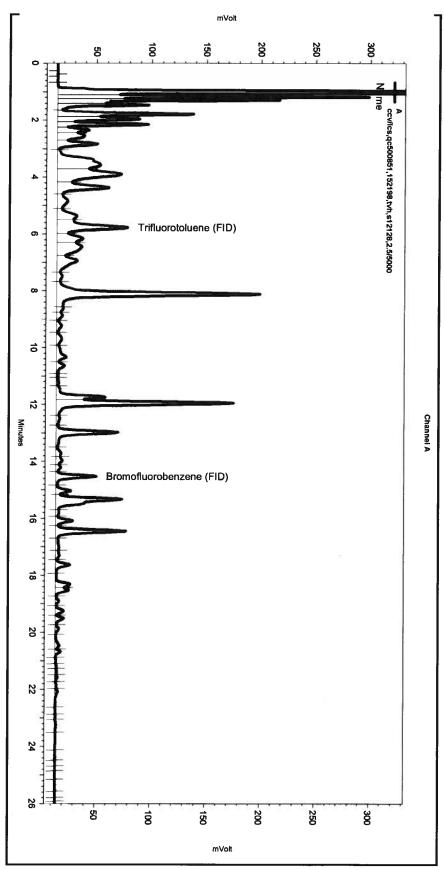
--- General Method Parameters >-



No items selected for this section		
< A >	***************************************	
No items selected for this section		
Integration Events		
Star Enebled Event Type		/alue
Yes Width Yes Threshold	0 0 0.2 0 0 50	
Manual Integration Fixes		
Data File: C:\Documents end Se Data\ChromatographySystem\Rec Data\Instrument.10047\171_038_0 Star	covery	1
Enabled Event Type	(Minutes) (Minutes) \	/alue
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
Run Date: 6/20/2009 10:56:07 AM
Analysis Date: 6/22/2009 10:19:26 AM
Sample Amount: 5 Multiplier: 5
Vial & pH or Core ID: {Data Description}



< Ge	neral Method Para	meters >-				
No item	s selected for this	section				
< A >						
No item	s selected for this	section				
Integrat	tion Events					
Enabl	ed Event Type	Start	Sto (Minut		Vinutes)	Value
Yes Yes			0	0	0.2 50	
Manual	Integration Fixes					
Data i	File: \\Lims\gdrive\e	zchrom\F Start			\$\Data\17	'1_006
Enabl	ed Event Type	Start			/Inutes)	Value
None						



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

Field ID:

Sampled:

Type: Lab ID:

MW-2SAMPLE 06/17/09

212970-001

Received:

06/18/09 Analyzed: 06/24/09 Cleanup Method: EPA 3630C

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

FREC Limits Surrogate o-Terphenyl 61-127

Field ID: Type: Lab ID:

Sampled:

MW-11 SAMPLE 212970-002 06/19/09

Received: Analyzed:

06/19/09 06/24/09 Cleanup Method: EPA 3630C

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

TREC Limits Surrogate o-Terphenyl 61-127

Field ID: Type:

Lab ID:

Sampled:

MW-10 SAMPLE 212970-003 06/17/09

Received: Analyzed:

Cleanup Method:

06/18/09 06/24/09 EPA 3630C

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

Surrogate FREC Limits o-Terphenyl 108

Field ID:

Type: Lāb ID: Sampled: MW - 9SAMPLE

212970-004 06/19/09

Received: Analyzed:

06/19/09 06/24/09 Cleanup Method: EPA 3630C

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

Surrogate Limits o-Terphenyl 61-127

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

RL= Reporting Limit

Page 1 of 3

18.1



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

Field ID: Type:

MW-5

SAMPLE

Lab ID: Sampled:

212970-005 06/19/09

Received:

06/19/09

Analyzed: Cleanup Method:

06/24/09 EPA 3630C

Analyte	Result	RL	termine mentioned the second superior and the second secon
Diesel C10-C24	ND	50	
Motor Oil C24-C36	ND	300	

Surrogate	*REC	Limits	
o-Terphenyl	108	61-127	

Field ID: Type:

MW-4

SAMPLE 212970-006 Received:

06/19/09 06/25/09

Lab ID: Sampled:

06/19/09

Analyzed:

Cleanup Method: EPA 3630C

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

Surrogate	*REC	Limits	
o-Terphenyl	108	61-127	

Field ID:

Type: Lab ID:

A8-WM SAMPLE 212970-007 Received: Analyzed:

06/18/09 06/25/09 Cleanup Method: EPA 3630C

Sampled:

06/17/09

Analyte	Result	<b>RL</b>	MERCHANISM STATES OF THE STATE
Diesel C10-C24	ND	50	
Motor Oil C24-C36	ND	300	
			***************************************

Surrogate	<b>REC</b>	Limits
o-Terphenyl	86	61-127

Field ID: Type:

MW-12 SAMPLE 212970-008

Received:

06/18/09

Lab ID: Sampled:

06/17/09

06/25/09 Analyzed: Cleanup Method: EPA 3630C

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

Page 2 of 3

18.1



Total Extractable Hydrocarbons Port Of Oakland - HFC EPA 3520C EPA 8015B 152233 Lab #: 212970 Location: Client: Prep: Analysis: Malcolm Pirnie, Inc. Project#: 4656016 Matrix: Water Batch#:  $06/\bar{2}\bar{2}/09$ Units: ug/L Prepared: Diln Fac: 1.000

Field ID:

FD-061709 SAMPLE 212970-009 Received:

06/18/09 Analyzed: 06/25/09 Cleanup Method: EPA 3630C

Type: Lab ID: Sampled:

06/17/09

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

Surrogate	*REC	Limits	
o-Terphenyl	85	61-127	

Type: Lab ID:

BLANK QC500987 Analyzed: 06/24/09 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

Page 3 of 3



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 QC500988 Lab ID:

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	

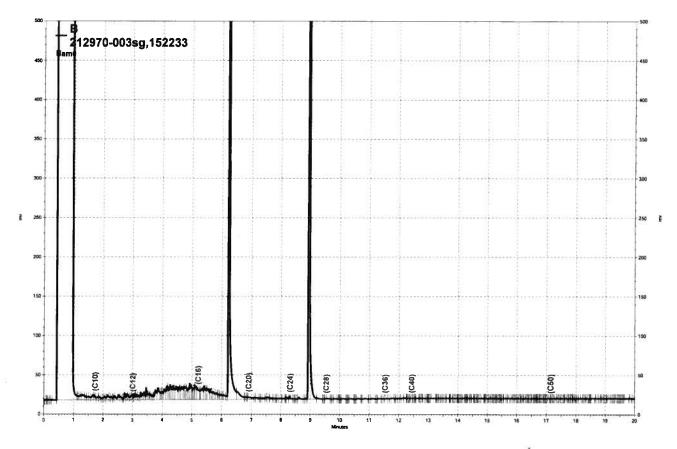
Type: Lab ID: BSD

QC500989

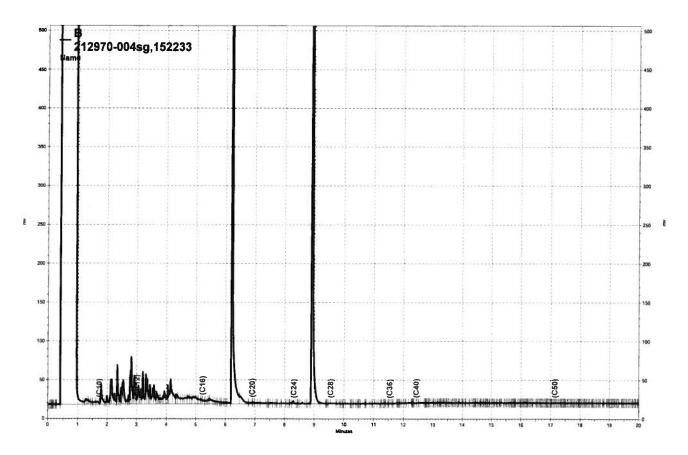
Cleanup Method: EPA 3630C

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

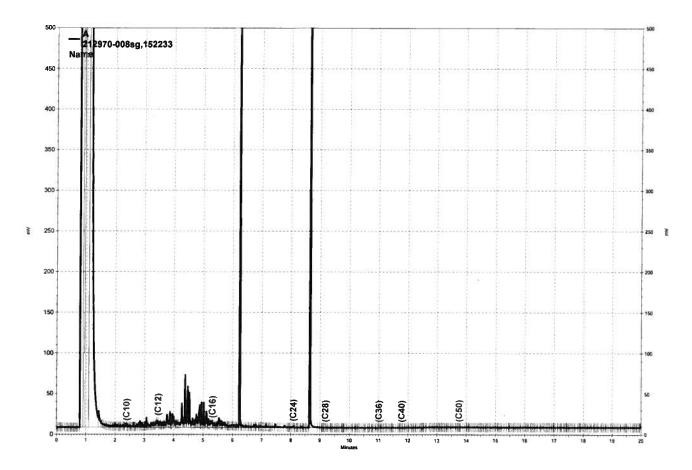
Surrogate	%REC Limits	
o-Terphenyl	113 61-127	



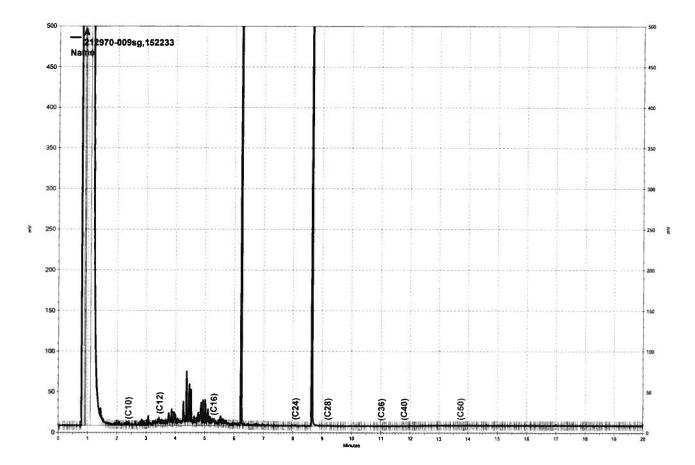
\Lims\gdrive\ezchrom\Projects\GC15B\Data\175b013, B



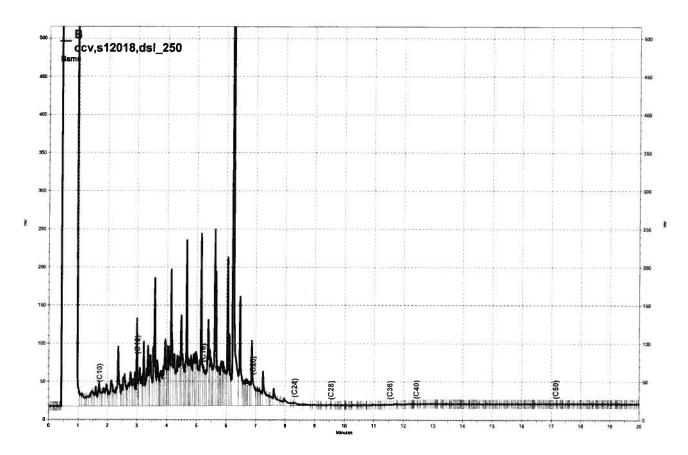
\Lims\gdrive\ezchrom\Projects\GC15B\Data\175b014, B



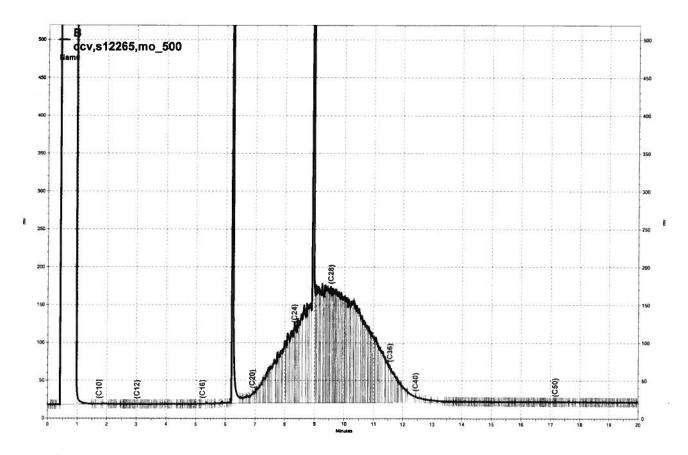
\Lims\gdrive\ezchrom\Projects\GC26\Data\176a032, A



\Lims\gdrive\ezchrom\Projects\GC26\Data\176a033, A



\Lims\gdrive\ezchrom\Projects\GC15B\Data\175b004, B



\Lims\gdrive\ezchrom\Projects\GC15B\Data\175b005, B



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	<b>RL</b>	
MTBE	ND	0.5	
Benzene	ND	0.5	
Toluene	ND	0.5	
Ethylbenzene	ND	0.5	
<pre>m,p-Xylenes o-Xylene</pre>	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



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	
Ethylbenzene m,p-Xylenes o-Xylene	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	



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	<u>-</u>				

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



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	
Ethylbenzene m,p-Xylenes o-Xylene	ND	0.5	

Surrogate	%REC	Limits	
1,2-Dichloroethane-d4	81	77-137	
Toluene-d8	97	80-120	
Bromofluorobenzene	98	80-125	



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	4				

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	
Ethylbenzene m,p-Xylenes o-Xylene	ND	0.5	

Surrogate	%REC	Limits	
1,2-Dichloroethane-d4	81	77-137	
Toluene-d8	102	80-120	
Bromofluorobenzene	98	80-125	



	Purgeable	Aromatics by GO	C/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	
Ethylbenzene m,p-Xylenes o-Xylene	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



	Purgeable	Aromatics by GO	C/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	
Ethylbenzene m,p-Xylenes o-Xylene	ND	0.5	

Surrogate	%REC	Limits		
1,2-Dichloroethane-d4	85	77-137		
Toluene-d8	99	80-120		
Bromofluorobenzene	99	80-125		



	Purgeable	Aromatics by GO	C/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 o-Xylene	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		



	Purgeabl	e Aromatics by GO	C/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	<del>-</del>	

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	
Ethylbenzene m,p-Xylenes 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



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		
Ethylbenzene m,p-Xylenes 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



Batch QC Report

	Purgeable	Aromatics by GO	C/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	



Batch QC Report

	Purgeable	Aromatics by GO	C/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 o-Xylene	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	

## Quality Control Checklist - continued

20b. If no, is the MB and either LCS/LCSD or BS/BSD within lab limits to validate the data?  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.	æ	Х	Х
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	Q.	X	
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	*	Х	
Failure generally is due to coelution with the sample matrix.		15	
21b. If no, is an explanation given in the case narrative to validate the data?	x		
promofluorobenzene (FID) surrogate recovery was within limits. No other analytical problems	s were e	icountei	eu.
			1000
			- 938
		-	