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Alameda County  
Environmental Health

January 10, 2008

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

**RE: RO#0000010 and RO#0000187\_Second Semi-Annual 2007 Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 and 555 Maritime Street, Oakland, CA\_2008-01-10**

Dear Mr. Chan:

Please find enclosed the report entitled *Second Semi-Annual 2007 Groundwater Monitoring and Remediation System Operation and Maintenance Report - Port of Oakland, 651 and 555 Maritime Street, Oakland, CA ("Report")* dated January 2008, prepared by Baseline Environmental Consulting ("Baseline") 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>1</sup> and January 19, 2007.<sup>2</sup>

The Port has retained Baseline to perform groundwater monitoring and maintenance of the remediation system. Results of the second 2007 semi-annual sampling event are contained in the enclosed report. The next monitoring event will be performed during the June/July 2008 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 Baseline are true and correct to the best of my knowledge. Please note that the report is stamped by both a Professional Geologist and Registered Professional Engineer in the State of California.**

Sincerely,

Jeffrey R. Jones  
Supervisor  
Environmental Programs and Safety

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

Enclosure: noted

Cc (w encl.): Michele Heffes

Cc (w/o encl.): James McCarty (Baseline Environmental)  
Yane Nordhav (Baseline Environmental)

<sup>1</sup> Letter from Mr. Barney Chan (County) to Mr. Jeff Rubin (Port), regarding *Fuel Leak Cases RO0000010 and RO0000185, 2277 and 2225 7<sup>th</sup> St., Oakland, CA 94607*, dated March 23, 2006.

<sup>2</sup> Letter from Mr. Barney Chan (County) to Mr. Jeff Rubin (Port), regarding *Fuel Leak Cases RO0000010 and RO0000185, 2277 and 2225 7<sup>th</sup> St., Oakland, CA 94607*, dated January 19, 2007.

SECOND SEMI-ANNUAL 2007  
GROUNDWATER MONITORING  
AND  
REMEDATION SYSTEM  
OPERATION AND  
MAINTENANCE REPORT

PORT OF OAKLAND  
651 and 555 Maritime Street  
Oakland, California

JANUARY 2008

FOR:  
Port of Oakland  
Oakland, California

Y5395-04.00876

# BASELINE

## ENVIRONMENTAL CONSULTING

10 January 2008  
Y5395-04.00876

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

**Subject: Second Semi-Annual 2007 Groundwater Monitoring and Remediation System Operation and Maintenance Report, Port of Oakland, 651 and 555 Maritime Street, Oakland, California**

Dear Mr. Rubin:

Enclosed please find the Second Semi-Annual 2007 Groundwater Monitoring and Remediation System Operation and Maintenance Report for 651 and 555 Maritime Street (formerly 2277 and 2225 Seventh Street, Alameda County Local Oversight Program case numbers RO0000010 and RO0000187, respectively). 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 as required in ACHCS' letter to the Port dated 23 March 2006. The ACHCS requires semi-annual groundwater monitoring and reporting at these two parcels.

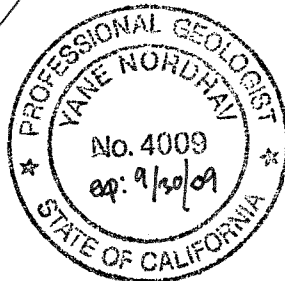
BASELINE Environmental Consulting has continued to operate the product recovery system at the sites during this reporting period. The remediation system recovered approximately 226 gallons of free-phase product during the past six months and approximately 396 gallons since beginning operation 14 December 2004.

Sincerely,



Yane Nordhav, P.G.  
Principal

YN:JM:cr  
Enclosure



James McCarty, P.E.  
Project Engineer



SECOND SEMI-ANNUAL 2007  
GROUNDWATER MONITORING  
AND  
REMEDIAL SYSTEM OPERATION AND  
MAINTENANCE REPORT

PORT OF OAKLAND  
651 and 555 Maritime Street  
Oakland, California

JANUARY 2008

For:  
Port of Oakland  
Oakland, California

Y5395-04.00876

BASELINE Environmental Consulting  
5900 Hollis Street, Suite D, Emeryville, California 94608  
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# **SECOND SEMI-ANNUAL 2007 GROUNDWATER MONITORING and REMEDIATION SYSTEM OPERATION AND MAINTENANCE REPORT**

**Port of Oakland, 651 and 555 Maritime Street, Oakland, California**

## **INTRODUCTION**

This report summarizes the results of the second semi-annual groundwater monitoring event for 2007 performed at the Port of Oakland's ("Port") two contiguous properties, 651 and 555 Maritime Street (formerly 2277 and 2225 Seventh Street) in Oakland, California ("Site")<sup>1</sup> (Figure 1) by BASELINE Environmental Consulting ("BASELINE"). The Site has been impacted by petroleum releases from past operations of underground storage tanks ("USTs") and the Alameda County Health Care Services ("ACHCS") is providing regulatory oversight under the Local Oversight Program ("LOP"). The ACHCS LOP case number for 2277 Seventh Street is RO0000010 and for 2225 Seventh Street RO0000187. This report also summarizes the remediation system operation and maintenance ("O&M") activities and progress between June through December of 2007.

The Site encompasses approximately 13 acres. The Port developed the eight acres of the eastern portion of the Site in 2004 into the Harbor Facilities Complex with an address of 651 Maritime Street. The remaining five acres of the Site were redeveloped by the Port in 2006 into the Maritime Support Center with an address of 555 Maritime Street and is currently leased to Shippers Transport Express ("STE") (Figure 2).

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 UST removal and submitted them for laboratory analyses. The laboratory reported that the soil contained petroleum hydrocarbons in the diesel and gasoline range, as well as benzene, toluene, ethylbenzene, and xylenes ("BTEX") compounds. Uribe also observed free-phase product on the groundwater within the excavation. In 1994, Uribe installed three groundwater monitoring wells at 2277 Seventh Street (MW-1 through MW-3) and in 1995; Alisto Engineering Group ("Alisto") installed five additional wells (MW-4 through MW-8). Quarterly groundwater monitoring was initiated in 1996 in accordance with a workplan (Uribe, 1994) approved by ACHCS, dated 18 April 1995.

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

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<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.

integrity test in 1989 and 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 diesel and BTEX. Ramcon Engineering and Environmental Contracting (“RAMCON”) removed seven of the USTs (six diesel and one bulk fuel oil) in 1992. RAMCON observed a hole in the bulk fuel tank and an unspecified petroleum product created a sheen 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 diesel, motor oil, benzene, xylenes, and polynuclear aromatic compounds (“PAHs”). A liquid sample collected from the excavation contained diesel product. In 1993, RAMCON installed three groundwater monitoring wells (MW-1 through MW-3) at the 2225 Seventh Street site and in 1994 quarterly groundwater monitoring began, as required by ACHCS.<sup>2</sup>

The groundwater impact area consists of a co-mingled plume containing dissolved and free-phase hydrocarbons in the diesel range (Figure 2). In addition, MW-4 on the 2277 Seventh Street parcel has historically contained dissolved hydrocarbons in the gasoline range.

In 1996, the Port installed a remediation system at 2277 Seventh Street to recover the free-phase product. The free product recovery system was operated until it was removed in 2003. Removal of this product recovery system was approved by the ACHCS on 27 March 2003, with the stipulation that a new free product recovery system should be installed. In 1998, Harding Lawson Associates abandoned MW-8 to make possible the expansion of the railroad tracks north of 2277 Seventh Street and a replacement well, MW-8A, was installed in 2001. To facilitate the construction of the new Harbor Facilities Complex, groundwater monitoring wells MW-6 and MW-7 at 2277 Seventh Street and MW-1, MW-2, and MW-3 at 2225 Seventh Street were abandoned in 2002.

The Port has monitored groundwater quality at the Site since 1994. BASELINE, on the behalf of the Port, currently monitors groundwater quality using a network of six groundwater monitoring wells: MW-1, MW-2, MW-3, MW-4, MW-5, and MW-8A (Figure 2). The ACHCS approved a modification of the groundwater monitoring frequency from quarterly to semi-annually in a letter to the Port dated 23 March 2006. The first semi-annual monitoring event occurred on 28 July 2006. The ACHCS also approved the use of Oxygen Releasing Compound™ (“ORC”) socks in MW-4 in a letter to the Port dated 23 March 2006. The ORC increases the dissolved oxygen (“DO”) concentration in groundwater and stimulates aerobic bio-degradation of the petroleum hydrocarbons reported in the groundwater at that location.

## **FIELD ACTIVITIES**

On 5 November 2007, approximately one week prior to conducting semi-annual groundwater monitoring, BASELINE removed the ORC socks from MW-4 that BASELINE had been placed in MW-4 following the June 2007 semi-annual groundwater monitoring event.

On 14 November 2007, BASELINE measured the depth to groundwater (and product, if present) from the top of the well casing (“TOC”) to the nearest one-hundredth of a foot in the monitoring

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

wells using a dual-phase interface probe. BASELINE decontaminated the dual-phase interface probe after each use by washing with an Alconox™ and water solution and then rinsing with deionized water. BASELINE detected measurable free-phase product in monitoring wells MW-1 and MW-3; therefore, groundwater samples were not collected from these wells.

Prior to sampling, BASELINE purged monitoring wells MW-2, MW-4, MW-5, and MW-8A of at least three well casing volumes of groundwater using a peristaltic pump equipped with new disposable polyethylene and silicon tubing. Purging continued until the electrical conductivity, pH, DO, oxidation and reduction potential, and temperature of the groundwater had stabilized. During purging, BASELINE first placed the pump intake at the bottom of the well to remove sediments. Once the groundwater appeared free of sediments, BASELINE raised the pump intake several feet off the bottom of the well to complete the purging process. The monitoring details for each well are provided on the groundwater sampling forms in Appendix A.

BASELINE collected groundwater samples from MW-2, MW-4, MW-5, and MW-8A using a peristaltic pump with the intake of the tubing placed several feet from the bottom of the well. BASELINE decanted the groundwater samples directly into certified-clean containers from the discharge end of the tubing. BASELINE immediately labeled the sample containers with sample location, date, and time and then stored the samples in a cooler containing ice. The water samples were submitted to Curtis and Tompkins, Ltd. (“C&T”) – a California certified analytical laboratory – under chain-of-custody protocol and requested the following analyses:

- Total purgeable petroleum hydrocarbons in the gasoline range (“TPHg”) in accordance with EPA Method 8015M;
- Total extractable petroleum hydrocarbons in the diesel (“TPHd”) and motor oil (“TPHmo”) range in accordance with EPA Method 8015M with silica gel cleanup; and
- BTEX and methyl tert-butyl ether (“MTBE”) in accordance with EPA Method 8260B.

BASELINE generated approximately 20 gallons of purge water and decontamination water during the monitoring event. BASELINE placed the purge water into a 55-gallon drum, which was labeled with the Port’s contact information and stored in a hazardous material storage locker located within Harbor Facilities Complex. The Port’s environmental services contractor will arrange for proper purge water disposal.

## **ANALYTICAL RESULTS**

Analytical results for the groundwater samples collected in November 2007 are summarized on Figure 3 and Table 1. The laboratory analytical reports are provided in Appendix B. Historical analytical results for the Site, including samples collected by others, are summarized in Appendix C, Table C-2.

### **TPHg**

The laboratory reported TPHg in the groundwater sample from monitoring well MW-4 at a concentration of 54 micrograms per liter (“µg/L”) (51 µg/L was reported in the duplicate



sample). The laboratory report indicated that the sample exhibited a chromatographic pattern that does not match the gasoline standard. The laboratory did not report TPHg above the reporting limit in any of the groundwater samples from the other monitoring wells.

## **BTEX and MTBE**

The laboratory reported benzene in the groundwater sample from MW-4 at a concentration of 2.1 µg/L (2.1 µg/L was reported in the duplicate sample). The laboratory did not report any BTEX constituents above the reporting limits in any of the samples from the other sampled monitoring wells. The laboratory did not report any MTBE above the reporting limit in any of the collected groundwater samples.

## **TPHd and TPHmo**

The laboratory did not identify TPHd and TPHmo in any of the groundwater samples collected from the monitoring well network above laboratory reporting limits.

## **GROUNDWATER FLOW DIRECTION**

BASELINE used surveyed elevations of the top of each groundwater monitoring well casing and the measured depth to groundwater to calculate the groundwater elevation and flow direction. The groundwater elevation and product thickness data are summarized in Table 2. Product thickness is discussed in more detail below. Groundwater contours for November 2007 are presented on Figure 4. The groundwater flow direction at the time of measurement was toward the north at a gradient of 0.006 foot/foot. Historical groundwater and product levels for the Site are included in Appendix C, Table C-1.

## **QUALITY ANALYSIS AND QUALITY CONTROL**

BASELINE collected a field duplicate sample from monitoring well MW-4 (“MW-4Dup”) to check sample collection procedures and an equipment blank (“QCEB”) to check the sample equipment as a possible source of contaminants. Groundwater samples were stored with a trip blank (“QCTB”) prepared by C&T until delivered to the laboratory to check for cross-contamination. MW-4Dup and the equipment blank were analyzed for TPHd, TPHg, and BTEX. The trip blank as analyzed for volatile analytes TPHg and BTEX only.

The analytical laboratory reported concentrations of TPHg and benzene in groundwater samples from both MW-4 and MW-4Dup. The relative percent difference (“RPD”) between the original and the duplicate sample was six and zero percent for TPHg and benzene, respectively:

$$\text{TPHg RPD} \quad |54-51|/[(54+51)/2] = 6\%$$

$$\text{Benzene RPD} \quad |2.1-2.1|/[(2.1+2.1)/2] = 0\%$$

These RPDs are less than the analytical laboratory's maximum allowable RPD for matrix spike duplicates for these analyses, indicating that the sample collection methodology was within allowable quality assurance and quality control ("QA/QC") limits.

BASELINE prepared an equipment blank by transferring deionized water into sample containers using the same technique as was used to collect groundwater samples. The laboratory did not report any TPHg, TPHd, TPHmo, BTEX, or MTBE in the equipment blank prepared by BASELINE, indicating that the sampling procedure did not result in contamination of the samples.

C&T prepared a trip blank as a quality control water sample prepared by an analytical laboratory using deionized water. The QCTB was stored in a cooler to accompany groundwater samples from collection to transport to the laboratory. The laboratory did not report any TPHg, BTEX, or MTBE in the trip blank, indicating that the groundwater samples were not compromised from sample preservation, transportation, storage, and analysis.

BASELINE also reviewed the laboratory data for completeness and accuracy (see Quality Control Checklist in Appendix B). All of the laboratory QA/QC goals were met. Based on the above QA/QC evaluation, BASELINE considers the data collected during the second semi-annual 2007 groundwater monitoring event valid and representative of Site conditions.

## **PRODUCT THICKNESS**

BASELINE measured product thickness in monitoring wells MW-1 and MW-3 during the groundwater monitoring event on 14 November 2007. Product thickness in MW-1 was measured at 0.06 foot and in MW-3 at 1.21 foot (Table 2). Product has been removed from MW-3 in June and November 2007 using a peristaltic pump and polyethylene tubing as part of O&M activities. The product thickness in MW-3 has ranged from approximately 0.60 to 1.40 feet from June to November 2007 (Table 3). BASELINE placed product recovered from MW-3 in the system convault.

Product has also been observed in product recovery wells RW-1, RW-3, RW-4, RW-5, RW-6, RW-7, RW-8, and RW-9. RW-1 typically only contains a sheen. No product has been observed in RW-2. The observed area of free-phase product is shown on Figure 4.

## **PRODUCT RECOVERY SYSTEM SUMMARY**

The Port installed the Free Product Recovery ("FPR") system at the Harbor Facilities Complex in 2004 as required by the ACHCS in a letter dated 27 March 2003. The FPR system includes nine recovery wells, RW-1 through RW-9 (Figure 2). The Port installed a utility box around each recovery well wellhead, which includes plumbing for the airline, 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. A programmable controller is used to set the frequency and duration that each skimmer pump runs. The skimmers discharge recovered product into a 500-gallon concrete encased aboveground storage tank ("convault") equipped with primary and

secondary containment. The convault is also equipped with a sensor that activates a warning light and shuts off air supply to the skimmers if the tank is full.

BASELINE measured the product level in the recovery wells and checked the position of the pumps in the wells during the last six and half months of 2007, (mid June 2007 to end of December 2007). BASELINE adjusted the skimmer pumps depth, changed filters, sent skimmer pumps to Xitech for refurbishing, and replaced pumps with refurbished skimmer pumps as necessary. Adjustments were made to the frequency and duration of operation for each skimmer pump. A summary of the operations and maintenance activities are included in Table 3.

In early June 2007 BASELINE completed a process of upgrading the product recovery system to include application of low vacuum on the wellheads to improve product recovery. BASELINE installed a three-horsepower blower with a moisture knockout tank and electrical controls to provide the low vacuum on the wellheads. Inducing a vacuum on the wellhead results in an air discharge containing petroleum vapors, which are treated by two vessels arranged in series containing 180 pounds of vapor-phase granular activated carbon ("GAC"). Treatment and discharge conditions are provided in a Permit-to-Operate from the Bay Area Air Quality Management District ("BAAQMD").

Between 8 June and 18 June 2007, BASELINE applied low vacuum to product recovery wells RW-2 through RW-8. On 18 June 2007, photo-ionization detector ("PID") measurements indicated that the GAC was spent. On 18 June 2007, BASELINE collected three air samples, Inf-1, Eff-1, and Eff-2 from the air discharge of the low vacuum system ("LVS"). Air sample Inf-1 was drawn from the air flow between the LVS and first GAC vessel. Eff-1 was drawn from the airflow between the first GAC vessel and second GAC vessel. Eff-2 was drawn from the air flow between the second GAC vessel and atmosphere. BASELINE collected each air sample by filling a 1-liter Tedlar bag. The air samples were sent to Air Toxics and analyzed by Method TO-15 for volatile organic compounds (VOCs). After the samples were collected the LVS was turned off. The results of air samples were used to determine the amount of GAC needed to effectively treat 90 percent of the organics in the air discharge, as required by the BAAQMD permit and to determine the VOC mass removed by the GAC. Laboratory results of the air samples can be found in Appendix D. The estimated mass of VOCs removed by the GAC between 10 August 2007 and 28 November 2007 was 66 pounds, with hexane, cyclohexane, and heptane, and 2,4-trimethylpentane accounting for 90 percent of the VOC mass removed (Table 4).

To increase VOC removal efficiency, on 2 August 2007, BASELINE installed four GAC vessels to treat LVS discharge. The GAC vessels were installed in two sets of two vessels each arranged in series containing 180 pounds of vapor-phase GAC. After installation, a low vacuum was applied to RW-3 and RW-8. On 29 August 2007, BASELINE turned off the vacuum to RW-3 due to minimal product recovery response and applied a low vacuum to recover wells RW-6 and RW-7. On 27 November 2007, the vacuum system was turned off while BASELINE began the process replacing the six 180-pound GAC vessels with two 1,000-pound GAC vessels. On 28 December 2007, BASELINE installed the two new 1,000-pound GAC vessels.

Prior to enhancement of the 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, an additional 218 gallons of product were

recovered in five months (August 2007 through December 2007). A total 396 gallons of product have been recovered since operation of the new product recovery system began.

## **ORC TREATMENT – MW-4**

On 5 November 2007, nine days before groundwater monitoring was performed at the site, BASELINE removed the ORC sock from MW-4 and measured the DO concentration. The DO concentration in groundwater was measured near the bottom of the well at 5.30 milligrams per liter (“mg/L”). The DO concentration measured in MW-4 during groundwater monitoring on 14 November 2007 was 0.11 mg/L. These measurements indicate that: 1) the ORC was successfully increasing the DO levels in the groundwater at MW-4; and 2) the DO had returned to levels similar to other wells by the time the samples were collected (MW-2 was 0.12 mg/L, MW-5 was 0.11 mg/L, and MW-8A was 0.07 mg/L at the time sampled). The laboratory reported TPHg at 54 µg/L in the groundwater sample from MW-4, down from 100 µg/L in June 2007 and 300 µg/L in November 2006 (Appendix C). The laboratory reported benzene at 2.1 µg/L in the groundwater sample from MW-4, down from 10 µg/L in June 2007 and 42 µg/L in November 2006 (Appendix C). These results suggest that the TPHg and benzene are successfully being reduced through enhanced biodegradation using ORC.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results from the second semi-annual 2007 groundwater monitoring event indicated that the free-phase product plume is stable; free-phase product was confined to the wells that historically contained free product; MW-1 and MW-3. Dissolved TPHd and TPHmo were not reported in any of the groundwater samples collected in November 2007, demonstrating the limited mobility of the free-phase product in the subsurface.

Reported concentrations of TPHg and benzene are confined to groundwater samples from MW-4 and the results indicate the concentrations are decreasing. The TPHg and benzene levels are well below the San Francisco Regional Water Quality Control Board’s Environmental Screening Levels (“ESL”) for commercial/industrial land uses where groundwater is not a drinking water source (Water Board, 2007).<sup>3</sup>

Petroleum hydrocarbons, or petroleum hydrocarbon constituents such as BTEX, have not been reported in the groundwater samples from MW-2 since 16 December 2004, from MW-5 since 28 July 2006, and in MW-8A since 28 July 2006 (Appendix C, Table C-2). Based on the fact that dissolved-phase petroleum hydrocarbons in the groundwater do not appear to be migrating beyond the area of the free-phase product plume, it is recommended that the frequency of groundwater monitoring be reduced to annual. The Port will continue to recover free-phase product and monitor product thickness in the recovery wells. Contingent on approval from the ACHS, the groundwater sampling would be performed annually during June or July each year with an Annual Groundwater Monitoring and O&M Report submitted to the ACHS by the first week of September.

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<sup>3</sup> ESL for TPHg is 500 µg/L and the ESL for benzene is 870 µg/L.

## **REFERENCES**

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), 2007, Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, November.

Uribe and Associates, 1994, Port of Oakland Building C-401, 2277 7<sup>th</sup> Street, Oakland, Report of Underground Storage Tank Removals, Appendix G – Workplan for Additional Site Characterization Activities, 23 February.

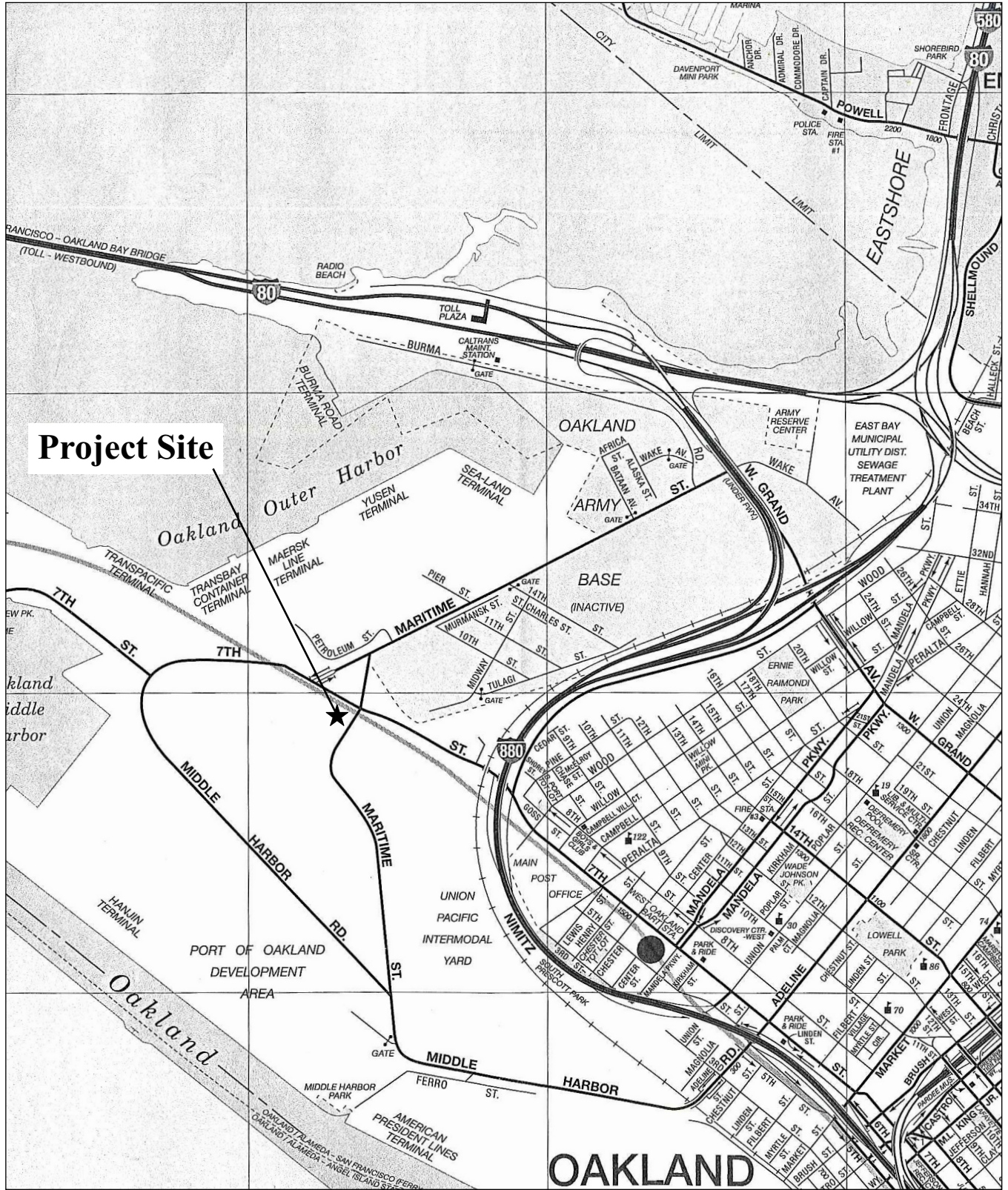
## **LIMITATIONS**

The conclusions presented in this report are professional opinions based on the indicated data described in this report. They are intended only for the purpose, site, and project indicated. Opinions and recommendations presented herein apply to site conditions existing at the time of our study. Changes in the conditions of the subject property can occur with time, because of natural processes or the works of man, on the subject sites or on adjacent properties. Changes in applicable standards can also occur as the result of legislation or from the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control.

## **FIGURES**

# REGIONAL LOCATION

# Figure 1



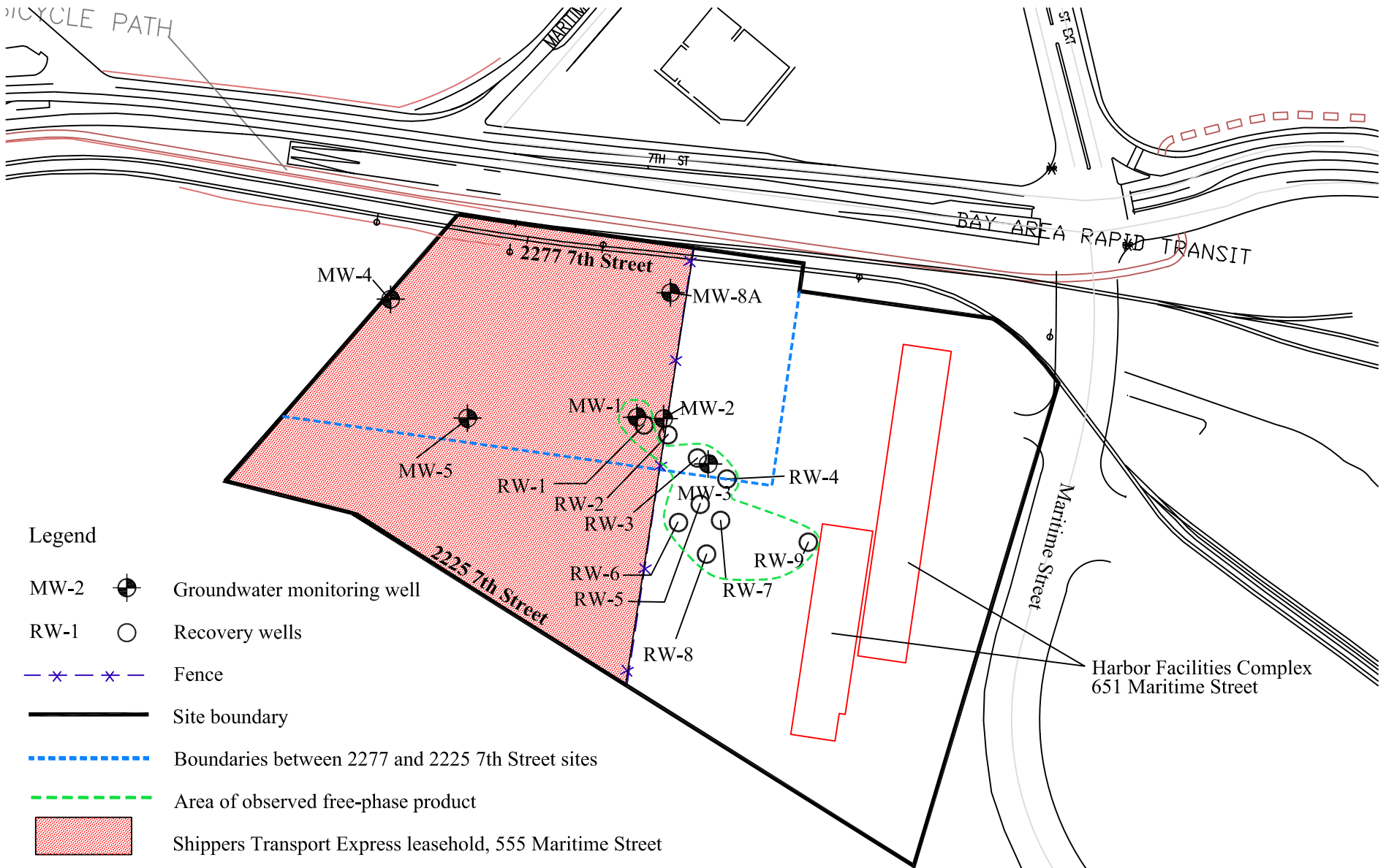
**651 and 555 Maritime Street  
Port of Oakland  
Oakland, California**









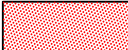
**B** AS **E**

# SITE PLAN

Figure 2



Legend

- MW-2  Groundwater monitoring well
- RW-1  Recovery wells
-  Fence
-  Site boundary
-  Boundaries between 2277 and 2225 7th Street sites
-  Area of observed free-phase product
-  Shippers Transport Express leasehold, 555 Maritime Street

**651 and 555 Maritime Street  
Port of Oakland  
Oakland, California**





# ANALYTICAL RESULTS, NOVEMBER 2007





Figure 3

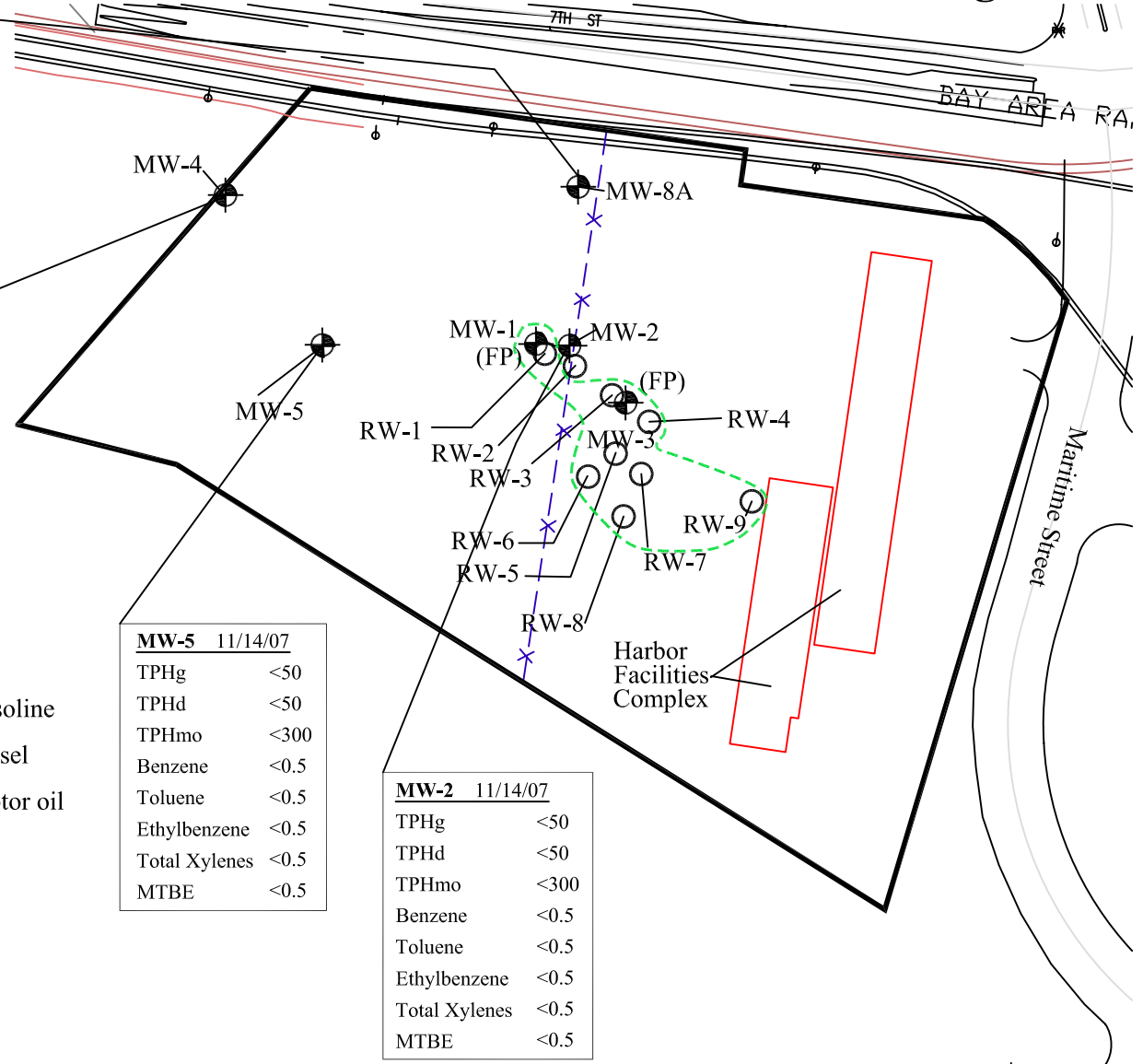
MW-8A	11/14/07
TPHd	<50
TPHmo	<50
Benzene	<300
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<0.5
MTBE	<0.5

MW-4	11/14/07	Duplicate
TPHg	54	51
TPHd	<50	<50
TPHmo	<300	<300
Benzene	2.1	2.1
Toluene	<0.5	<0.5
Ethylbenzene	<0.5	<0.5
Total Xylenes	<0.5	<0.5
MTBE	<0.5	<0.5

MW-5	11/14/07
TPHg	<50
TPHd	<50
TPHmo	<300
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<0.5
MTBE	<0.5

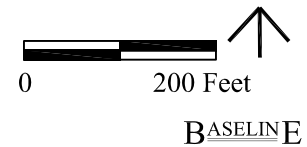
MW-2	11/14/07
TPHg	<50
TPHd	<50
TPHmo	<300
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Total Xylenes	<0.5
MTBE	<0.5

- Legend**
- MW-2  Groundwater monitoring well
  - TPHg Total petroleum hydrocarbons as gasoline
  - TPHd Total petroleum hydrocarbons as diesel
  - TPHmo Total petroleum hydrocarbons as motor oil
  - MTBE Methyl tert-butyl ether
  - (FP) Free-phase product in well
  -  Area of observed free-phase product
  -  Existing fence
  -  Site boundary



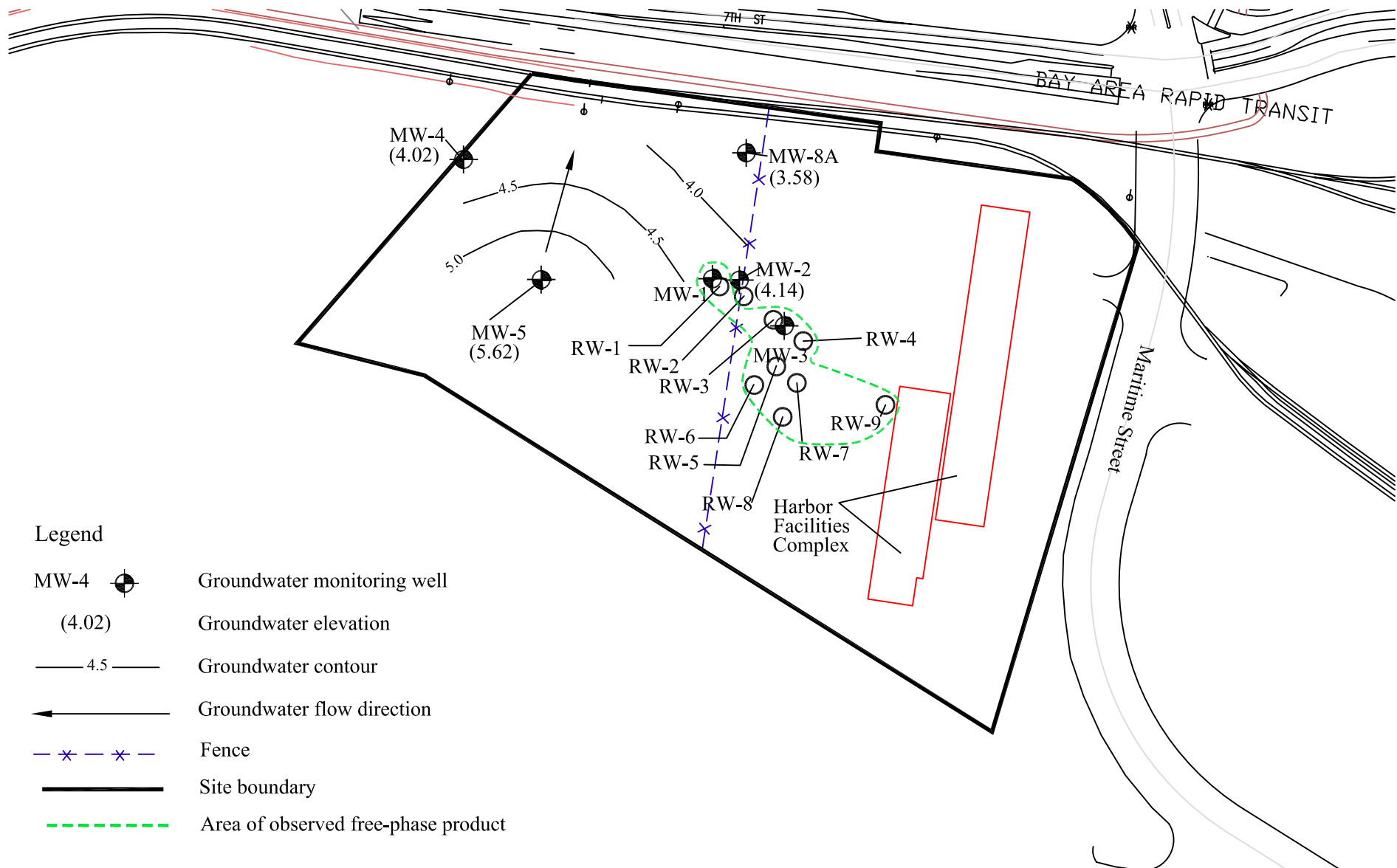
**651 and 555 Maritime Street  
Port of Oakland  
Oakland, California**

Note: Concentrations are in micrograms per liter.






# GROUNDWATER CONTOURS, NOVEMBER 2007

## Figure 4



### Legend

- MW-4  Groundwater monitoring well
- (4.02) Groundwater elevation
- 4.5 — Groundwater contour
-  Groundwater flow direction
- \* - \* - Fence
-  Site boundary
- - - - Area of observed free-phase product

**651 and 555 Maritime Street  
Port of Oakland  
Oakland, California**

Notes: Elevations are shown relative to North American Vertical Datum of 1988.



## **TABLES**

TABLE 1: Groundwater Analytical Results - November 2007 (µg/L)

Port of Oakland  
651 and 555 Maritime Street  
Oakland, California

Monitoring Well	Date	TPHg	TEPHd	TEPHmo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-2	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-4	11/14/07	<b>54</b> Y	<50	<300	<b>2.1</b>	<0.5	<0.5	<0.5	<0.5
MW-4dup	11/14/07	<b>51</b> Y	<50	<300	<b>2.1</b>	<0.5	<0.5	<0.5	<0.5
MW-5	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-8A	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
QCEB	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
QCTB	11/14/07	<50	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

See Figure 3 for monitoring well locations and concentrations.

µg/L = micrograms per liter.

TPHg = total petroleum hydrocarbons in gasoline range.

TEPHd = total extractable petroleum hydrocarbons in diesel range.

TEPHmo = total extractable petroleum hydrocarbons in motor oil range.

MTBE = methyl tert-butyl ether.

QCEB = equipment blank quality control sample.

QCTB = trip blank quality control sample.

<xx = not detected by the laboratory above the reporting limit, the value following the less than sign.

**Bold** indicates the analyte was reported above the laboratory reporting limit.

NA = not analyzed.

Y = sample exhibits a chromatographic pattern that does not resemble the standard.

**TABLE 2: Groundwater Elevation Data - November 2007**

**Port of Oakland  
651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Top of Casing Elevation <sup>1</sup> (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
MW-1	11/14/2007	15.79	10.87	10.93	0.06	4.86
MW-2	11/14/2007	16.42	NP	12.28	--	4.14
MW-3	11/14/2007	15.65	10.98	12.19	1.21	3.46
MW-4	11/14/2007	15.90	NP	11.88	--	4.02
MW-5	11/14/2007	15.39	NP	9.77	--	5.62
MW-8A	11/14/2007	14.98	NP	11.40	--	3.58

Notes:

See Figure 4 for monitoring well locations and groundwater contour.

NP = no product detected with the interface probe.

-- = no measurable product in the well.

btc = below top of the well casing.

NAVD 88 = North American Vertical Datum of 1988.

<sup>1</sup> Elevation data relative to NAVD 88 datum.

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 7/6/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	10.86	10.91	0.05	P=1;D=10	Off	
RW-4	10.10	10.35	0.25	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	9.19	9.45	0.26	P=1;D=10	Off	
RW-7	8.36	8.44	0.08	P=7;D=10	Off	
RW-8	9.03	9.40	0.37	P=1;D=10	Off	
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.80	feet		
Approximate total volume recovered			175	gallons		

Site Visit Date: 7/26/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	Six new carbon canisters delivered to site.
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=1;D=10	Off	
RW-4	--	--	--	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	--	--	--	P=1;D=10	Off	
RW-7	--	--	--	P=7;D=10	Off	
RW-8	--	--	--	P=1;D=10	Off	
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.79	feet		
Approximate total volume recovered			178	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 8/2/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
						Installed four carbon canisters to vacuum system discharge line. Started vacuum system.
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	11.00	11.05	0.05	P=7;D=10	11.0	
RW-4	10.29	10.38	0.09	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	9.10	9.48	0.38	P=1;D=10	Off	
RW-7	--	--	--	P=7;D=10	Off	
RW-8	9.25	9.57	0.32	P=7;D=10	11.0	
RW-9	--	--	--	Off	Off	
MW-3	10.94	11.86	0.92	NA	NA	
Depth to product in Convault			1.79	feet		
Approximate total volume recovered			178	gallons		

Site Visit Date: 8/10/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	10.50	10.52	0.02	P=7;D=10	11.0	
RW-4	--	--	--	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	--	--	--	P=1;D=10	Off	
RW-7	--	--	--	P=7;D=10	Off	
RW-8	9.04	9.58	0.54	P=1;D=15	8.0	
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.80	feet		
Approximate total volume recovered			175	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 8/17/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	Changed out two down stream carbon canisters on the vacuum system.
RW-2	--	--	--	Off	Off	
RW-3	10.45	10.55	0.10	P=7;D=10	11.0	
RW-4	--	--	--	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	--	--	--	P=1;D=10	Off	
RW-7	--	--	--	P=7;D=10	Off	
RW-8	8.96	9.32	0.36	P=1;D=15	8.0	
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.78	feet		
Approximate total volume recovered			181	gallons		

Site Visit Date: 8/23/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	Vacuum at 5 inches of H2O before adjusting to 10.5 in/H2O.
RW-2	--	--	--	Off	Off	
RW-3	10.52	10.54	0.02	P=7;D=10	11.0	
RW-4	--	--	--	P=1;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.99	9.51	0.52	P=1;D=10	Off	
RW-7	--	--	--	P=7;D=10	Off	
RW-8	9.16	9.66	0.50	P=1;D=15	8.0	
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.77	feet		
Approximate total volume recovered			183	gallons		



**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 8/29/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	11.04	11.07	0.03	P=7;D=10	Off	Turned off vacuum to well due do little response.
RW-4	10.27	10.41	0.14	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.84	9.43	0.59	P=1;D=15	10.0	Turned vacuum on to well set to 10 in/H2O.
RW-7	8.28	8.70	0.42	P=3;D=10	10.0	Turned vacuum on to well set to 10 in/H2O.
RW-8	9.19	9.80	0.61	P=1;D=15	10.0	Vacuum at 8.4 in/H2O adjusted to 10 in/H2O. Started skimmer, little product being pumped, replaced filter, more being pumped.
RW-9	--	--	--	Off	Off	
MW-3	10.90	11.80	0.90	NA	NA	
Depth to product in Convault			1.77	feet		
Approximate total volume recovered			183	gallons		

Site Visit Date: 9/7/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.81	9.84	1.03	P=1;D=15	8.0	Vacuum at 7.5 in/H2O adjusted to 8 in/H2O.
RW-7	8.45	8.75	0.30	P=3;D=10	9.0	Vacuum at 8 in/H2O adjusted to 9 in/H2O.
RW-8	9.60	9.80	0.20	P=1;D=10	9.0	Vacuum at 17 in/H2O adjusted to 9. in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.75	feet		
Approximate total volume recovered			188	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 9/14/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.69	8.79	0.10	P=1;D=15	7.2	Vacuum at 7.2 in/H2O.
RW-7	7.85	8.15	0.30	P=3;D=10	9.0	Vacuum at 9 in/H2O.
RW-8	9.20	9.60	0.40	P=1;D=10	12.0	Vacuum at 5.5 in/H2O, adjusted vacuum to 12 in/H2O. Turned on skimmer for 15 minutes, 1.5 cups of product generated.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.73	feet		
Approximate total volume recovered			194	gallons		

Site Visit Date: 9/20/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	9.01	9.42	0.41	P=1;D=15	9.5	Vacuum at 6.9 in/H2O adjusted vacuum to 9. in/H2O.
RW-7	8.35	8.72	0.37	P=3;D=10	8.0	Vacuum at 6 in/H2O adjusted vacuum to 8. in/H2O.
RW-8	9.25	9.90	0.65	P=1;D=10	9.0	Vacuum at 16.5 in/H2O adjusted vacuum to 10. in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.71	feet		
Approximate total volume recovered			199	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 9/27/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
						Changed out two down stream carbon canisters on the vacuum system.
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	9.04	9.64	0.60	P=1;D=15	9.5	Vacuum at 7.5 adjusted vacuum to 9 in/H2O.
RW-7	8.46	8.83	0.37	P=3;D=10	8.0	Vacuum at 5 adjusted vacuum to 7.75 in/H2O.
RW-8	9.60	9.82	0.22	P=1;D=10	11.5	Vacuum at 2 adjusted vacuum to 11.5 in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.69	feet		
Approximate total volume recovered			204	gallons		

Site Visit Date: 10/4/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.96	9.46	0.50	P=1;D=15	10.0	Vacuum at 10. in/H2O.
RW-7	8.38	8.81	0.43	P=3;D=10	8.0	Vacuum at 8 in/H2O.
RW-8	9.47	9.91	0.44	P=1;D=10	9.0	Vacuum at >15 in/H2O adjusted vacuum to 9. in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.63	feet		
Approximate total volume recovered			220	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 10/11/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.85	10.15	1.30	P=1;D=15	10.2	Vacuum at 10.2 in/H2O, turned on skimmer, pumping very little product, replaced skimmer filter, pumping ok.
RW-7	8.29	8.89	0.60	P=3;D=10	11.4	Vacuum at 11.4 in/H2O, turned on skimmer, pumping very little product, picked up pump, pumping ok.
RW-8	9.44	9.91	0.47	P=1;D=10	9.1	Vacuum at 9.1 in/H2O, turned on skimmer, pumping very little product, replaced skimmer filter, pumping ok.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.60	feet		
Approximate total volume recovered			228	gallons		

Site Visit Date: 10/17/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.72	10.40	1.68	P=1;D=15	10.0	Vacuum at 12.4 in/H2O adjusted to 10, turned on skimmer, pumping very little product, replaced skimmer with refurbished one, pumping ok.
RW-7	8.14	8.70	0.56	P=2;D=10	10.0	Vacuum at >15 in/H2O adjusted to 10, turned on skimmer, pumping very little product, picked up pump, pumping ok.
RW-8	9.34	9.55	0.21	P=1;D=10	8.8	Vacuum at 8.8 in/H2O, turned on skimmer, pumping product ok.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.57	feet		
Approximate total volume recovered			236	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 10/25/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
						Changed out two down stream carbon canisters on the vacuum system.
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.98	9.55	0.57	P=1;D=15	12.6	Vacuum at 12.6 in/H2O adjusted to 10 in/H2O, water observed in product line, raised skimmer.
RW-7	8.34	9.25	0.91	P=2;D=15	9.0	Vacuum at 6.0 in/H2O adjusted to 9 in/H2O, turned on skimmer, pumping product ok.
RW-8	9.50	9.75	0.25	P=1;D=10	8.2	Vacuum at 8.2 in/H2O, turned on skimmer, pumping product ok.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.52	feet		
Approximate total volume recovered			249	gallons		

Site Visit Date: 11/2/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.89	9.90	1.01	P=1;D=20	9.0	Vacuum at 9.0 in/H2O.
RW-7	8.32	9.24	0.92	P=1;D=15	5.0	Vacuum at 5.0 in/H2O.
RW-8	9.40	9.71	0.31	P=1;D=10	6.4	Vacuum at 6.4 in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.47	feet		
Approximate total volume recovered			262	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 11/8/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	8.95	9.95	1.00	C=2;D=15	8.8	Vacuum at 8.8 in/H2O.
RW-7	8.38	9.15	0.77	P=1;D=15	5.0	Vacuum at 5.0 in/H2O.
RW-8	9.43	9.72	0.29	P=1;D=10	9.0	Vacuum at 6 in/H2O, adjusted to in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	
Depth to product in Convault			1.40	feet		
Approximate total volume recovered			280	gallons		

Site Visit Date: 11/15/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=7;D=10	Off	
RW-5	--	--	--	Off	Off	
RW-6	9.00	9.80	0.80	C=3;D=15	10.0	Vacuum at 10 in/H2O.
RW-7	8.29	9.75	1.46	C=2;D=15	6.0	Vacuum at 6.0 in/H2O.
RW-8	9.45	9.80	0.35	P=1;D=10	10.0	Vacuum at 13 in/H2O, adjusted to 10 in/H2O.
RW-9	--	--	--	Off	Off	
MW-3	--	--	--	NA	NA	Purged ~ 6.5 gallons of product, placed into Convault.
Depth to product in Convault			1.35	feet		
Approximate total volume recovered			293	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 11/20/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	8.62	8.63	0.01	Off	Off	
RW-2	None	9.87	None	Off	Off	
RW-3	11.22	11.35	0.13	P=7;D=10	Off	
RW-4	10.34	10.65	0.31	P=1;D=10	Off	
RW-5	8.52	10.20	1.68	Off	Off	
RW-6	9.04	9.50	0.46	C=3;D=15	9.2	
RW-7	8.29	9.59	1.30	C=4;D=15	5.2	
RW-8	9.38	9.64	0.26	P=1;D=10	10.5	
RW-9	10.02	12.50	2.48	Off	Off	
MW-3	11.00	12.40	1.40	NA	NA	Purged ~ 6.0 gallons of product, placed into Convault.
Depth to product in Convault			1.25	feet		
Approximate total volume recovered			319	gallons		

Site Visit Date: 11/21/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	--	--	--	Off	Off	
RW-3	--	--	--	P=7;D=10	Off	
RW-4	--	--	--	P=1;D=10	Off	
RW-5	8.60	10.32	1.72	Off	Off	Purged ~ 3.0 gallons of product, placed into Convault.
RW-6	--	--	--	C=3;D=15	9.2	
RW-7	--	--	--	C=4;D=15	5.2	
RW-8	--	--	--	P=1;D=10	10.5	
RW-9	10.10	12.50	2.40	Off	Off	Purged ~ 3.0 gallons of product, placed into Convault.
MW-3	11.00	12.26	1.26	NA	NA	Purged ~ 1.5 gallons of product, placed into Convault.
Depth to product in Convault			--	feet		
Approximate total volume recovered			--	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 11/28/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
						Breakthrough on carbon vessels, turn off low vacuum.
RW-1	--	--	--	Off	Off	
RW-2	None	10.10	None	Off	Off	
RW-3	11.32	11.49	0.17	P=7;D=10	Off	
RW-4	10.46	10.79	0.33	P=1;D=10	Off	
RW-5	8.80	8.95	0.15	Off	Off	
RW-6	9.15	9.53	0.38	C=3;D=15	Off	
RW-7	8.53	8.89	0.36	C=4;D=15	Off	
RW-8	9.45	9.60	0.15	P=1;D=10	Off	
RW-9	10.37	10.99	0.62	P=1;D=15	Off	Installed skimmer pump.
MW-3	11.11	12.67	1.56	NA	NA	Purged ~ 5 gallons of product, placed into Convault.
Depth to product in Convault			1.09	feet		
Approximate total volume recovered			361	gallons		

Site Visit Date: 12/07/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	None	9.55	None	Off	Off	
RW-3	10.91	11.06	0.15	P=7;D=10	Off	
RW-4	10.15	10.46	0.31	P=1;D=10	Off	
RW-5	8.68	8.79	0.11	Off	Off	
RW-6	9.20	9.34	0.14	C=3;D=15	Off	
RW-7	8.44	8.80	0.36	C=4;D=15	Off	
RW-8	9.70	10.00	0.30	P=1;D=10	Off	
RW-9	10.65	10.77	0.12	P=7;D=15	Off	Reduced skimmer activation from every day to once a week
MW-3	10.70	11.88	1.18	NA	NA	Purged ~ 4 gallons of product, placed into Convault.
Depth to product in Convault			1.05	feet		
Approximate total volume recovered			372	gallons	Product removed by Port waste disposal contractor.	



**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 12/14/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	None	9.61	None	Off	Off	
RW-3	11.24	11.40	0.16	P=7;D=10	Off	
RW-4	10.39	10.62	0.23	P=1;D=10	Off	
RW-5	8.85	9.00	0.15	Off	Off	
RW-6	9.29	9.45	0.16	C=3;D=15	Off	
RW-7	8.67	8.80	0.13	C=4;D=15	Off	
RW-8	9.71	10.17	0.46	P=1;D=10	Off	
RW-9	10.62	10.85	0.23	P=7;D=15	Off	
MW-3	11.06	12.26	1.20	NA	NA	Purged ~ 4 gallons of product, placed into Convault.
Depth to product in Convault			2.42	feet		
Approximate total volume recovered			13	gallons		

Site Visit Date: 12/21/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
RW-1	--	--	--	Off	Off	
RW-2	None	10.10	None	Off	Off	
RW-3	10.91	11.22	0.31	P=7;D=10	Off	Cycled skimmer, product and air being pumped
RW-4	10.15	10.17	0.02	P=1;D=10	Off	Evidence of vaults being filled with rain water from storm run-off. Cycled skimmer, product and air being pumped
RW-5	8.63	8.82	0.19	Off	Off	
RW-6	9.12	9.25	0.13	C=3;D=15	Off	Cycled skimmer, product and air being pumped
RW-7	8.45	8.63	0.18	C=4;D=15	Off	Evidence of vaults being filled with rain water from storm run-off. Cycled skimmer, product and air being pumped
RW-8	9.65	9.90	0.25	P=1;D=10	Off	Cycled skimmer, product and air being pumped
RW-9	10.47	10.80	0.33	P=7;D=15	Off	Cycled skimmer, product being pumped
MW-3	10.71	11.59	0.88	NA	NA	Purged ~ 1.5 gallons of product, placed into Convault.
Depth to product in Convault			2.41	feet		
Approximate total volume recovered			16	gallons		

**TABLE 3: Product Thickness Measurements and Operations and Maintenance Activities - July through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

Site Visit Date: 12/28/2007						
Recovery Well	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Cycles/Period and Duration	Vacuum (Inches of H2O)	Comments
						Two 1,000 lbs carbon canisters installed to vacuum system discharge line. Started vacuum system.
RW-1	--	--	--	Off	Off	
RW-2	None	8.95	None	Off	Off	
RW-3	10.89	11.22	0.33	P=7;D=10	Off	
RW-4	10.00	10.03	0.03	P=1;D=10	Off	
RW-5	8.67	8.84	0.17	Off	Off	
RW-6	9.16	9.28	0.12	C=3;D=15	8.0	Applied vacuum to skimmer, adjusted vacuum to 8 in/H2O.
RW-7	8.51	8.98	0.47	C=4;D=15	7.4	Applied vacuum to skimmer, adjusted vacuum to 7.4 in/H2O.
RW-8	9.65	9.78	0.13	P=1;D=10	8.0	Applied vacuum to skimmer, adjusted vacuum to 8. in/H2O.
RW-9	10.40	11.15	0.75	P=7;D=15	Off	
MW-3	10.78	11.70	0.92	NA	NA	Purged ~ 4 gallons of product, placed into Convault.
Depth to product in Convault			2.38	feet		
Approximate total volume recovered			24	gallons		

Notes:

See Figure 2 for recovery well locations.

D= Duration (length of time in minutes the skimmer will run upon activation)

P= Period ( P=1 would indicate skimmer activated every day; P=4 would be skimmer activated every fourth day)

C=Cycles (C=2 would indicate skimmer activated twice per day; C=4 would indicate skimmer activated four times per day)

H2O = water

lbs = pounds

-- = not measured.

Sheen = less than 0.01 foot thickness of product.

Product purging in is conducted using a peristaltic pump.

**TABLE 4: Volatile Organic Compound Mass Removal - June 2007 through December 2007**  
**Port of Oakland**  
**651 and 555 Maritime Street**  
**Oakland, California**

VOCs Detected in Influent <sup>1</sup> ( $\mu\text{g}/\text{m}^3$ )		Benzene	Toluene	Ethyl Benzene	m,p-Xylene	1,2,4-Trimethylbenzene	Hexane	Cyclohexane	Heptane	Acetone	2-Butanone (Methyl Ethyl Ketone)	4-Ethyltoluene	2,2,4-Trimethylpentane
		4,200	440	620	560	690	32,000	28,000	22,000	7,900	550	480	62,000
Date	System Flow Rate (cfm)	Estimated Pounds of VOCs Removed											
8/10/2007	40	--	--	--	--	--	--	--	--	--	--	--	--
8/17/2007	54	1.24E-01	1.30E-02	1.83E-02	1.66E-02	2.04E-02	9.46E-01	8.28E-01	6.51E-01	2.34E-01	1.63E-02	1.42E-02	1.83E+00
8/23/2007	56	1.25E-01	1.31E-02	1.84E-02	1.66E-02	2.05E-02	9.49E-01	8.31E-01	6.53E-01	2.34E-01	1.63E-02	1.42E-02	1.84E+00
8/29/2007	47	1.17E-01	1.22E-02	1.72E-02	1.56E-02	1.92E-02	8.89E-01	7.78E-01	6.11E-01	2.19E-01	1.53E-02	1.33E-02	1.72E+00
9/7/2007	40	1.48E-01	1.55E-02	2.18E-02	1.97E-02	2.43E-02	1.13E+00	9.85E-01	7.74E-01	2.78E-01	1.94E-02	1.69E-02	2.18E+00
9/11/2007	44	6.34E-02	6.65E-03	9.36E-03	8.46E-03	1.04E-02	4.83E-01	4.23E-01	3.32E-01	1.19E-01	8.31E-03	7.25E-03	9.36E-01
9/20/2007	40	1.43E-01	1.50E-02	2.11E-02	1.90E-02	2.34E-02	1.09E+00	9.51E-01	7.48E-01	2.68E-01	1.87E-02	1.63E-02	2.11E+00
9/27/2007	44	1.11E-01	1.16E-02	1.64E-02	1.48E-02	1.82E-02	8.46E-01	7.40E-01	5.81E-01	2.09E-01	1.45E-02	1.27E-02	1.64E+00
10/4/2007	44	1.16E-01	1.22E-02	1.72E-02	1.55E-02	1.91E-02	8.86E-01	7.75E-01	6.09E-01	2.19E-01	1.52E-02	1.33E-02	1.72E+00
10/11/2007	36	1.06E-01	1.11E-02	1.56E-02	1.41E-02	1.74E-02	8.05E-01	7.05E-01	5.54E-01	1.99E-01	1.38E-02	1.21E-02	1.56E+00
10/17/2007	40	8.61E-02	9.02E-03	1.27E-02	1.15E-02	1.41E-02	6.56E-01	5.74E-01	4.51E-01	1.62E-01	1.13E-02	9.84E-03	1.27E+00
10/25/2007	36	1.15E-01	1.20E-02	1.69E-02	1.53E-02	1.89E-02	8.75E-01	7.65E-01	6.01E-01	2.16E-01	1.50E-02	1.31E-02	1.69E+00
11/2/2007	40	1.15E-01	1.20E-02	1.69E-02	1.53E-02	1.89E-02	8.75E-01	7.65E-01	6.01E-01	2.16E-01	1.50E-02	1.31E-02	1.69E+00
11/8/2007	40	9.06E-02	9.49E-03	1.34E-02	1.21E-02	1.49E-02	6.90E-01	6.04E-01	4.75E-01	1.70E-01	1.19E-02	1.04E-02	1.34E+00
11/15/2007	36	1.00E-01	1.05E-02	1.48E-02	1.34E-02	1.65E-02	7.65E-01	6.70E-01	5.26E-01	1.89E-01	1.32E-02	1.15E-02	1.48E+00
11/20/2007	40	7.17E-02	7.52E-03	1.06E-02	9.56E-03	1.18E-02	5.47E-01	4.78E-01	3.76E-01	1.35E-01	9.39E-03	8.20E-03	1.06E+00
11/28/2007	40	1.21E-01	1.27E-02	1.78E-02	1.61E-02	1.98E-02	9.21E-01	8.05E-01	6.33E-01	2.27E-01	1.58E-02	1.38E-02	1.78E+00
Total (pounds)	66	1.8	0.18	0.26	0.23	0.29	13	12	9.2	3.3	0.23	0.20	26
Percent of Total		3%	0%	0%	0%	0%	20%	18%	14%	5%	0%	0%	39%

Notes:

VOCs = volatile organic compounds  
 $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter  
 cfm = cubic feet per minute

<sup>1</sup> Sample collected on 18 June 2007 and analyzed by Method TO-15.

**APPENDIX A**  
**GROUNDWATER SAMPLING FORMS**

**GROUNDWATER SAMPLING**

Well No.: **MW-1**

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>17.65</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>2</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>7.65-17.65</u>		
Weather:	<u>Overcast, then afternoon sun</u>	TOC elevation, NAVD88 (feet):	<u>15.79</u>		
Precip. in past 5 days (in.):	<u>0</u>	Groundwater elevation (feet):	<u>4.86</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>10.93</u>	Time:	<u>7:50</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>10.87</u>	Time:	<u>7:50</u>

**CALCULATION OF WELL VOLUME:**

$(17.65 \text{ ft} - 10.93 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$  \_\_\_\_\_ gallons in one casing volume  
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$  \_\_\_\_\_ total gallons removed

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
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Measured product level only, no groundwater sample collected due to the presence of free-phase product.

Purge method: \_\_\_\_\_ Sample Time: \_\_\_\_\_

Duplicate/blank number: \_\_\_\_\_ Duplicate Sample Time: \_\_\_\_\_

Sampling equipment: \_\_\_\_\_ VOA attachment: \_\_\_\_\_

Sample containers: \_\_\_\_\_

Sample analyses: \_\_\_\_\_ Laboratory: \_\_\_\_\_

Decontamination method: \_\_\_\_\_ Rinsate disposal: \_\_\_\_\_

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

TOC = top of casing  
 bgs = below ground surface

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**GROUNDWATER SAMPLING**

Well No.: **MW-2**

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>18.06</u>	Well diameter (inches):	<u>2</u>
Location:	<u>Port of Oakland</u>	Screened interval from TOC (feet):	<u>8.06-18.06</u>	TOC elevation, NAVD88 (feet):	<u>16.42</u>
	<u>2277 7th Street, Oakland</u>	Groundwater elevation (feet):	<u>4.14</u>	Water level from TOC (feet):	<u>12.28</u>
Weather:	<u>Overcast, then afternoon sun</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>8:31</u>
Precip. in past 5 days (in.):	<u>0</u>			Time:	<u>8:31</u>
Source:	<u>Oakland Fire Services Agency "ONO"</u>				
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>				

**CALCULATION OF WELL VOLUME:**

$$(18.06 \text{ ft} - 12.28 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 = \underline{0.9} \text{ gallons in one casing volume}$$

$$\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \underline{3.0} \text{ total gallons removed}$$

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
8:39	21.1	7.42	0.16	-87	1,067	1.1	1.0
8:52	20.8	7.34	0.16	-92	1,226	0.75	2.0
9:02	20.7	7.31	0.13	-116	1,317	0.70	2.5
9:12	20.8	7.31	0.12	-147	1,389	0.65	3.0

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>10:14</u>
Duplicate/blank number:	<u>MW-4dup</u>	Duplicate Sample Time:	<u>12:50</u>
Sampling equipment:	<u>QCEB</u>	VOA attachment:	<u>11:50</u>
Sample containers:	<u>Three 40-ml VOAs and two 1-L AG</u>		
Sample analyses:	<u>TPHg, TPHd, BTEX, MTBE</u>	Laboratory:	<u>Curtis &amp; Tompkins</u>
Decontamination method:	<u>Alconox and water, DI water rinse</u>	Rinsate disposal:	<u>Stored on site,</u>
Comments:	<u>Sample was clear</u>	Port contractor to remove	

TOC = top of casing  
bgs = below ground surface

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**GROUNDWATER SAMPLING**

Well No.: **MW-3**

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>17.47</u>	Well diameter (inches):	<u>2</u>
Location:	<u>Port of Oakland</u> <u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>7.47-17.47</u>	TOC elevation, NAVD88 (feet):	<u>15.65</u>
Weather:	<u>Overcast, then afternoon sun</u>	Groundwater elevation (feet):	<u>3.46</u>	Water level from TOC (feet):	<u>12.19</u> Time: <u>7:35</u>
Precip. in past 5 days (in.):	<u>0</u>	Product level from TOC (feet):	<u>10.98</u>	Time:	<u>7:34</u>
Source:	<u>Oakland Fire Services Agency "ONO"</u>				
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>				

**CALCULATION OF WELL VOLUME:**

$(17.47 \text{ ft} - 12.19 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 =$  \_\_\_\_\_ gallons in one casing volume  
 $\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 =$  \_\_\_\_\_ total gallons removed

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
------	--------------	----	--------------	-------------	-----------------	-----	-------------------------------

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

Purge method: \_\_\_\_\_ Sample Time: \_\_\_\_\_

Duplicate/blank number: \_\_\_\_\_ Duplicate Sample Time: \_\_\_\_\_

Sampling equipment: \_\_\_\_\_ VOA attachment: \_\_\_\_\_

Sample containers: \_\_\_\_\_

Sample analyses: \_\_\_\_\_ Laboratory: \_\_\_\_\_

Decontamination method: \_\_\_\_\_ Rinsate disposal: \_\_\_\_\_

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

TOC = top of casing  
 bgs = below ground surface

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**GROUNDWATER SAMPLING**

Well No.: **MW-4**

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>22.05</u>		
Location:	<u>Port of Oakland</u>	Well diameter (inches):	<u>2</u>		
	<u>2277 7th Street, Oakland</u>	Screened interval from TOC (feet):	<u>11.25-22.05</u>		
Weather:	<u>Overcast, then afternoon sun</u>	TOC elevation, NAVD88 (feet):	<u>15.90</u>		
Precip. in past 5 days (in.):	<u>0</u>	Groundwater elevation (feet):	<u>4.02</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>	Water level from TOC (feet):	<u>11.88</u>	Time:	<u>8:16</u>
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>8:16</u>

**CALCULATION OF WELL VOLUME:**

$$(22.05 \text{ ft} - 11.88 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 = \underline{1.7} \text{ gallons in one casing volume}$$

$$\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \underline{6.0} \text{ total gallons removed}$$

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
12:00	22.1	7.27	0.11	-150	1,060	36	2.0
12:20	22.1	7.25	0.14	-149	1,041	2.7	4.0
12:30	22.1	7.26	0.11	-150	1,041	3.1	5.0
12:40	22.3	7.24	0.09	-153	1,099	3.2	6.0

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>12:45</u>
Duplicate/blank number:	<u>MW-4dup</u>	Duplicate Sample Time:	<u>12:50</u>
Sampling equipment:	<u>QCEB</u>	VOA attachment:	<u>11:50</u>
Sample containers:	<u>Three 40-ml VOAs and two 1-L AG</u>		
Sample analyses:	<u>TPHg, TPHd, BTEX, MTBE</u>	Laboratory:	<u>Curtis &amp; Tompkins</u>
Decontamination method:	<u>Alconox and water, DI water rinse</u>	Rinsate disposal:	<u>Stored on site,</u>
Comments:	<u>Sample was clear</u>	Port contractor to remove	

TOC = top of casing  
bgs = below ground surface

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**GROUNDWATER SAMPLING**

Well No.: **MW-5**

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>20.8</u>	Well diameter (inches):	<u>2</u>
Location:	<u>Port of Oakland</u>	Screened interval from TOC (feet):	<u>10.4-20.8</u>	TOC elevation, NAVD88 (feet):	<u>15.39</u>
	<u>2277 7th Street, Oakland</u>	Groundwater elevation (feet):	<u>5.62</u>	Water level from TOC (feet):	<u>9.77</u>
Weather:	<u>Overcast, then afternoon sun</u>	Product level from TOC (feet):	<u>None</u>	Time:	<u>8:09</u>
Precip. in past 5 days (in.):	<u>0</u>			Time:	<u>8:09</u>
Source:	<u>Oakland Fire Services Agency "ONO"</u>				
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>				

**CALCULATION OF WELL VOLUME:**

$$(20.80 \text{ ft} - 9.77 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 = \underline{1.8} \text{ gallons in one casing volume}$$

$$\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \underline{6.5} \text{ total gallons removed}$$

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
10:54	22.2	6.95	0.10	-95	2,132	15	1.5
11:12	22.0	7.00	0.09	-86	2,389	2.1	3.5
11:18	22.2	6.97	0.11	-85	2,347	1.8	4.5
11:24	22.2	6.96	0.11	-82	2,240	3.1	5.5
11:30	22.3	6.97	0.11	-84	2,290	3.5	6.5

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>11:35</u>
Duplicate/blank number:	<u>MW-4dup</u>	Duplicate Sample Time:	<u>12:50</u>
Sampling equipment:	<u>QCEB</u>	VOA attachment:	<u>11:50</u>
Sample containers:	<u>Three 40-ml VOAs and two 1-L AG</u>		
Sample analyses:	<u>TPHg, TPHd, BTEX, MTBE</u>	Laboratory:	<u>Curtis &amp; Tompkins</u>
Decontamination method:	<u>Alconox and water, DI water rinse</u>	Rinsate disposal:	<u>Stored on site,</u>
Comments:	<u>Sample was clear</u>	Port contractor to remove	

TOC = top of casing  
bgs = below ground surface

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**GROUNDWATER SAMPLING**

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

Project No.:	<u>Y5395-04</u>	Recorded by:	<u>WKS/MCJ</u>	Date:	<u>11/14/07</u>
Project Name:	<u>Harbor Facilities Center</u>	Depth of well from TOC (feet):	<u>23.14</u>	Well diameter (inches):	<u>2</u>
Location:	<u>Port of Oakland</u>	Screened interval from TOC (feet):	<u>7.54-22.54</u>	TOC elevation, NAVD88 (feet):	<u>14.98</u>
	<u>2277 7th Street, Oakland</u>	Groundwater elevation (feet):	<u>3.58</u>	Water level from TOC (feet):	<u>11.40</u>
Weather:	<u>Overcast, then afternoon sun</u>	Time:	<u>8:04</u>	Product level from TOC (feet):	<u>None</u>
Precip. in past 5 days (in.):	<u>0</u>	Time:	<u>8:04</u>		
Source:	<u>Oakland Fire Services Agency "ONO"</u>				
Water level instrument:	<u>Dual-phase interface probe (Solinst)</u>				

**CALCULATION OF WELL VOLUME:**

$$(23.14 \text{ ft} - 11.40 \text{ ft}) \times 0.083 \text{ ft}^2 \times \pi \times 7.48 \text{ gal/ft}^3 = \underline{1.9} \text{ gallons in one casing volume}$$

$$\text{well depth} - \text{water level} \times (\text{well radius})^2 \times \pi \times \text{gal/ft}^3 = \underline{5.0} \text{ total gallons removed}$$

**CALIBRATION:**

	Time	Temp (°C)	pH	DO	ORP	EC (µmho/cm)	NTU
Calibration Standard:		--	7.00	100%	465	1,000	0/20
Before Purging:	7:16	14.3	7.05	100%	457	1,000	0/20
After Purging:	13:00	18.3	7.15	92.4%	432	1,038	0/18

**FIELD MEASUREMENTS:**

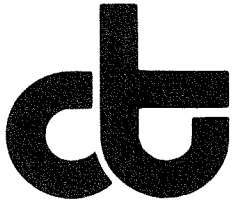
Time	Temp (°C)	pH	DO (mg/L)	ORP (mV)	EC (µmho/cm)	NTU	Cumulative Gallons Removed
9:36	19.9	7.34	0.09	-180	2,127	2.3	2
9:45	19.9	7.33	0.10	-182	2,113	2.3	3
9:52	19.8	7.34	0.19	-171	2,121	1.1	4
10:01	19.8	7.35	0.07	-182	2,120	1.6	5

Purge method:	<u>Peristaltic pump and disposable poly tubing</u>	Sample Time:	<u>10:08</u>
Duplicate/blank number:	<u>MW-4dup</u>	Duplicate Sample Time:	<u>12:50</u>
Sampling equipment:	<u>QCEB</u>	VOA attachment:	<u>11:50</u>
Sample containers:	<u>Three 40-ml VOAs and two 1-L AG</u>		
Sample analyses:	<u>TPHg, TPHd, BTEX, MTBE</u>	Laboratory:	<u>Curtis &amp; Tompkins</u>
Decontamination method:	<u>Alconox and water, DI water rinse</u>	Rinsate disposal:	<u>Stored on site,</u>
Comments:	<u>Sample was clear</u>	Port contractor to remove	

TOC = top of casing  
bgs = below ground surface

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**APPENDIX B**  
**LABORATORY ANALYTICAL REPORT**



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

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

RECEIVED

Laboratory Job Number 199249  
ANALYTICAL REPORT

DEC 03 2007

BASILINE

Baseline Environmental  
5900 Hollis St.  
Emeryville, CA 94608

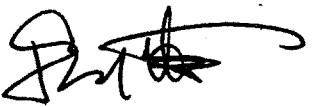
Project : Y5395-04  
Location : Harbor Facilities Complex  
Level : II

<u>Sample ID</u>	<u>Lab ID</u>
MW-2	199249-001
MW-4	199249-002
MW-4DUP	199249-003
MW-5	199249-004
MW-8A	199249-005
QCEB	199249-006
QCTB	199249-007

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: 11/28/2007

Signature:   
Operations Manager

Date: 11/29/2007

**CASE NARRATIVE**

Laboratory number: 199249  
Client: Baseline Environmental  
Project: Y5395-04  
Location: Harbor Facilities Complex  
Request Date: 11/14/07  
Samples Received: 11/14/07

This hardcopy data package contains sample and QC results for seven water samples, requested for the above referenced project on 11/14/07. The samples were received on ice 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):**

High surrogate recovery was observed for toluene-d8 in MW-5 (lab # 199249-004); no target analytes were detected in the sample. Samples MW-4 (lab # 199249-002), MW-5 (lab # 199249-004), and MW-8A (lab # 199249-005) had approximately 1 mL of headspace in the vials associated with reported results. No other analytical problems were encountered.

**BASELINE E**

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

~~199247~~  
11-14-07  
FN

199249

**CHAIN OF CUSTODY RECORD**

Turn-around Time  
Lab  
BASELINE Contact Person

Standard  
Curtis & Tompkins  
Bill Scott/James McCarty

Project Number Y5395-04		Project Name and Location: Harbor Facilities Complex, 2277 Seventh St., Oakland CA												TPH as gasoline (8015B) TEPH diesel & m.o. (8015B) w/silica gel cleanup BTEX & MTBE 8260B				Remarks/ Composite			
Samplers: (Signature) 				Containers																	
Sample ID No. Station	Date:	Time:	Media	Type								Preservative Ice and :									
				No.	SS	Encore	L-AG	40-ml VOA	L-Poly	250 ml Poly	500 ml Poly	None	HCl	NO <sub>3</sub>	SO <sub>4</sub>	NaOH					
MW-2	11/14/07	10:14	W	3				X					X					X	X		
MW-2		10:14	W	2			X					X						X			
MW-4		12:45	W	3				X					X					X	X		
MW-4		12:45	W	2			X					X						X			
MW-4dup		12:50	W	3				X					X					X	X		
MW-4dup		12:50	W	2			X					X						X			
MW-5		11:35	W	3				X					X					X	X		
MW-5		11:35	W	2			X					X						X			
MW-8A		10:08	W	3				X					X					X	X		
MW-8A		10:08	W	2			X					X						X			
QCEB		11:50	W	3				X					X					X	X		
QCEB		11:50	W	2			X					X						X			
QCTB		7:00	W	3				X					X					X	X		
Relinquished by: (Signature) 		Custody Seal Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Date/Time 11/14/07 13:35	Received by: (Signature) 		Custody Seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	Date/Time	Conditions of Samples Upon Arrival at Laboratory:													
Relinquished by: (Signature)		Custody Seal Yes <input type="checkbox"/> No <input type="checkbox"/>	Date/Time	Received by: (Signature)		Custody Seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	Date/Time	Remarks: Please provide EDD & EDF to BASELINE													
Relinquished by: (Signature)		Custody Seal Yes <input type="checkbox"/> No <input type="checkbox"/>	Date/Time	Received by: (Signature)		Custody Seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	Date/Time	Please invoice Jeff Rubin at Port of Oakland, W.O. 202386 TSO #21 Please e-mail copy of the analytical results to jrubin@portoakland.com													
Received at laboratory with intact custody seal: (Signature) 				Date/Time 11/14/07 13:35	Comments: on ice, intact																

Bill's/C:/chain of Custody/Master-C-o-C-seal 5-02

**Total Volatile Hydrocarbons**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	11/14/07
Units:	ug/L	Received:	11/14/07
Diln Fac:	1.000	Analyzed:	11/16/07
Batch#:	131854		

Field ID: MW-2  
Type: SAMPLE

Lab ID: 199249-001

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	83	73-134
Bromofluorobenzene (FID)	83	77-140

Field ID: MW-4  
Type: SAMPLE

Lab ID: 199249-002

Analyte	Result	RL
Gasoline C7-C12	54 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	91	73-134
Bromofluorobenzene (FID)	91	77-140

Field ID: MW-4DUP  
Type: SAMPLE

Lab ID: 199249-003

Analyte	Result	RL
Gasoline C7-C12	51 Y	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	96	73-134
Bromofluorobenzene (FID)	97	77-140

Field ID: MW-5  
Type: SAMPLE

Lab ID: 199249-004

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Trifluorotoluene (FID)	92	73-134
Bromofluorobenzene (FID)	95	77-140

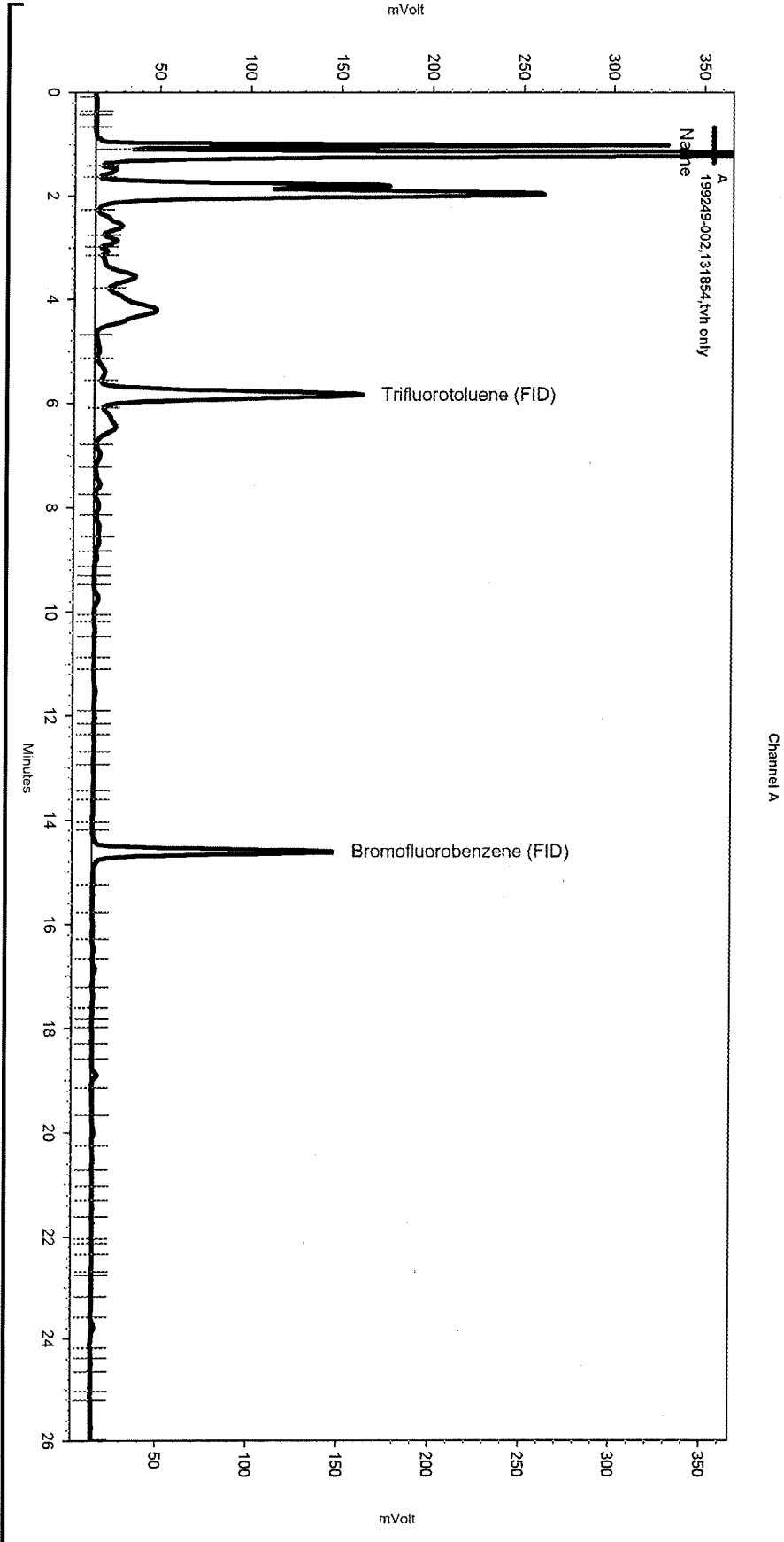
Y= Sample exhibits chromatographic pattern which does not resemble standard  
 ND= Not Detected  
 RL= Reporting Limit





Sequence File: \\Lims\gdrive\ezchrom\Projects\GC04\Sequence1320.seq  
 Sample Name: 199249-002,131854,tvh only  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\320\_007  
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\1tvhbx302.met

Software Version 3.1.7  
 Run Date: 11/16/2007 5:29:23 PM  
 Analysis Date: 11/19/2007 10:03:26 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: b1.3



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< A >

No items selected for this section

Integration Events

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Yes	Threshold	0	0	50

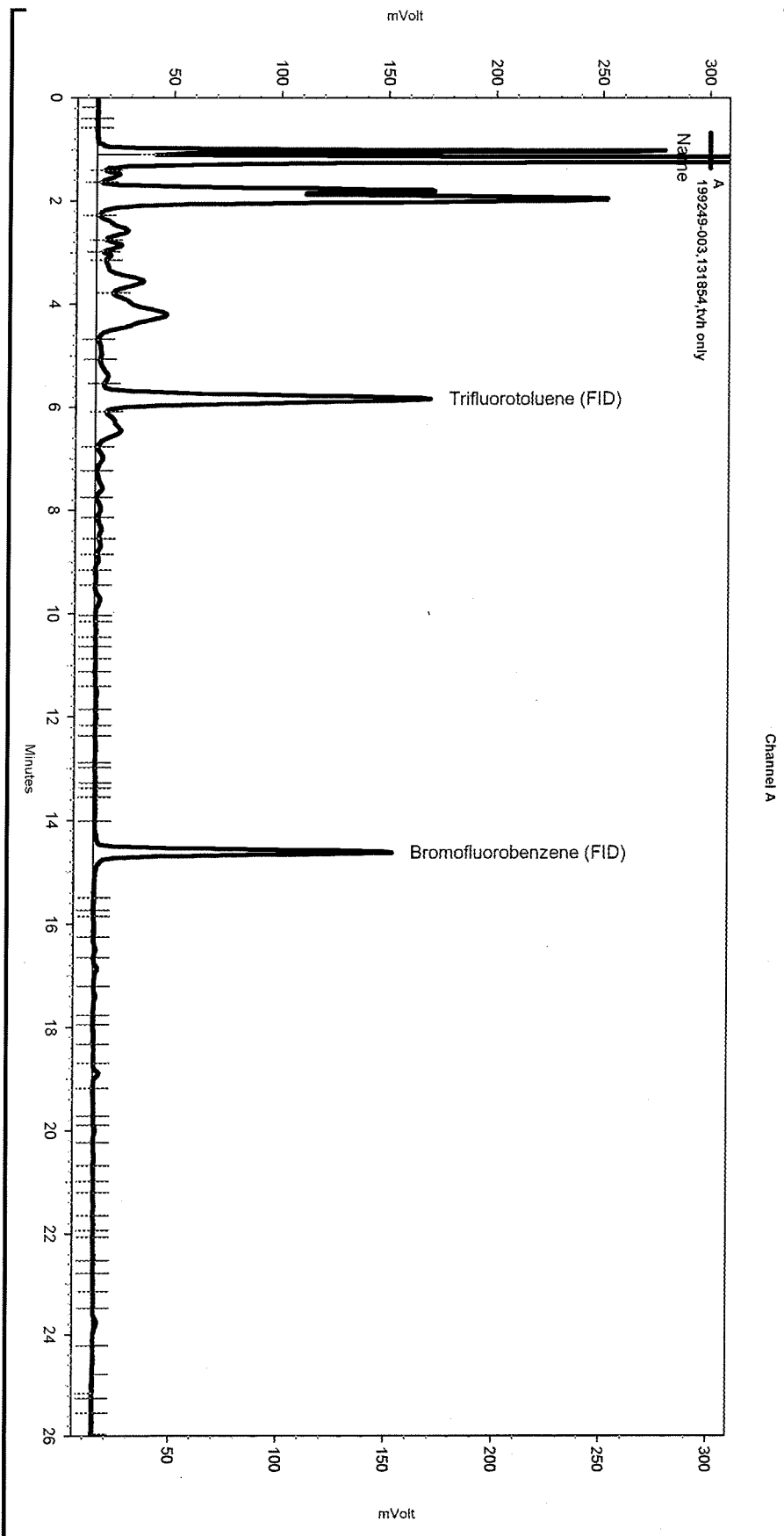
Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\320\_007

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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 Sample Name: 199249-003,131854,tvh only  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\320\_008  
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lms2k3\tvh1)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\TVHBTXE302.met

Software Version 3.1.7  
 Run Date: 11/16/2007 6:07:04 PM  
 Analysis Date: 11/19/2007 10:03:31 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: c1.3



< General Method Parameters >

No items selected for this section

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No items selected for this section

Integration Events

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

Manual Integration Fixes

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

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 Sample Name: ccv\ics,qc415969,131854,s7663,2.5/5000  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC04\Data\320\_003  
 Instrument: GC04 (Offline) Vial: N/A Operator: Tvh 1. Analyst (lims2k3\tvh1)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC04\Method\vhbtxe302.met

Software Version 3.1.7  
 Run Date: 11/16/2007 1:23:04 PM  
 Analysis Date: 11/19/2007 10:03:06 AM  
 Sample Amount: 5 Multiplier: 5  
 Vial & pH or Core ID: (Data Description)

< General Method Parameters >

No items selected for this section

< A >

No items selected for this section

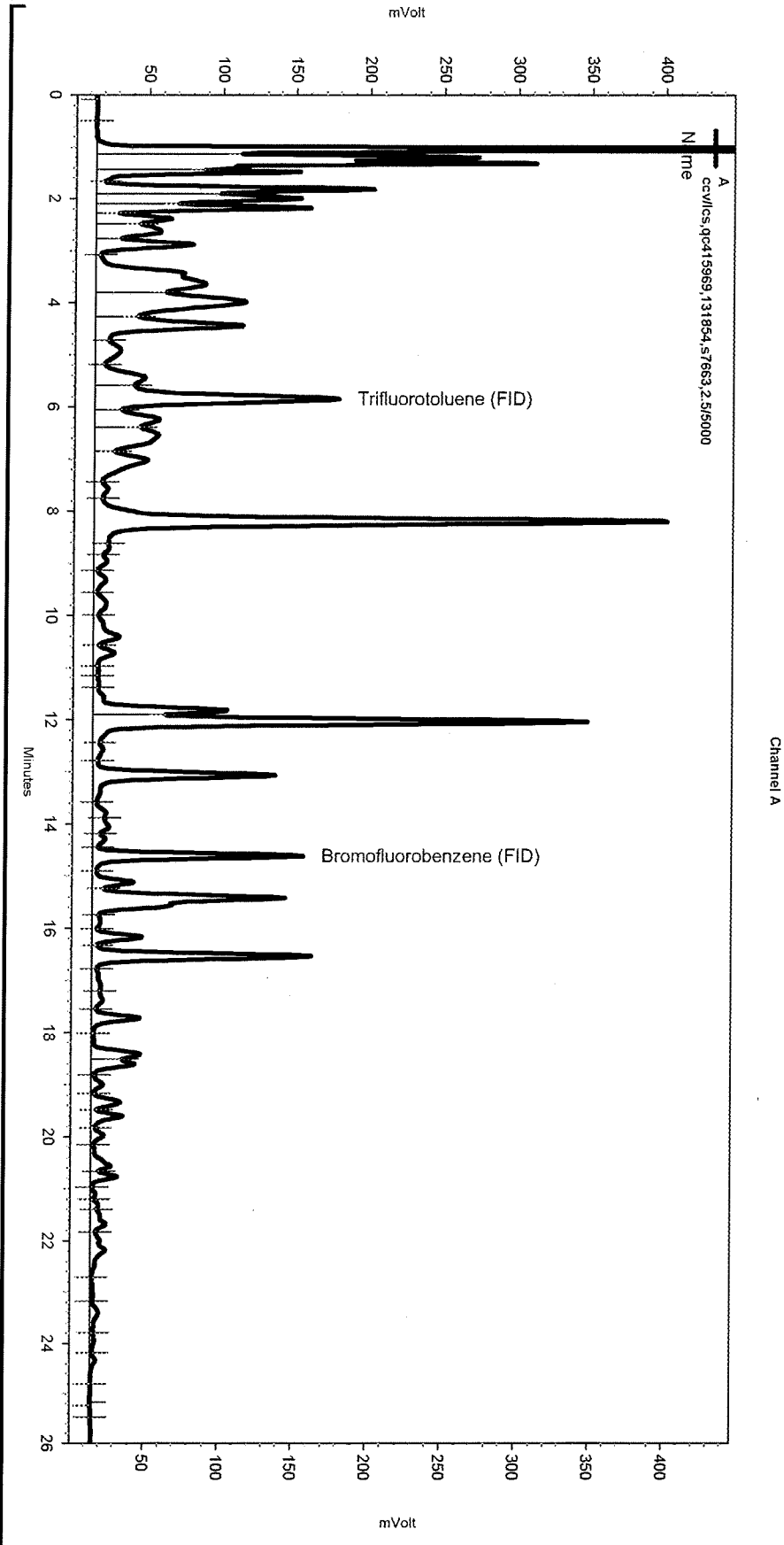
Integration Events

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

Manual Integration Fixes

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



## Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC415969	Batch#:	131854
Matrix:	Water	Analyzed:	11/16/07
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	934.0	93	79-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	73-134
Bromofluorobenzene (FID)	98	77-140

## Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	131854
MSS Lab ID:	199268-002	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/16/07
Diln Fac:	1.000		

Type: MS Lab ID: QC415970

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,139	2,000	2,924	89	72-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	129	73-134
Bromofluorobenzene (FID)	112	77-140

Type: MSD Lab ID: QC415971

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,784	82	72-120	5	20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	117	73-134
Bromofluorobenzene (FID)	102	77-140

**Total Extractable Hydrocarbons**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-04	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	11/14/07
Units:	ug/L	Received:	11/14/07
Diln Fac:	1.000	Prepared:	11/16/07
Batch#:	131853		

Field ID: MW-2 Analyzed: 11/19/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-001

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

Surrogate	%REC	Limits
Hexacosane	83	61-133

Field ID: MW-4 Analyzed: 11/19/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-002

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

Surrogate	%REC	Limits
Hexacosane	85	61-133

Field ID: MW-4DUP Analyzed: 11/19/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-003

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

Surrogate	%REC	Limits
Hexacosane	82	61-133

Field ID: MW-5 Analyzed: 11/20/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-004

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

Surrogate	%REC	Limits
Hexacosane	90	61-133

**Total Extractable Hydrocarbons**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-04	Analysis:	EPA 8015B
Matrix:	Water	Sampled:	11/14/07
Units:	ug/L	Received:	11/14/07
Diln Fac:	1.000	Prepared:	11/16/07
Batch#:	131853		

Field ID: MW-8A Analyzed: 11/20/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-005

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

Surrogate	%REC	Limits
Hexacosane	94	61-133

Field ID: QCEB Analyzed: 11/20/07  
 Type: SAMPLE Cleanup Method: EPA 3630C  
 Lab ID: 199249-006

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

Surrogate	%REC	Limits
Hexacosane	87	61-133

Type: BLANK Analyzed: 11/19/07  
 Lab ID: QC415965 Cleanup Method: EPA 3630C

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

Surrogate	%REC	Limits
Hexacosane	103	61-133

## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-04	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC415972	Batch#:	131853
Matrix:	Water	Prepared:	11/16/07
Units:	ug/L	Analyzed:	11/19/07

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,347	94	58-128

Surrogate	%REC	Limits
Hexacosane	93	61-133



## Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 3520C
Project#:	Y5395-04	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	131853
MSS Lab ID:	199268-002	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Prepared:	11/16/07
Diln Fac:	1.000	Analyzed:	11/19/07

Type: MS Cleanup Method: EPA 3630C  
 Lab ID: QC415973

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	61.63	2,500	2,565	100	58-129

Surrogate	%REC	Limits
Hexacosane	98	61-133

Type: MSD Cleanup Method: EPA 3630C  
 Lab ID: QC415974

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,405	94	58-129	6	27

Surrogate	%REC	Limits
Hexacosane	91	61-133

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	MW-2	Batch#:	131891
Lab ID:	199249-001	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	124	74-137
Toluene-d8	115	80-120
Bromofluorobenzene	103	80-120

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	MW-4	Batch#:	131891
Lab ID:	199249-002	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	2.1	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	122	74-137
Toluene-d8	113	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	MW-4DUP	Batch#:	131891
Lab ID:	199249-003	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	2.1	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	116	74-137
Toluene-d8	110	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	MW-5	Batch#:	131891
Lab ID:	199249-004	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	128	74-137
Toluene-d8	121 *	80-120
Bromofluorobenzene	102	80-120

\*= Value outside of QC limits; see narrative

ND= Not Detected

RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	MW-8A	Batch#:	131891
Lab ID:	199249-005	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	125	74-137
Toluene-d8	116	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	QCEB	Batch#:	131891
Lab ID:	199249-006	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	126	74-137
Toluene-d8	119	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected  
 RL= Reporting Limit

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Field ID:	QCTB	Batch#:	131891
Lab ID:	199249-007	Sampled:	11/14/07
Matrix:	Water	Received:	11/14/07
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	122	74-137
Toluene-d8	118	80-120
Bromofluorobenzene	107	80-120

ND= Not Detected  
 RL= Reporting Limit

000020



## Batch QC Report

## Purgeable Aromatics by GC/MS

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC416101	Batch#:	131891
Matrix:	Water	Analyzed:	11/18/07
Units:	ug/L		

Analyte	Result	RL
MTBE	ND	0.5
Benzene	ND	0.5
Toluene	ND	0.5
Chlorobenzene	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	117	74-137
Toluene-d8	109	80-120
Bromofluorobenzene	106	80-120

ND= Not Detected  
 RL= Reporting Limit

## Batch QC Report

**Purgeable Aromatics by GC/MS**

Lab #:	199249	Location:	Harbor Facilities Complex
Client:	Baseline Environmental	Prep:	EPA 5030B
Project#:	Y5395-04	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	131891
Units:	ug/L	Analyzed:	11/18/07
Diln Fac:	1.000		

Type: BS Lab ID: QC416102

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	24.71	99	60-130
Benzene	25.00	25.31	101	80-120
Toluene	25.00	25.09	100	80-122
Chlorobenzene	25.00	24.01	96	80-120
Ethylbenzene	25.00	24.75	99	80-127
m,p-Xylenes	50.00	50.84	102	80-130
o-Xylene	25.00	24.58	98	80-126

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	74-137
Toluene-d8	103	80-120
Bromofluorobenzene	99	80-120

Type: BSD Lab ID: QC416103

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	25.00	24.85	99	60-130	1	20
Benzene	25.00	25.51	102	80-120	1	20
Toluene	25.00	25.52	102	80-122	2	20
Chlorobenzene	25.00	24.01	96	80-120	0	20
Ethylbenzene	25.00	24.67	99	80-127	0	20
m,p-Xylenes	50.00	50.50	101	80-130	1	20
o-Xylene	25.00	24.91	100	80-126	1	20

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	107	74-137
Toluene-d8	107	80-120
Bromofluorobenzene	103	80-120

RPD= Relative Percent Difference

**APPENDIX C**

**HISTORICAL ANALYTICAL AND GROUNDWATER LEVEL DATA**

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 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)
<b>MW-1</b>						
	04/18/00	14.14	NM	8.21	0.0	5.93
	05/22/00	14.14	NM	8.51	0.0	5.97
	07/10/01	14.14	8.8	10.00	1.2	4.14
	12/12/01	14.14	NA	NA	NA	NC
	03/08/02	14.14	NM	NA	NA	NC
	06/13/02	14.14	8.70	10.00	1.30	NC
	09/26/02	14.14	8.60	9.50	0.90	NC
	03/17/03	14.14	7.61	8.88	1.27	NC
	06/18/03	14.14	8.20	9.44	1.24	NC
	09/03/03	14.14	8.50	9.40	0.90	NC
	11/26/03	14.14	8.85	9.25	0.40	NC
	03/05/04	14.14	6.76	7.07	0.31	NC
	06/02/04	14.14	8.26	8.71	0.45	NC
	09/03/04	14.14	8.70	9.11	0.41	NC
	12/16/04	14.14	7.75	7.92	0.17	NC
	03/29/05	14.14	6.21	6.38	0.17	NC
	06/14/05	14.14	7.41	7.61	0.20	NC
	08/10/05	14.14	8.05	8.55	0.50	NC
	09/29/05	14.14	8.28	8.95	0.67	NC
	12/21/05	14.14	5.70	5.90	0.20	NC
	03/24/06	14.14	5.98	6.27	0.29	NC
	07/28/06	14.14	7.88	8.35	0.47	NC
	11/29/06	NA	10.58	10.81	0.23	NA
	06/01/07	16.29	11.11	11.45	0.34	NC
	11/14/07	16.29	10.87	10.93	0.06	NC
<b>MW-2</b>						
	12/31/97	14.36	NP	8.73	0.00	5.63
	04/13/98	14.36	NP	7.72	0.00	6.64
	11/06/98	14.36	NP	9.43	0.00	4.93
	03/19/99	14.36	NP	8.21	0.00	6.15
	06/24/99	14.36	NP	8.91	0.00	5.45
	09/28/99	14.36	NP	9.42	0.00	4.94
	11/12/99	14.36	NP	9.63	0.00	4.73
	02/11/00	14.36	NP	8.54	0.00	5.82
	05/22/00	14.36	NP	8.10	0.00	6.26
	09/06/00	14.36	NP	8.79	0.00	5.57
	12/19/00	14.36	NP	9.19	0.00	5.17
	02/21/01	14.36	NP	7.99	0.00	6.37
	04/03/01	14.36	NP	8.23	0.00	6.13
	07/10/01	14.36	NP	8.70	0.00	5.66
	12/12/01	14.36	NP	8.16	0.00	6.20
	01/22/02	14.36	NP	7.64	0.00	6.72
	03/08/02	14.36	NP	8.31	0.00	6.05
	06/13/02	14.36	NP	8.64	0.00	5.72

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Elevation <sup>1</sup> Top of Casing (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
<b>MW-2</b>	09/26/02	14.36	NP	8.95	0.00	5.41
	12/12/02	14.36	NP	9.17	0.00	5.19
	03/17/03	14.36	NP	7.77	0.00	6.59
	06/18/03	14.36	NP	8.44	0.00	5.92
	09/03/03	14.36	NP	8.98	0.00	5.38
	11/26/03	17.21	NP	12.01	0.00	5.20
	03/05/04	17.21	NP	9.75	0.00	7.46
	06/02/04	17.21	NP	11.22	0.00	5.99
	09/03/04	17.21	NP	11.62	0.00	5.59
	12/16/04	17.21	NP	10.80	0.00	6.41
	03/29/05	17.21	NP	9.67	0.00	7.54
	06/14/05	17.21	NP	10.68	0.00	6.53
	08/10/05	17.21	NP	11.05	0.00	6.16
	09/29/05	17.21	NP	11.32	0.00	5.89
	12/21/05	16.96	NP	9.57	0.00	7.39
	03/24/06	16.96	NP	9.55	0.00	7.41
	07/28/06	16.96	NP	10.85	0.00	6.11
	11/29/06	NA	NP	11.69	0.00	NA
	06/01/07	16.92	NP	11.72	0.00	5.20
	11/14/07	16.92	NP	12.28	0.00	4.64
<b>MW-3</b>						
	11/06/98	14.22	8.84	9.94	1.10	NC
	03/19/99	14.22	7.52	8.05	0.53	NC
	06/24/99	14.22	8.38	8.56	0.18	NC
	11/12/99	14.22	9.14	9.23	0.09	NC
	02/11/00	14.22	7.97	8.37	0.40	NC
	03/01/00	14.22	6.59	7.24	0.65	NC
	03/21/00	14.22	6.50	6.56	0.06	NC
	05/22/00	14.22	7.51	8.05	0.54	NC
	06/26/00	14.22	7.82	8.20	0.38	NC
	07/25/00	14.22	7.90	8.92	1.02	NC
	08/31/00	14.22	8.15	9.50	1.35	NC
	09/06/00	14.22	8.21	9.42	1.21	NC
	09/21/00	14.22	8.30	8.88	0.58	NC
	12/19/00	14.22	8.60	9.65	1.05	NC
	02/22/01	14.22	6.36	8.15	1.79	NC
	04/03/01	14.22	7.48	8.88	1.40	NC
	04/23/01	14.22	7.85	9.10	1.25	NC
	05/30/01	14.22	7.75	9.10	1.35	NC
	07/10/01	14.22	8.10	9.60	1.50	NC
	03/08/02	14.22	7.80	8.00	0.20	NC
	04/03/02	14.22	7.60	7.70	0.10	NC
	04/23/02	14.22	7.90	8.40	0.50	NC
	04/25/02	14.22	7.90	8.80	0.90	NC
	05/10/02	14.22	8.10	8.20	0.10	NC

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Elevation <sup>1</sup> Top of Casing (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
<b>MW-3</b>	05/24/02	14.22	8.05	8.10	0.05	NC
	06/13/02	14.22	8.10	8.70	0.60	NC
	07/05/02	14.22	8.10	8.95	0.85	NC
	07/19/02	14.22	8.10	8.90	0.80	NC
	07/30/02	14.22	8.10	8.90	0.80	NC
	08/14/02	14.22	8.10	8.90	0.80	NC
	09/13/02	14.22	8.30	9.30	1.00	NC
	09/26/02	14.22	8.30	9.00	0.70	NC
	10/14/02	14.22	8.60	9.50	0.90	NC
	11/04/02	14.22	8.75	9.99	1.24	NC
	11/21/02	14.22	8.59	11.29	2.70	NC
	12/06/02	14.22	8.56	9.30	0.74	NC
	12/18/02	14.22	7.35	8.43	1.08	NC
	12/30/02	14.22	6.50	7.15	0.65	NC
	01/02/03	14.22	6.20	6.20	0.00	8.02
	01/03/03	14.22	6.21	6.21	0.00	8.01
	01/14/03	14.22	6.20	6.21	0.01	8.01
	01/30/03	14.22	6.81	6.85	0.04	7.37
	02/18/02	14.22	7.09	7.15	0.06	NC
	02/26/03	14.22	7.04	7.11	0.07	NC
	03/13/03	14.22	7.22	8.11	0.89	NC
	03/17/03	14.22	7.15	7.50	0.35	NC
	04/16/03	14.22	7.27	8.25	0.98	NC
	06/18/03	14.22	7.78	9.00	1.22	NC
	09/03/03	14.22	8.31	9.96	1.65	NC
	11/26/03	16.18	10.79	12.85	2.06	NC
	03/05/04	16.18	8.39	9.85	1.46	NC
	06/02/04	16.18	10.03	11.35	1.32	NC
	09/03/04	16.18	10.46	12.06	1.60	NC
	12/16/04	16.18	9.41	10.38	0.97	NC
	03/29/05	16.18	8.17	9.01	0.84	NC
	06/14/05	16.18	9.59	10.55	0.96	NC
	08/10/05	16.18	9.91	11.15	1.24	NC
	09/29/05	16.18	10.21	11.61	1.40	NC
	12/21/05	16.18	8.21	8.28	0.07	NC
	03/24/06	16.18	8.20	8.82	0.62	NC
	07/28/06	16.18	9.81	9.83	0.02	NC
	11/29/06	NA	10.72	11.70	0.98	NA
	06/01/07	16.15	10.77	11.46	0.69	NC
	11/14/07	16.15	10.98	12.19	1.21	NC
<b>MW-4</b>						
	12/31/97	13.15	NP	7.09	0.0	6.06
	04/13/98	13.15	NP	7.71	0.0	5.44
	11/06/98	13.15	NP	8.69	0.0	4.46
	03/19/99	13.15	NP	8.00	0.0	5.15

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Elevation <sup>1</sup> Top of Casing (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
<b>MW-4</b>	06/24/99	13.15	NP	8.45	0.0	4.70
	09/28/99	13.15	NP	8.73	0.0	4.42
	11/12/99	13.15	NP	8.83	0.0	4.32
	02/11/00	13.15	NP	7.71	0.0	5.44
	05/22/00	13.15	NP	8.09	0.0	5.06
	09/06/00	13.15	NP	8.32	0.0	4.83
	12/19/00	13.15	NP	8.47	0.0	4.68
	02/21/01	13.15	NP	7.51	0.0	5.64
	04/03/01	13.15	NP	8.13	0.0	5.02
	07/10/01	13.15	NP	8.12	0.0	5.03
	12/12/01	13.15	NP	7.65	0.0	5.50
	01/22/02	13.15	NP	7.60	0.0	5.55
	03/08/02	13.15	NP	7.96	0.0	5.19
	06/13/02	13.15	NP	8.20	0.0	4.95
	09/26/02	13.15	NP	8.21	0.0	4.94
	12/12/02	13.15	NP	8.38	0.0	4.77
	03/17/03	13.15	NP	7.72	0.0	5.43
	06/18/03	13.15	NP	8.02	0.0	5.13
	09/03/03	13.15	NP	8.29	0.0	4.86
	11/26/03	13.15	NP	8.69	0.0	4.46
	03/05/04	13.15	NP	7.45	0.0	5.70
	06/02/04	13.15	NP	8.25	0.0	4.90
	09/03/04	13.15	NP	8.31	0.0	4.84
	12/16/04	13.15	NP	7.96	0.0	5.19
	03/29/05	13.15	NP	7.11	0.0	6.04
	06/14/05	13.15	NP	7.90	0.0	5.25
	08/10/05	13.15	NP	7.86	0.0	5.29
	09/29/05	13.15	NP	8.00	0.0	5.15
	12/21/05	13.15	NP	7.30	0.0	5.85
	03/24/06	13.15	NP	7.05	0.0	6.10
	07/28/06	13.15	NP	7.92	0.0	5.23
	11/29/06	NA	NP	11.63	0.0	NA
	06/01/07	16.40	NP	11.82	0.0	4.58
	11/14/07	16.40	NP	11.88	0.0	4.52
<b>MW-5</b>						
	12/31/97	13.49	NP	6.38	0.0	7.11
	04/13/98	13.49	NP	5.56	0.0	7.93
	11/06/98	13.49	NP	6.59	0.0	6.90
	03/19/99	13.49	NP	6.20	0.0	7.29
	06/24/99	13.49	NP	6.73	0.0	6.76
	09/28/99	13.49	NP	6.91	0.0	6.58
	11/12/99	13.49	NP	7.06	0.0	6.43
	02/11/00	13.49	NP	7.00	0.0	6.49
	05/22/00	13.49	NP	6.21	0.0	7.28
	09/06/00	13.49	NP	6.56	0.0	6.93

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Elevation <sup>1</sup> Top of Casing (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
<b>MW-5</b>	12/19/00	13.49	NP	6.68	0.0	6.81
	02/21/01	13.49	NP	6.08	0.0	7.41
	04/03/01	13.49	NP	6.38	0.0	7.11
	07/10/01	13.49	NP	6.58	0.0	6.91
	12/12/01	13.49	NP	6.40	0.0	7.09
	01/22/02	13.49	NP	6.10	0.0	7.39
	03/08/02	13.49	NP	6.10	0.0	7.39
	06/13/02	13.49	NP	6.31	0.0	7.18
	09/26/02	13.49	NP	6.60	0.0	6.89
	12/12/02	13.49	NP	6.75	0.0	6.74
	03/17/03	13.49	NP	5.73	0.0	7.76
	06/18/03	13.49	NP	6.10	0.0	7.39
	09/03/03	13.49	NP	6.50	0.0	6.99
	11/26/03	13.49	NP	6.70	0.0	6.79
	03/05/04	13.49	NP	5.70	0.0	7.79
	06/02/04	13.49	NP	6.27	0.0	7.22
	09/03/04	13.49	NP	6.61	0.0	6.88
	12/16/04	13.49	NP	6.02	0.0	7.47
	03/29/05	13.49	NP	5.25	0.0	8.24
	06/14/05	13.49	NP	5.82	0.0	7.67
	08/10/05	13.49	NP	6.00	0.0	7.49
	09/29/05	13.49	NP	6.26	0.0	7.23
	12/21/05	13.49	NP	5.91	0.0	7.58
	03/24/06	13.49	NP	NA <sup>2</sup>	NA <sup>2</sup>	NA <sup>2</sup>
	07/28/06	13.49	NP	6.08	0.00	7.41
	11/29/06	NA	NP	9.39	0.00	NA
	06/01/07	15.89	NP	10.60	0.00	5.29
	11/14/07	15.89	NP	9.77	0.00	6.12
<b>MW-6</b>						
	06/24/99	14.00	NP	8.61	0.0	5.39
	09/28/99	14.00	NP	9.26	0.0	4.74
	11/12/99	14.00	NP	8.01	0.0	5.99
	02/11/00	14.00	NP	7.20	0.0	6.80
	05/22/00	14.00	NP	7.13	0.0	6.87
	09/06/00	14.00	NP	7.12	0.0	6.88
	12/19/00	14.00	NP	7.57	0.0	6.43
	02/21/01	14.00	NP	7.50	0.0	6.50
	04/03/01	14.00	NP	6.88	0.0	7.12
	07/10/01	14.00	NP	7.15	0.0	6.85
	12/12/01	14.00	NP	9.50	0.0	4.50
	01/22/02	14.00	NP	6.69	0.0	7.31
	03/08/02	14.00	NP	6.98	0.0	7.02
	06/13/02	14.00	NP	7.45	0.0	6.55
	09/26/02	14.00	NP	7.95	0.0	6.05



**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 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	12/12/02	14.00	NP	7.71	0.0	6.29
	12/18/02	Monitoring well was destroyed				
<b>MW-7</b>						
	12/31/97	14.35	NP	8.88	0.0	5.47
	04/13/98	14.35	NP	7.86	0.0	6.49
	11/06/98	14.35	NP	9.55	0.0	4.8
	03/19/99	14.35	NP	8.41	0.0	5.94
	06/24/99	14.35	NP	9.08	0.0	5.27
	09/28/99	14.35	NP	9.60	0.0	4.75
	11/12/99	14.35	NP	9.77	0.0	4.58
	02/11/00	14.35	NP	8.67	0.0	5.68
	05/22/00	14.35	NP	8.43	0.0	5.92
	09/06/00	14.35	NP	8.88	0.0	5.47
	12/19/00	14.35	NP	9.21	0.0	5.14
	02/21/01	14.35	NP	8.13	0.0	6.22
	04/03/01	14.35	NP	8.45	0.0	5.9
	07/10/01	14.35	NP	8.87	0.0	5.48
	12/12/01	14.35	NP	8.39	0.0	5.96
	01/22/02	14.35	NP	7.99	0.0	6.36
	03/08/02	14.35	NP	8.51	0.0	5.84
	06/13/02	14.35	NP	8.90	0.0	5.45
	09/26/02	14.35	NP	9.00	0.0	5.35
	12/12/02	14.35	NP	9.28	0.0	5.07
	12/18/02	Monitoring well was destroyed				
<b>MW-8 <sup>3</sup></b>						
	12/31/97	12.94	8.49	8.82	0.33	NC
	11/06/98	12.94	9.25	10.30	1.05	NC
	11/21/98	Monitoring well was destroyed				
<b>MW-8A</b>						
	12/12/01	12.94	NP	7.20	0.0	NA
	01/22/02	12.94	NP	7.20	0.0	5.74
	03/08/02	12.94	NP	7.70	0.0	5.24
	06/13/02	12.94	NP	7.72	0.0	5.22
	09/26/02	12.94	NP	7.91	0.0	5.03
	12/12/02	12.94	NP	8.15	0.0	4.79
	03/17/03	12.94	NP	7.28	0.0	5.66
	06/18/03	12.94	NP	7.72	0.0	5.22
	09/03/03	12.94	NP	8.18	0.0	4.76
	11/26/03	12.94	NP	8.55	0.0	4.39
	03/05/04	12.94	NP	6.92	0.0	6.02
	06/02/04	12.94	NP	7.92	0.0	5.02
	09/03/04	12.94	NP	8.16	0.0	4.78
	12/16/04	12.94	NP	7.62	0.0	5.32
	03/29/05	12.94	NP	6.63	0.0	6.31
	06/14/05	12.94	NP	7.60	0.0	5.34
	08/10/05	12.94	NP	7.50	0.0	5.44
	09/29/05	12.94	NP	7.76	0.0	5.18

**TABLE C-1 : Groundwater Elevation Data  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Elevation <sup>1</sup> Top of Casing (feet)</b>	<b>Depth to Product (feet btc)</b>	<b>Depth to Water (feet btc)</b>	<b>Product Thickness (feet)</b>	<b>Groundwater Elevation <sup>1</sup> (feet)</b>
	12/21/05	12.94	NP	6.90	0.0	6.04
	03/24/06	12.94	NP	6.65	0.0	6.29
<b>MW-8A</b>	07/28/06	12.94	NP	7.34	0.0	6.65
	11/29/06	NA	NP	11.41	0.0	NA
	06/01/07	15.48	NP	11.26	0.0	4.22
	11/14/07	15.48	NP	11.40	0.0	4.08

Notes:

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

NP = no product detected with the interface probe

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

btc = below top of the well casing

NA = not available

NM = not measured

<sup>1</sup> Elevation data relative to Port of Oakland datum.

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

<sup>3</sup> Viscous product not related to the lighter product identified in other wells.

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-1	05/22/00	3,600	41,000	<3,000	100	13 <sup>8</sup>	2.9	2.05	3.2 <sup>8</sup>
MW-2	05/27/94	87	470	NA	<0.5	<0.5	<0.5	<0.5	NA
	03/29/95	<50	110	1,400	<0.4	<0.3	<0.3	<0.4	NA
	09/06/95	<50	NA	NA	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	<50	1200	<0.4	<0.3	<0.3	<0.4	NA
	04/04/96	<50	160	320	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	<50	120	1400	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	230 <sup>1,2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	<50	714	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	51	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	82	<50	<250	0.56	<0.5	<0.5	<1.0	NA
	12/31/97	<50	<47	<280	1.4	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<50	<300	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	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 <sup>2,6</sup>	<300	<0.5	<0.5	<0.5	<0.5	6.3 <sup>8,9</sup>
	02/11/00	<50	<50	<300	5.4	<0.5	<0.5	<0.5	<2
	05/22/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	09/06/00	<50	<50	<300	0.76 <sup>8</sup>	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
	12/19/00	200 <sup>3,11</sup>	<50	<300	39	1.8	<0.5	2.6	<0.5 <sup>10,12</sup>
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	12/05/01	<50	<50	<300	4.4	<0.5	<0.5	<0.5	5.0 <sup>14</sup>
	03/08/02	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	62 <sup>15</sup>	<57	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	69 <sup>2</sup>	<50	<500	1.8	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	<50	<300	0.98	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	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

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-2	09/29/05	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<0.5
	12/21/05	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	03/24/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	07/28/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/29/06	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	06/01/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
	11/14/07	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5
MW-3	Not sampled due to the presence of free-phase product								
MW-4	09/11/95	150	<200	500	23	<0.3	<0.3	<0.4	NA
	01/08/96	790	90	400	170	1.2	0.6	0.6	NA
	04/04/96	1,100	180	300	320	1.6	1.1	1.2	NA
	07/10/96	1,200	120	300	470	1.5	0.8	0.8	NA
	12/03/96	990	220 <sup>1,2</sup>	<250	350	3.3	1.3	1.3	NA
	03/28/97	440 <sup>2</sup>	<50	<250	190	1.2	0.64	<1.0	NA
	06/13/97	1,300	92 <sup>5</sup>	<250	500	5.5	3.4	2.8	NA
	09/18/97	1,300	150	<250	550	4.9	2.1	2.00	NA
	12/31/97	73 <sup>1,2,3</sup>	<47	<280	110 <sup>1</sup>	1.0 <sup>1</sup>	<0.5	<1.0	NA
	04/13/98	150 <sup>2,3</sup>	<50	<300	520	2.9	<2.5	<5.0	NA
	11/06/98	<50	<50	<300	250	1.7	<1.0	<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 <sup>3,5</sup>	<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 <sup>9</sup>
	02/11/00	200 <sup>2</sup>	<50	<300	58	0.73	<0.5	<0.5	4.4 <sup>8</sup>
	05/22/00	240	<50	<300	500	<2.5	<2.5	<2.5	17
	09/06/00	530 <sup>2,3</sup>	<50	<300	190	0.93	0.6	0.57	<0.5 <sup>10</sup>
	12/19/00	960 <sup>3,11</sup>	70 <sup>5</sup>	<300	420	<2.5	<2.5	<2.5	<0.5 <sup>10,12</sup>
	12/19/00	1,200 <sup>3,11</sup>	<50	<300	440	<2.5	<2.5	<2.5	<0.5 <sup>10,12</sup>
	02/21/01	450 <sup>13</sup>	<50	<300	120	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
	07/10/01	<250	110 <sup>2,13</sup>	<300	620	2.6	2.9	<2.5	<0.5 <sup>8,10</sup>
	12/05/01	180	<50	<300	61	<0.5	<0.5	<0.5	3.8 <sup>14</sup>
	03/08/02	490 <sup>2</sup>	54 <sup>2</sup>	<500	180	<2.5	<2.5	<2.5	<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 <sup>2</sup>	57	<500	150	2.1	<1.0	<1.0	<10
Dup.	09/26/02	500 <sup>2</sup>	<50 <sup>16</sup>	<500 <sup>16</sup>	200	1.5	<1.0	<1.0	<10
	12/12/02	580	<50	<300	240	1.4	0.56	<0.5	<2.0
Dup.	12/12/02	2,400	<50	<300	680	5.0	2.3	1.4	<2.0
	03/17/03	130 <sup>15</sup>	<50	<300	320 <sup>17</sup>	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
Dup.	03/17/03	82 <sup>15</sup>	<50	<300	190	0.64 <sup>17</sup>	0.56	0.53	<0.5 <sup>10</sup>
	06/18/03	360 <sup>11,15</sup>	<50	<300	150	<0.5	<0.5	<0.5	<2.0
Dup.	06/18/03	330 <sup>11,15</sup>	<50	<300	140	<0.5	<0.5	<0.5	<2.0
	09/03/03	140 <sup>11,15</sup>	<50	<300	240	1.3	<0.5	<0.5	<2.0

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MW-4 Dup.	09/03/03	83 <sup>11,15</sup>	<50	<300	130	0.58 <sup>17</sup>	<0.5	<0.5	<2.0
	11/26/03	160 <sup>15</sup>	68 <sup>15</sup>	<300	320	0.91 <sup>17</sup>	<0.5	0.53	<2.0
Dup.	11/26/03	120 <sup>15</sup>	<50	<300	210	0.66 <sup>17</sup>	<0.5	<0.5	<2.0
	03/05/04	90 <sup>11</sup>	<50	<300	190	1.1	0.55	0.50 <sup>17</sup>	23 <sup>14,17</sup> , <0.5 <sup>10</sup>
Dup.	03/05/04	84 <sup>11</sup>	<50	<300	180	0.81	<0.5	<0.5	21 <sup>14,17</sup> , <0.5 <sup>10</sup>
	06/02/04	620 <sup>13</sup>	<50	<300	210	0.55 <sup>17</sup>	<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 <sup>17</sup>	<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 <sup>17</sup>	0.69	0.75	<2.0
Dup.	12/16/04	670	<50	<300	230	1.3 <sup>17</sup>	<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 <sup>18</sup>	<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 <sup>18</sup>	<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	100 <sup>13,15</sup>	<50	<300	10	<0.5	<0.5	<0.5	<0.5
Dup.	06/01/07	100 <sup>13,15</sup>	<50	<300	11	<0.5	<0.5	<0.5	<0.5
	01/14/07	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
MW-5	09/11/95	90	<300	2,500	3.3	<0.3	<0.3	<0.4	NA
	04/04/96	<50	180	520	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	<50	120	1,500	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	200 <sup>1,2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	<50	<50	<250	<0.5	<0.5	<0.5	<1.0	NA
	12/31/97	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<47	<280	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	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
	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 <sup>9</sup>

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-5	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 <sup>10</sup>
	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 <sup>14</sup> , <0.5 <sup>10</sup>
	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 <sup>14</sup> , <0.5 <sup>10</sup>
	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 <sup>15,22</sup>	<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
MW-6	11/06/98	120	12,000	1,200	19	0.65	1.8	<0.5	<2
	03/19/99	170	3,800	580	21	0.86	1.5	2.9	<2
	06/24/99	120	1,700 <sup>7</sup>	<300 <sup>7</sup>	18	<0.5	1.0	<0.5	54
	09/28/99	130 <sup>3,5</sup>	820	<300	20	0.51	2.2	<0.5	<2
	11/12/99	150	11,000 <sup>2,6</sup>	3,000 <sup>3,6</sup>	27	<0.5	2.2	<0.5	13 <sup>9</sup>
	02/11/00	270 <sup>2</sup>	2,300	<300	23	0.51	2.7	<0.5	5.8
	05/22/00	350	3,000	<300	18	0.51	<0.5	<0.5	7.7
	09/06/00	190	610	<300	26	<0.5	1.7	<0.5	<0.5 <sup>10</sup>
	12/19/00	130 <sup>3,11</sup>	620	<300	24	<0.5	1.6	<0.5	<2
	02/21/01	120 <sup>13</sup>	440	<300	21	<0.5	0.96	<0.5	<2
	07/10/01	120	560	<300	29	<0.5	0.99	<0.5	<2
	12/12/01	53	550	<300	27	<0.5	1.3	<0.5	<2.0
	03/08/02	160 <sup>2</sup>	640 <sup>2</sup>	<500	30	<0.5	<0.5	<0.5	5.0 <sup>14</sup>
	06/13/02	160 <sup>2</sup>	670 <sup>2</sup>	<500	34	<0.5	<0.5	<0.5	<5.0
	09/26/02	230 <sup>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	Monitoring well was destroyed							

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-7	09/06/95	<50	<300	800	<0.4	<0.3	<0.3	<0.4	NA
	01/08/96	<50	410	110	<0.4	<0.3	<0.3	<0.4	NA
	04/04/96	<50	530	340	<0.5	<0.5	<0.5	<1.0	NA
	07/10/96	80	840	1,700	<0.4	<0.3	<0.3	<0.4	NA
	12/03/96	<50	280 <sup>1,2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA
	03/28/97	65 <sup>6</sup>	94 <sup>2</sup>	<250	<0.5	<0.5	<0.5	<1.0	NA
	06/13/97	<50	100	<250	<0.5	<0.5	<0.5	<1.0	NA
	09/18/97	<50	240	<250	<0.5	<0.5	<0.5	<1.0	NA
	12/31/97	<50	53 <sup>2,3</sup>	<280	<0.5	<0.5	<0.5	<1.0	NA
	04/13/98	<50	<48	<290	<0.5	<0.5	<0.5	<1.0	NA
	11/06/98	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<2
	03/19/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	5.3
	06/24/99	73	<50	<300	<0.5	<0.5	<0.5	<0.5	12
	09/28/99	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	14
	11/12/99	<50	600 <sup>2,6</sup>	420 <sup>3</sup>	<0.5	<0.5	<0.5	<0.5	15 <sup>9</sup>
	02/11/00	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	51
	05/22/00	110	53 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	75
	09/06/00	50 <sup>6</sup>	<50	<300	<0.5	<0.5	<0.5	<0.5	40 <sup>10</sup>
	12/19/00	54 <sup>11</sup>	51 <sup>5</sup>	<300	<0.5	<0.5	<0.5	<0.5	47 <sup>10,12</sup>
	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	66 <sup>10</sup>
Dup.	02/21/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	60 <sup>10</sup>
	07/10/01	<50	51 <sup>2</sup>	<300	<0.5	<0.5	<0.5	<0.5	76 <sup>10</sup>
Dup.	07/10/01	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>
	12/12/01	51	<50	<300	<0.5	<0.5	<0.5	<0.5	98 <sup>14</sup>
Dup.	12/12/01	64	52 <sup>13,15</sup>	<300	<0.5	<0.5	<0.5	<0.5	96 <sup>14</sup>
	03/08/02	52 <sup>2</sup>	<50	<500	<0.5	<0.5	<0.5	<0.5	24 <sup>14</sup>
	06/13/02	87 <sup>2</sup>	54 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	51
	09/26/02	83 <sup>2</sup>	84 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	75 <sup>10</sup>
	12/12/02	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	58 <sup>14</sup>
MW-8A	12/12/01	68	720 <sup>11,15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/08/02	<50	760 <sup>2</sup>	<570	<0.5	<0.5	<0.5	<0.5	<5.0
Dup.	03/08/02	<50	350 <sup>2</sup>	<580	<0.5	<0.5	<0.5	<0.5	<5.0
	06/13/02	<50	570 <sup>2</sup>	<570	<0.5	<0.5	<0.5	<0.5	<5.0
	09/26/02	<50	410 <sup>2</sup>	<500	<0.5	<0.5	<0.5	<0.5	<5.0
	12/12/02	<50	160 <sup>15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0
	03/17/03	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5 <sup>10</sup>
	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 <sup>14</sup> / <sup>&lt;0.5</sup> <sup>10</sup>
	11/26/03	<50	94 <sup>15</sup>	<300	<0.5	<0.5	<0.5	<0.5	<2.0

**TABLE C-2: Groundwater Analytical Results (µg/L)**  
**Port of Oakland, 651 and 555 Maritime Street**  
**Oakland, California**

Well ID	Date	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE
MW-8A	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 <sup>15, 19</sup>	<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 <sup>15, 22</sup>	<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 <sup>15</sup>	<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



**TABLE C-2: Groundwater Analytical Results ( $\mu\text{g/L}$ )  
Port of Oakland, 651 and 555 Maritime Street  
Oakland, California**

Notes:

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

$\mu\text{g/L}$  = 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>1</sup> Analyte found in the associated blank as well as in the sample.

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

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

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

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

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

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

<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>9</sup> Trip blank contained MTBE at a concentration of 4.2  $\mu\text{g/L}$ .

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

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

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

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

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

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

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

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

<sup>20</sup> Gasoline compounds are significant.

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

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

**APPENDIX D**

**VACUUM DISCHARGE AIR SAMPLE RESULTS**



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## **Air Toxics Ltd. Introduces the Electronic Report**

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

**180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630**

**(916) 985-1000 .FAX (916) 985-1020  
Hours 8:00 A.M to 6:00 P.M. Pacific**



AN ENVIRONMENTAL ANALYTICAL LABORATORY

**WORK ORDER #: 0706403R1**

Work Order Summary

<b>CLIENT:</b>	Mr. Jim McCarty Baseline Environmental Consultants 5900 Hollis Street Suite D Emeryville, CA 94608	<b>BILL TO:</b>	Mr. Jim McCarty Baseline Environmental Consultants 5900 Hollis Street Suite D Emeryville, CA 94608
<b>PHONE:</b>	510-420-8686	<b>P.O. #</b>	
<b>FAX:</b>	510-420-1707	<b>PROJECT #</b>	Y5395-04 SAIC-NRC/HARBOR
<b>DATE RECEIVED:</b>	06/20/2007	<b>CONTACT:</b>	FACILITIES COMPLEX Kyle Vagadori
<b>DATE COMPLETED:</b>	06/28/2007		
<b>DATE REISSUED:</b>	07/26/2007		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	Inf-1	Modified TO-15	Tedlar Bag
02A	Eff-1	Modified TO-15	Tedlar Bag
03A	Eff-2	Modified TO-15	Tedlar Bag
04A	Lab Blank	Modified TO-15	NA
05A	CCV	Modified TO-15	NA
06A	LCS	Modified TO-15	NA

CERTIFIED BY: 

DATE: 07/26/07

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004  
NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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**LABORATORY NARRATIVE**  
**Modified TO-15**  
**Baseline Environmental Consultants**  
**Workorder# 0706403R1**

Three 1 Liter Tedlar Bag samples were received on June 20, 2007. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Daily CCV	+/- 30% Difference	<= 30% Difference with two allowed out up to <=40%.; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

There were no analytical discrepancies.

THE WORKORDER WAS REISSUED ON 7/26/2007 TO CORRECT THE REPORTED RESULT FOR BENZENE AND 2,2,4 -TRIMETHYLPENTANE IN SAMPLE Eff-2.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction no performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.

- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit.
- UJ- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue



AN ENVIRONMENTAL ANALYTICAL LABORATORY

## Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: Inf-1

Lab ID#: 0706403R1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	66	1300	210	4200
Toluene	66	120	250	440
Ethyl Benzene	66	140	290	620
m,p-Xylene	66	130	290	560
1,2,4-Trimethylbenzene	66	140	330	690
Hexane	66	9100	230	32000
Cyclohexane	66	8200	230	28000
Heptane	66	5400	270	22000
Acetone	270	3300	630	7900
2-Butanone (Methyl Ethyl Ketone)	66	180	200	550
4-Ethyltoluene	66	99	330	480
2,2,4-Trimethylpentane	66	13000	310	62000

Client Sample ID: Eff-1

Lab ID#: 0706403R1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	80	1800	260	5700
Toluene	80	140	300	550
Hexane	80	11000	280	39000
Cyclohexane	80	9300	280	32000
Heptane	80	9000	330	37000
Acetone	320	4900	760	12000
2-Butanone (Methyl Ethyl Ketone)	80	260	240	760
2,2,4-Trimethylpentane	80	21000	370	98000

Client Sample ID: Eff-2

Lab ID#: 0706403R1-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	100	130	320	430
Toluene	100	150	380	560
Hexane	100	16000	350	58000
Cyclohexane	100	12000	340	42000
Heptane	100	6700	410	28000
Acetone	400	2900	950	6900



AN ENVIRONMENTAL ANALYTICAL LABORATORY

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**Summary of Detected Compounds**  
**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

**Client Sample ID: Eff-2**

**Lab ID#: 0706403R1-03A**

2-Butanone (Methyl Ethyl Ketone)	100	190	290	550
2,2,4-Trimethylpentane	100	22000	470	100000





AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Inf-1

Lab ID#: 0706403R1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062015	Date of Collection:	6/18/07
Dil. Factor:	133	Date of Analysis:	6/20/07 07:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	66	Not Detected	330	Not Detected
Freon 114	66	Not Detected	460	Not Detected
Vinyl Chloride	66	Not Detected	170	Not Detected
Bromomethane	66	Not Detected	260	Not Detected
Chloroethane	66	Not Detected	180	Not Detected
Freon 11	66	Not Detected	370	Not Detected
1,1-Dichloroethene	66	Not Detected	260	Not Detected
Freon 113	66	Not Detected	510	Not Detected
Methylene Chloride	66	Not Detected	230	Not Detected
1,1-Dichloroethane	66	Not Detected	270	Not Detected
cis-1,2-Dichloroethene	66	Not Detected	260	Not Detected
Chloroform	66	Not Detected	320	Not Detected
1,1,1-Trichloroethane	66	Not Detected	360	Not Detected
Carbon Tetrachloride	66	Not Detected	420	Not Detected
Benzene	66	1300	210	4200
1,2-Dichloroethane	66	Not Detected	270	Not Detected
Trichloroethene	66	Not Detected	360	Not Detected
1,2-Dichloropropane	66	Not Detected	310	Not Detected
cis-1,3-Dichloropropene	66	Not Detected	300	Not Detected
Toluene	66	120	250	440
trans-1,3-Dichloropropene	66	Not Detected	300	Not Detected
1,1,2-Trichloroethane	66	Not Detected	360	Not Detected
Tetrachloroethene	66	Not Detected	450	Not Detected
1,2-Dibromoethane (EDB)	66	Not Detected	510	Not Detected
Chlorobenzene	66	Not Detected	310	Not Detected
Ethyl Benzene	66	140	290	620
m,p-Xylene	66	130	290	560
o-Xylene	66	Not Detected	290	Not Detected
Styrene	66	Not Detected	280	Not Detected
1,1,2,2-Tetrachloroethane	66	Not Detected	460	Not Detected
1,3,5-Trimethylbenzene	66	Not Detected	330	Not Detected
1,2,4-Trimethylbenzene	66	140	330	690
1,3-Dichlorobenzene	66	Not Detected	400	Not Detected
1,4-Dichlorobenzene	66	Not Detected	400	Not Detected
alpha-Chlorotoluene	66	Not Detected	340	Not Detected
1,2-Dichlorobenzene	66	Not Detected	400	Not Detected
1,3-Butadiene	66	Not Detected	150	Not Detected
Hexane	66	9100	230	32000
Cyclohexane	66	8200	230	28000



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Inf-1

Lab ID#: 0706403R1-01A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>7062015</b>	<b>Date of Collection:</b> 6/18/07
<b>Dil. Factor:</b>	<b>133</b>	<b>Date of Analysis:</b> 6/20/07 07:08 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Heptane	66	5400	270	22000
Bromodichloromethane	66	Not Detected	440	Not Detected
Dibromochloromethane	66	Not Detected	570	Not Detected
Cumene	66	Not Detected	330	Not Detected
Propylbenzene	66	Not Detected	330	Not Detected
Chloromethane	270	Not Detected	550	Not Detected
1,2,4-Trichlorobenzene	270	Not Detected	2000	Not Detected
Hexachlorobutadiene	270	Not Detected	2800	Not Detected
Acetone	270	3300	630	7900
Carbon Disulfide	66	Not Detected	210	Not Detected
2-Propanol	270	Not Detected	650	Not Detected
trans-1,2-Dichloroethene	66	Not Detected	260	Not Detected
2-Butanone (Methyl Ethyl Ketone)	66	180	200	550
Tetrahydrofuran	66	Not Detected	200	Not Detected
1,4-Dioxane	270	Not Detected	960	Not Detected
4-Methyl-2-pentanone	66	Not Detected	270	Not Detected
2-Hexanone	270	Not Detected	1100	Not Detected
Bromoform	66	Not Detected	690	Not Detected
4-Ethyltoluene	66	99	330	480
Ethanol	270	Not Detected	500	Not Detected
Methyl tert-butyl ether	66	Not Detected	240	Not Detected
3-Chloropropene	270	Not Detected	830	Not Detected
2,2,4-Trimethylpentane	66	13000	310	62000
Naphthalene	270	Not Detected	1400	Not Detected

**Container Type: 1 Liter Tedlar Bag**

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	117	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Eff-1

Lab ID#: 0706403R1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062017	Date of Collection:	6/18/07
Dil. Factor:	160	Date of Analysis:	6/20/07 08:59 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	80	Not Detected	400	Not Detected
Freon 114	80	Not Detected	560	Not Detected
Vinyl Chloride	80	Not Detected	200	Not Detected
Bromomethane	80	Not Detected	310	Not Detected
Chloroethane	80	Not Detected	210	Not Detected
Freon 11	80	Not Detected	450	Not Detected
1,1-Dichloroethene	80	Not Detected	320	Not Detected
Freon 113	80	Not Detected	610	Not Detected
Methylene Chloride	80	Not Detected	280	Not Detected
1,1-Dichloroethane	80	Not Detected	320	Not Detected
cis-1,2-Dichloroethene	80	Not Detected	320	Not Detected
Chloroform	80	Not Detected	390	Not Detected
1,1,1-Trichloroethane	80	Not Detected	440	Not Detected
Carbon Tetrachloride	80	Not Detected	500	Not Detected
Benzene	80	1800	260	5700
1,2-Dichloroethane	80	Not Detected	320	Not Detected
Trichloroethene	80	Not Detected	430	Not Detected
1,2-Dichloropropane	80	Not Detected	370	Not Detected
cis-1,3-Dichloropropene	80	Not Detected	360	Not Detected
Toluene	80	140	300	550
trans-1,3-Dichloropropene	80	Not Detected	360	Not Detected
1,1,2-Trichloroethane	80	Not Detected	440	Not Detected
Tetrachloroethene	80	Not Detected	540	Not Detected
1,2-Dibromoethane (EDB)	80	Not Detected	610	Not Detected
Chlorobenzene	80	Not Detected	370	Not Detected
Ethyl Benzene	80	Not Detected	350	Not Detected
m,p-Xylene	80	Not Detected	350	Not Detected
o-Xylene	80	Not Detected	350	Not Detected
Styrene	80	Not Detected	340	Not Detected
1,1,2,2-Tetrachloroethane	80	Not Detected	550	Not Detected
1,3,5-Trimethylbenzene	80	Not Detected	390	Not Detected
1,2,4-Trimethylbenzene	80	Not Detected	390	Not Detected
1,3-Dichlorobenzene	80	Not Detected	480	Not Detected
1,4-Dichlorobenzene	80	Not Detected	480	Not Detected
alpha-Chlorotoluene	80	Not Detected	410	Not Detected
1,2-Dichlorobenzene	80	Not Detected	480	Not Detected
1,3-Butadiene	80	Not Detected	180	Not Detected
Hexane	80	11000	280	39000
Cyclohexane	80	9300	280	32000



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Eff-1

Lab ID#: 0706403R1-02A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>7062017</b>	<b>Date of Collection:</b> 6/18/07
<b>Dil. Factor:</b>	<b>160</b>	<b>Date of Analysis:</b> 6/20/07 08:59 PM

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (uG/m3)</b>	<b>Amount (uG/m3)</b>
Heptane	80	9000	330	37000
Bromodichloromethane	80	Not Detected	540	Not Detected
Dibromochloromethane	80	Not Detected	680	Not Detected
Cumene	80	Not Detected	390	Not Detected
Propylbenzene	80	Not Detected	390	Not Detected
Chloromethane	320	Not Detected	660	Not Detected
1,2,4-Trichlorobenzene	320	Not Detected	2400	Not Detected
Hexachlorobutadiene	320	Not Detected	3400	Not Detected
Acetone	320	4900	760	12000
Carbon Disulfide	80	Not Detected	250	Not Detected
2-Propanol	320	Not Detected	790	Not Detected
trans-1,2-Dichloroethene	80	Not Detected	320	Not Detected
2-Butanone (Methyl Ethyl Ketone)	80	260	240	760
Tetrahydrofuran	80	Not Detected	240	Not Detected
1,4-Dioxane	320	Not Detected	1200	Not Detected
4-Methyl-2-pentanone	80	Not Detected	330	Not Detected
2-Hexanone	320	Not Detected	1300	Not Detected
Bromoform	80	Not Detected	830	Not Detected
4-Ethyltoluene	80	Not Detected	390	Not Detected
Ethanol	320	Not Detected	600	Not Detected
Methyl tert-butyl ether	80	Not Detected	290	Not Detected
3-Chloropropene	320	Not Detected	1000	Not Detected
2,2,4-Trimethylpentane	80	21000	370	98000
Naphthalene	320	Not Detected	1700	Not Detected

**Container Type: 1 Liter Tedlar Bag**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	123	70-130
4-Bromofluorobenzene	104	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Eff-2

Lab ID#: 0706403R1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062018R1	Date of Collection:	6/18/07
Dil. Factor:	200	Date of Analysis:	6/20/07 09:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	100	Not Detected	490	Not Detected
Freon 114	100	Not Detected	700	Not Detected
Vinyl Chloride	100	Not Detected	260	Not Detected
Bromomethane	100	Not Detected	390	Not Detected
Chloroethane	100	Not Detected	260	Not Detected
Freon 11	100	Not Detected	560	Not Detected
1,1-Dichloroethene	100	Not Detected	400	Not Detected
Freon 113	100	Not Detected	770	Not Detected
Methylene Chloride	100	Not Detected	350	Not Detected
1,1-Dichloroethane	100	Not Detected	400	Not Detected
cis-1,2-Dichloroethene	100	Not Detected	400	Not Detected
Chloroform	100	Not Detected	490	Not Detected
1,1,1-Trichloroethane	100	Not Detected	540	Not Detected
Carbon Tetrachloride	100	Not Detected	630	Not Detected
Benzene	100	130	320	430
1,2-Dichloroethane	100	Not Detected	400	Not Detected
Trichloroethene	100	Not Detected	540	Not Detected
1,2-Dichloropropane	100	Not Detected	460	Not Detected
cis-1,3-Dichloropropene	100	Not Detected	450	Not Detected
Toluene	100	150	380	560
trans-1,3-Dichloropropene	100	Not Detected	450	Not Detected
1,1,2-Trichloroethane	100	Not Detected	540	Not Detected
Tetrachloroethene	100	Not Detected	680	Not Detected
1,2-Dibromoethane (EDB)	100	Not Detected	770	Not Detected
Chlorobenzene	100	Not Detected	460	Not Detected
Ethyl Benzene	100	Not Detected	430	Not Detected
m,p-Xylene	100	Not Detected	430	Not Detected
o-Xylene	100	Not Detected	430	Not Detected
Styrene	100	Not Detected	420	Not Detected
1,1,2,2-Tetrachloroethane	100	Not Detected	690	Not Detected
1,3,5-Trimethylbenzene	100	Not Detected	490	Not Detected
1,2,4-Trimethylbenzene	100	Not Detected	490	Not Detected
1,3-Dichlorobenzene	100	Not Detected	600	Not Detected
1,4-Dichlorobenzene	100	Not Detected	600	Not Detected
alpha-Chlorotoluene	100	Not Detected	520	Not Detected
1,2-Dichlorobenzene	100	Not Detected	600	Not Detected
1,3-Butadiene	100	Not Detected	220	Not Detected
Hexane	100	16000	350	58000
Cyclohexane	100	12000	340	42000



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Eff-2

Lab ID#: 0706403R1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062018R1	Date of Collection:	6/18/07
Dil. Factor:	200	Date of Analysis:	6/20/07 09:46 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Heptane	100	6700	410	28000
Bromodichloromethane	100	Not Detected	670	Not Detected
Dibromochloromethane	100	Not Detected	850	Not Detected
Cumene	100	Not Detected	490	Not Detected
Propylbenzene	100	Not Detected	490	Not Detected
Chloromethane	400	Not Detected	830	Not Detected
1,2,4-Trichlorobenzene	400	Not Detected	3000	Not Detected
Hexachlorobutadiene	400	Not Detected	4300	Not Detected
Acetone	400	2900	950	6900
Carbon Disulfide	100	Not Detected	310	Not Detected
2-Propanol	400	Not Detected	980	Not Detected
trans-1,2-Dichloroethene	100	Not Detected	400	Not Detected
2-Butanone (Methyl Ethyl Ketone)	100	190	290	550
Tetrahydrofuran	100	Not Detected	290	Not Detected
1,4-Dioxane	400	Not Detected	1400	Not Detected
4-Methyl-2-pentanone	100	Not Detected	410	Not Detected
2-Hexanone	400	Not Detected	1600	Not Detected
Bromoform	100	Not Detected	1000	Not Detected
4-Ethyltoluene	100	Not Detected	490	Not Detected
Ethanol	400	Not Detected	750	Not Detected
Methyl tert-butyl ether	100	Not Detected	360	Not Detected
3-Chloropropene	400	Not Detected	1200	Not Detected
2,2,4-Trimethylpentane	100	22000	470	100000
Naphthalene	400	Not Detected	2100	Not Detected

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	128	70-130
4-Bromofluorobenzene	105	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0706403R1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/20/07 11:26 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0706403R1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/20/07 11:26 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Heptane	0.50	Not Detected	2.0	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	93	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	100	70-130





AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0706403R1-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/20/07 09:05 AM

Compound	%Recovery
Freon 12	91
Freon 114	94
Vinyl Chloride	87
Bromomethane	86
Chloroethane	80
Freon 11	95
1,1-Dichloroethene	89
Freon 113	94
Methylene Chloride	87
1,1-Dichloroethane	90
cis-1,2-Dichloroethene	96
Chloroform	101
1,1,1-Trichloroethane	103
Carbon Tetrachloride	109
Benzene	102
1,2-Dichloroethane	106
Trichloroethene	105
1,2-Dichloropropane	100
cis-1,3-Dichloropropene	103
Toluene	102
trans-1,3-Dichloropropene	110
1,1,2-Trichloroethane	108
Tetrachloroethene	121
1,2-Dibromoethane (EDB)	113
Chlorobenzene	110
Ethyl Benzene	102
m,p-Xylene	103
o-Xylene	100
Styrene	101
1,1,2,2-Tetrachloroethane	98
1,3,5-Trimethylbenzene	95
1,2,4-Trimethylbenzene	95
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	90
1,2-Dichlorobenzene	95
1,3-Butadiene	85
Hexane	82
Cyclohexane	95



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0706403R1-05A

**MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

<b>File Name:</b>	<b>7062002</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 6/20/07 09:05 AM</b>

<b>Compound</b>	<b>%Recovery</b>
Heptane	97
Bromodichloromethane	107
Dibromochloromethane	120
Cumene	98
Propylbenzene	96
Chloromethane	98
1,2,4-Trichlorobenzene	79
Hexachlorobutadiene	80
Acetone	77
Carbon Disulfide	88
2-Propanol	79
trans-1,2-Dichloroethene	89
2-Butanone (Methyl Ethyl Ketone)	90
Tetrahydrofuran	91
1,4-Dioxane	94
4-Methyl-2-pentanone	93
2-Hexanone	91
Bromoform	118
4-Ethyltoluene	98
Ethanol	76
Methyl tert-butyl ether	97
3-Chloropropene	80
2,2,4-Trimethylpentane	98
Naphthalene	70

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	103	70-130



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0706403R1-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/20/07 09:46 AM

Compound	%Recovery
Freon 12	87
Freon 114	91
Vinyl Chloride	85
Bromomethane	85
Chloroethane	81
Freon 11	92
1,1-Dichloroethene	97
Freon 113	103
Methylene Chloride	95
1,1-Dichloroethane	91
cis-1,2-Dichloroethene	97
Chloroform	102
1,1,1-Trichloroethane	101
Carbon Tetrachloride	107
Benzene	104
1,2-Dichloroethane	108
Trichloroethene	105
1,2-Dichloropropane	100
cis-1,3-Dichloropropene	103
Toluene	108
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	109
Tetrachloroethene	123
1,2-Dibromoethane (EDB)	111
Chlorobenzene	111
Ethyl Benzene	102
m,p-Xylene	103
o-Xylene	101
Styrene	98
1,1,2,2-Tetrachloroethane	98
1,3,5-Trimethylbenzene	95
1,2,4-Trimethylbenzene	95
1,3-Dichlorobenzene	104
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	95
1,2-Dichlorobenzene	96
1,3-Butadiene	82
Hexane	82
Cyclohexane	95



AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0706403R1-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7062003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 6/20/07 09:46 AM

Compound	%Recovery
Heptane	99
Bromodichloromethane	108
Dibromochloromethane	122
Cumene	102
Propylbenzene	100
Chloromethane	96
1,2,4-Trichlorobenzene	85
Hexachlorobutadiene	85
Acetone	82
Carbon Disulfide	88
2-Propanol	79
trans-1,2-Dichloroethene	90
2-Butanone (Methyl Ethyl Ketone)	91
Tetrahydrofuran	90
1,4-Dioxane	92
4-Methyl-2-pentanone	93
2-Hexanone	89
Bromoform	121
4-Ethyltoluene	102
Ethanol	80
Methyl tert-butyl ether	89
3-Chloropropene	77
2,2,4-Trimethylpentane	97
Naphthalene	67

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	106	70-130

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 Emeryville, CA 94608  
 Tel: (510) 426-8686 Fax: (510) 420-1707

Turn-Around-Time STANDARD  
 Laboratory Air Toxics  
 BASELINE Contact Person Jim McCarty

Project Number		Project Name and Location:												0706403							
YS395-04		SAIC-NRC/HARBOR FACILITIES COMPLEX																			
Samplers: (Signature)		Containers												Remarks/ Composite							
James McCarty JAMES McCARTY		Type						Preservative													
Sample ID	No. Station	Date	Time	Media	No.	SS	Encore	Tedlar Bag	40-ml VOA	L-Poly	250 ml Poly	Glass Jar	Plastic Bag	Ice	HCl	NO <sub>3</sub>	SO <sub>4</sub>	NaOH	10-15 w/acetylalene		
Inf-1	OIA	06/18/07	4:10 PM	Gas				X												X	Blower discharge
Eff-1	OIA	06/18/07	4:11 PM	Gas				X												X	Carbon 1 discharge
Eff-2	OIA	06/18/07	4:12 PM	Gas				X												X	Carbon 2 discharge
<div style="border: 1px solid black; padding: 5px; display: inline-block;">                 CUSTODY SEAL INTACT?                  Y IN <u>NO</u> TEMP <u>NA</u> </div>																					
UPS 12 869 2E 0141735909																					
Relinquished by: (Signature)		Custody Seal		Date/Time		Received by: (Signature)				Custody Seal Intact				Conditions of Samples Upon Arrival at Laboratory:							
<i>James McCarty</i>		Yes (No)		6/19/07		<i>James McCarty</i>				Yes No NA				Results to							
Relinquished by: (Signature)		Custody Seal		Date/Time		Received by: (Signature)				Custody Seal Intact				Remarks:							
<i>James McCarty</i>		Yes (No)		6/20/07		<i>James McCarty</i>				Yes No NA				jim@baseline-env.com							
Relinquished by: (Signature)		Custody Seal		Date/Time		Received by: (Signature)				Custody Seal Intact				Comments:							
<i>James McCarty</i>		Yes No								Yes No NA											
Received at laboratory with intact custody seal (Signature)										Date/Time					Comments:						